

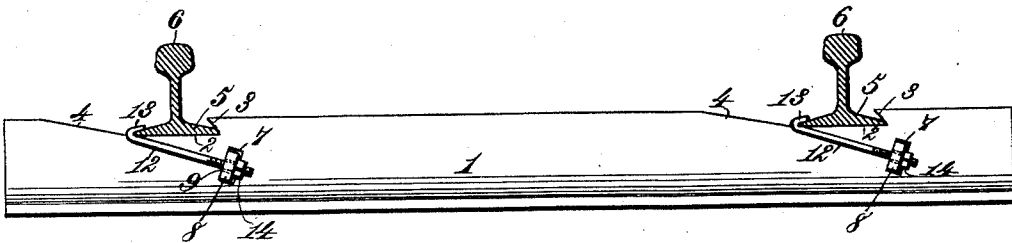
(No Model.)

C. F. NELSON.  
RAILWAY TIE AND FASTENING.

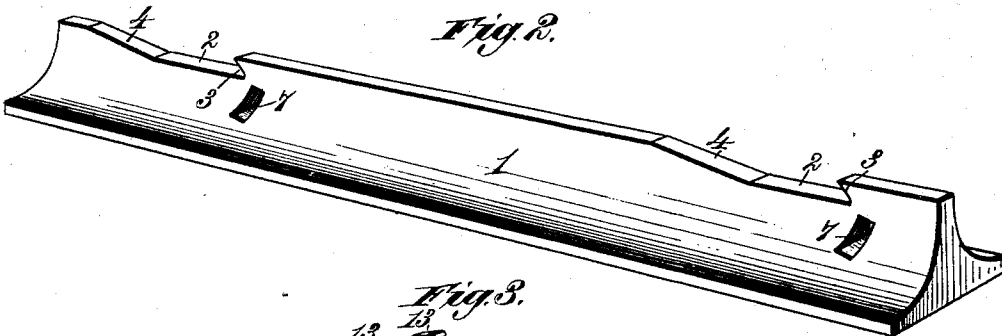
No. 468,360.

Patented Feb. 9, 1892.

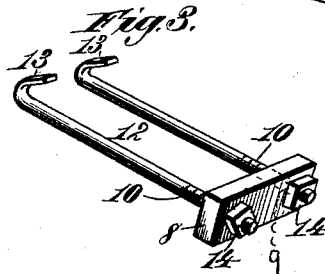
*Fig. 1.*



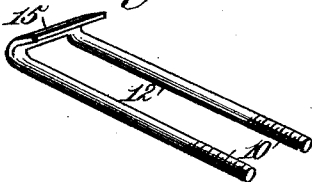
*Fig. 2.*



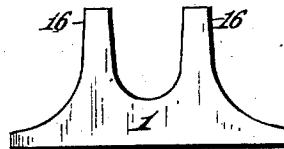
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

CHARLES F. NELSON, OF WINCHESTER, VIRGINIA.

## RAILWAY-TIE AND FASTENING.

SPECIFICATION forming part of Letters Patent No. 468,360, dated February 9, 1892.

Application filed April 25, 1891. Serial No. 390,456. (No model.)

### *To all whom it may concern:*

Be it known that I, CHARLES F. NELSON, a citizen of the United States, residing at Winchester, in the county of Frederick and State of Virginia, have invented new and useful Improvements in Railway-Ties and Fastenings, of which the following is a specification.

This invention has for its object to provide a novel railway-tie and means for fastening the railway-rails in position thereupon, whereby the parts can be conveniently and rapidly renewed or repaired, as occasion may demand, and the rails can be tightened to their seats if they should become loose.

The invention consists, essentially, in the combination, with a railway-tie having undercut rail-seats in its upper surface and a transverse orifice arranged, respectively, in juxtaposition to but below the rail-seats, of tie-blocks formed as separate pieces from a railway-tie and removably arranged in the transverse orifices, pairs of tie rods or bolts having hooked engagement with the base-flanges of the rails and extending through perforations in the removable tie-blocks, and screw-nuts or equivalent adjustable devices which retain the tie rods or bolts in engagement with the tie-blocks, as will be more fully hereinafter described in detail.

In the accompanying drawings, Figure 1 is a side elevation of a railway-tie, showing the rails in section and fastened to the tie according to my invention. Fig. 2 is a detail perspective view of the railway-tie. Fig. 3 is a detail perspective view of one of the removable tie-blocks, showing a pair of tie rods or bolts engaged therewith. Fig. 4 is a detail perspective view of one of the tie-blocks, showing a modified construction of the tie-rods or bolts; and Fig. 5 is an end elevation of the form of tie preferred for the meeting ends of the rails.

In order to enable those skilled in the art to make and use my said invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a railway-tie, which is preferably constructed of metal, but may be formed of any material suitable for the conditions required. This tie is provided at each end portion with a rail-seat 2, formed at one end with an undercut portion 3 and

at the other end with a beveled surface 4, to facilitate the introduction of the base-flange 5 of the rail 6 into engagement with the undercut portion 3. The lower surface of the rail-seat is horizontal, so that the base of the rail can rest squarely thereupon, with one side of its base-flange in engagement with the undercut portion 3 of the rail-seat.

The tie is formed in juxtaposition to each rail-seat, at a point slightly below the same, with a rectangular orifice 7, which extends obliquely with reference to a perpendicular line, and in each orifice is removably arranged a rectangular tie-block 8, provided near each extremity with a perforation 9, adapted to receive the screw-threaded end portions 10 of a pair of tie rods or bolts 12, each of which is constructed with a hook-shaped extremity 13 to engage the outermost side of the base-flange of the rail. The screw-threaded portions of the tie rods or bolts, after passing through the perforations 9 in the tie-blocks 10, are provided, respectively, with adjustable screw-nuts 14 for the purpose of retaining the tie rods or bolts in engagement with the tie-blocks and enabling the tie rods or bolts to be adjusted to tighten up the rails when occasion may demand. The bases of the railway-rails rest upon the horizontal surfaces of the rail-seats, and one of the sides of the rail-flanges 5 engages the undercut portions 3 of the rail-seats, while the hooked extremities 13 of the tie rods or bolts are in hooked engagement with the other sides of the rail-flanges, and therefore if the screw-nuts 14 be tightened the rails are firmly and rigidly clamped into engagement with the railway-tie. The transverse orifices 7 are arranged diagonally, as described and shown, for the purpose of placing the tie-blocks in the proper position to avoid bending the tie rods or bolts when they are tightened up to rigidly clamp the rails in position.

By constructing the tie-blocks 8 of separate and independent pieces, which are removably arranged in the transverse orifices 7, I am enabled to conveniently and rapidly make repairs if the tie-blocks or other parts should become injured or broken.

In Figs. 1 and 3 I have illustrated the tie rods or bolts as constructed of separate or individual parts; but obviously each pair of

tie rods or bolts could have their hooked extremities 13 connected together by a transverse connection 15, as illustrated in Fig. 4, by which construction the tie rods or bolts are in the nature of a yoke-frame having hooked engagement with the rail-flanges, but passing through the perforations 9 in the tie-blocks 8, as before explained.

The tie rods or bolts and the tie-blocks are readily removed and replaced, and the several parts of the structure can be conveniently assembled in the construction of the road.

It will be observed that the two overhanging extensions formed by the under-cuts 3 both point in the same direction, which is an important feature in that it enables a tie to be removed and replaced without disturbing other parts of the roadway.

In Fig. 5 I have exhibited a tie 1, comprising two upright flanges 16 for supporting the meeting ends of the rails, the extremities of the latter abutting centrally between the two flanges. I may, however, otherwise construct the tie to support the meeting ends of the rails.

Having thus described my invention, what I claim is—

1. The combination, with a railway-tie having rail-seats and transverse orifices, of independent tie-blocks removably arranged in the transverse perforations, and tie rods or bolts engaged with the rail-flanges and the tie-blocks, substantially as described.

2. The combination, with a railway-tie hav-

ing rail-seats and transverse orifices in juxtaposition thereto, of independent tie-blocks removably arranged in the orifices and having end perforations, and tie rods or bolts adjustably secured to the tie-blocks and having hooked extremities in engagement with the rail-flanges, substantially as described.

3. The combination, with a railway-tie having undercut rail-seats and transverse orifices in juxtaposition thereto, of independent tie-blocks removably arranged in the transverse orifices and having perforations, and pairs of tie rods or bolts adjustably connected with the tie-blocks and provided with hook-shaped extremities in engagement with the rail-flanges, substantially as described.

4. The combination of a railway-tie having transverse orifices and provided above such orifices with rail-seats and under-cuts which form overhanging extensions that point in the same direction, with the tie-blocks removably extending through the transverse orifices in the tie, the railway-rails, and tie rods or bolts engaging the rail-flanges and connected with the tie-blocks for clamping the rails to the rail-seats in engagement with the overhanging extensions, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

CHARLES F. NELSON. [L. S.]

Witnesses:

HOLMER CONRAD,  
B. A. WALKER.