H. D. PHILLIPS.

METALLIC CROSS TIE AND RAIL FASTENER.

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924,931 Patented June 15, 1909.

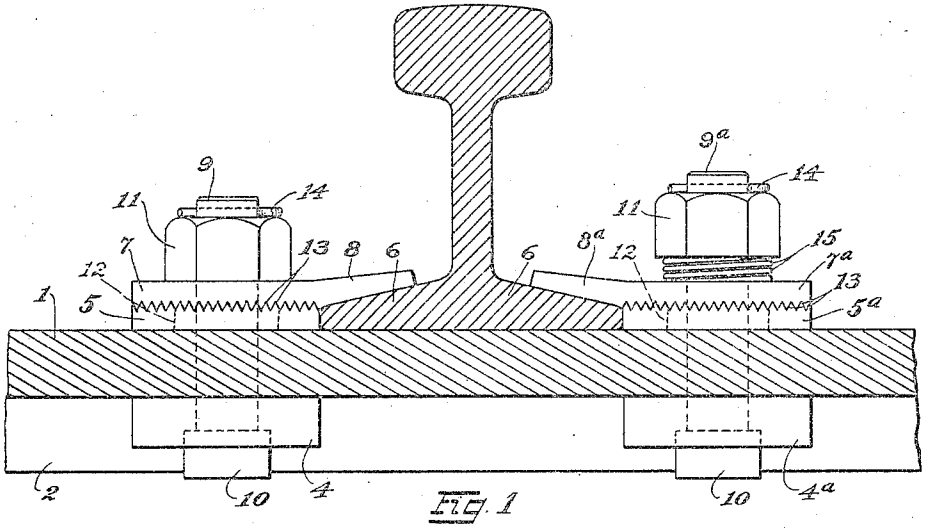


Fig. 1

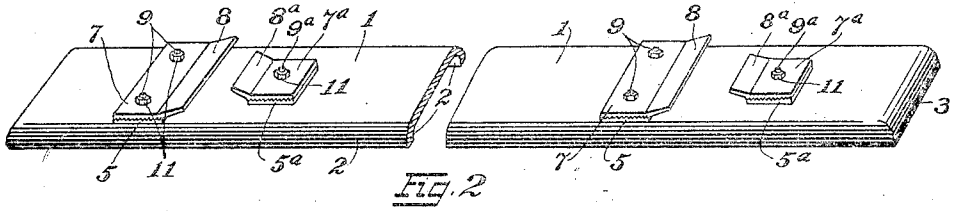


Fig. 2

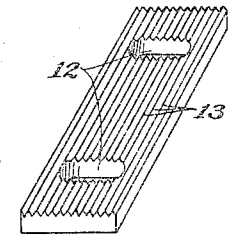


Fig. 4

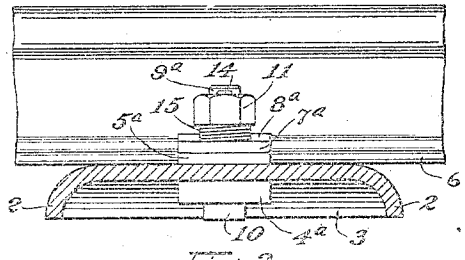


Fig. 3

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# UNITED STATES PATENT OFFICE.

HORACE D. PHILLIPS, OF NOTTINGHAM, OHIO.

## METALLIC CROSS-TIE AND RAIL-FASTENER.

No. 924,931. Specification of Letters Patent. Patented June 15, 1909.

Application filed February 17, 1909. Serial No. 478,514.

*To all whom it may concern:*

Be it known that I, HORACE D. PHILLIPS, a citizen of the United States, residing at Nottingham, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Metallic Cross-Ties and Rail-Fasteners, of which the following is a specification.

My invention relates to improvements in metallic cross-ties and rail-fasteners, the primary object of the invention being to provide a generally improved metallic cross-tie, and means for connecting the rails thereto, of simple, cheap, and efficient construction, better adapted to its intended purposes than any other device of the same class with which I am acquainted.

My invention relates more particularly to the fastening device for fastening the rail to the metallic cross-tie, designed not only to securely hold and maintain the rail in proper position on the cross-tie but providing means whereby the cross-tie and rails may be readily and quickly removed and replaced in their proper position in track construction work.

With the above mentioned objects in view, the invention in its present embodiment, consists in the novel construction, arrangement, and combination of parts, hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

Referring to the drawings, forming a part of this specification, Figure 1, is a longitudinal sectional view of a portion of a metallic cross-tie and rail-fastener constructed in accordance with my invention and applied to an ordinary railway rail. Fig. 2, a perspective view of the improved cross-tie and fasteners with rails removed. Fig. 3, a side elevation of one of the longitudinally-revoluble spring-pressed rail clamping members as it appears applied to an ordinary railway-rail. Fig. 4, a detail perspective view of one of the tie-blocks.

Similar numerals of reference designate like parts throughout all the figures of the drawings.

The improved metallic cross-tie is preferably made up of a single blank of sheet metal pressed into a main body or web portion 1, terminating at its sides and ends in downwardly and outwardly curved ballast engaging flanges 2, and 3.

The fastening devices for fastening the railway rails to the metallic cross-tie comprise bolt head-blocks 4, and $4^a$, mounted and carried beneath the main body portion 1, of the cross-tie, tie-blocks 5, and $5^a$, mounted on each side and abutting against the base flanges 6, of the rail, and rail-clamping members 7, and $7^a$, mounted on said tie-blocks 5, and $5^a$, and provided with clamping heads 8, and $8^a$, conforming to and taking over the base flanges 6, of the railway-rail.

The bolt-head and tie-blocks together with the rail clamping members are assembled and secured to the cross-tie by means of clamping bolts 9, and $9^a$, said clamping bolts being provided with angled heads 10, countersunk in the head blocks by being seated in similarly shaped countersunk openings in said head blocks the shank portions of said clamping bolts passing through openings in the blocks, tie, and clamping members and provided at their upper ends with the usual nuts 11. The tie-blocks 5, and $5^a$, are adapted to snugly abut against the marginal edges of the base flanges 6, and as a means for permitting of a longitudinal adjustment of the tie-blocks 5, and $5^a$, upon the main body portion 1, of the cross-tie, bolt-guide slot-openings 12, are formed in the tie-blocks and the abutting surfaces of the tie-blocks and rail clamping members are provided with a series of serrations 13, to engage and interlock with each other when the nuts 11, of the clamping bolts 9, and $9^a$, are drawn down in the assembled position of the parts as shown most clearly in Fig. 1, of the drawings. This arrangement of the parts enables the tie-blocks 5, and $5^a$, to be adjusted to conform to the gage of the track desired as well as to varying widths of base flanges carried by various sizes or weights of railway rails. The upper projecting ends of the clamping bolts are preferably provided with openings for the reception of cotter-pins 14, to prevent any extended loosening of the nuts 11, when the latter have been drawn down.

The tie-blocks 5, and rail clamping members 7, are preferably arranged to engage like sides of the base flanges 6, and preferably extend the entire width of the main body or web portion 1, of the cross-tie as indicated most clearly in Fig. 2, of the drawings. The tie-blocks 5, and rail clamping

members 7, are preferably permanently secured upon the cross-tie before the latter is placed in the road bed.

As a means for quickly and conveniently positioning the cross-ties relative to the railway rails as well as conveniently and quickly securing the rail in engagement with the latter the tie-blocks $5^a$, and rail clamping members $7^a$, are preferably of less length than the opposing members 5, and 7, so that the rail clamping members $7^a$, may be moved or revolved longitudinally upon the clamping bolts $9^a$, so as to enable the base flanges 6, of the rail to readily pass in under the clamping heads 8, of the clamping members 7, in positioning the cross-tie in its proper relative position with respect to the railway rails. For example, in inserting new ties, I have shown in Fig. 2, a cross-tie adapted to be moved under the railway rails and into the road bed from left to right.

As a means for providing for a convenient adjustment of the tie-blocks $5^a$, and rail clamping members $7^a$, coiled spring washers 15, are mounted upon the clamping bolts $9^a$, and interposed between the nuts 11, thereof and the upper or face sides of the rail clamping members $7^a$. When the nuts 11, on the clamping bolts $9^a$, are loosened, incident to the adjustment of the tie-blocks $5^a$, and rail clamping members $7^a$, it is evident that the expansion of the coiled spring washer will tend to carry the clamping bolt $9^a$, in an elevated position and the bolt head block $4^a$, will be carried in engagement with the under side of the cross-tie.

From the foregoing description, taken in connection with the accompanying drawings, the operation and advantages of my invention will be readily understood.

Having thus described an embodiment of my invention, what I claim and desire to secure by Letters Patent is,—

1. A metallic cross-tie and rail-fastener, comprising a cross-tie, a rail, bolt head-blocks beneath said cross-tie, tie-blocks abutting against the base of said rail and provided with bolt-guide slot-openings, rail-clamping members mounted on and normally interlocking with said tie-blocks, and clamping bolts passing through said cross-tie, tie-blocks and rail-clamping members.

2. In a cross-tie and rail-fastener, a cross-tie, a rail, tie-blocks adjustably mounted on said cross-tie and abutting against the base of said rail, rail-clamping members mounted on and normally interlocking with said tie-blocks and provided with clamping heads taking over the base flanges of said rail, and clamping-bolts normally holding said tie-block and rail clamping members in interlocking engagement with each other, said tie-blocks being longitudinally movable and said rail-clamping members horizontally revoluble with respect to each other when said clamping-bolts have been loosened.

3. A metallic cross-tie and rail-fastener, comprising a channel cross-tie provided with downturned ends, a rail, bolt head-blocks in the channel of said cross-tie, adjustable tie-blocks abutting against the base of said rail, rail-clamping members mounted on and interlocking with said tie-blocks, and clamping-bolts having their heads countersunk in said bolt head-blocks and passing through said tie and rail-clamping members.

4. A metallic cross-tie and rail-fastener, comprising a cross-tie, a rail, bolt head-blocks mounted beneath said cross-tie, tie-blocks adjustably mounted on said cross-tie on each side of the base of said rail, rail-clamping members mounted on and interlocking with said tie-blocks and provided with rail-flange engaging heads, and clamping-bolts passing through said blocks, tie, and clamping members.

5. A metallic cross-tie and rail-fastener, comprising a cross-tie, a rail, bolt-head-blocks mounted beneath said cross-tie, tie-blocks abutting against the base flanges of said rail and provided with bolt-guide-slot-openings, rail-clamping members normally interlocking with said tie-blocks and provided with clamping heads conforming to and taking over the base flanges of said rail, and clamping-bolts having angled heads countersunk in said bolt head-blocks, one of said rail-clamping members being longitudinally revoluble when its clamping-bolt is loosened and the rail is in position.

6. A metallic cross-tie and rail-fastener, comprising a cross-tie, a rail, bolt head-blocks mounted beneath said cross-tie, serrated tie-blocks abutting against the edges of the base flanges of said rail and provided with bolt-guide slot-openings, serrated rail-clamping members normally engaging with the serrations of said tie-blocks and taking over the base flanges of said rail, and clamping-bolts countersunk in and carrying said bolt head-blocks, one of said rail-clamping members being held in engagement with the serrated tie-block by a coiled spring-washer and being adapted to be revolved out of clamping engagement with the rail when the nut of its clamping-bolt is loosened.

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

HORACE D. PHILLIPS.

Witnesses:

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O. C. BILLMAN.