(No Model.) 2 Sheets—Sheet 1.

N. M. THOMAS.

METALLIC CROSS TIE.

No. 491,229. Patented Feb. 7, 1893.

Fig. 1.

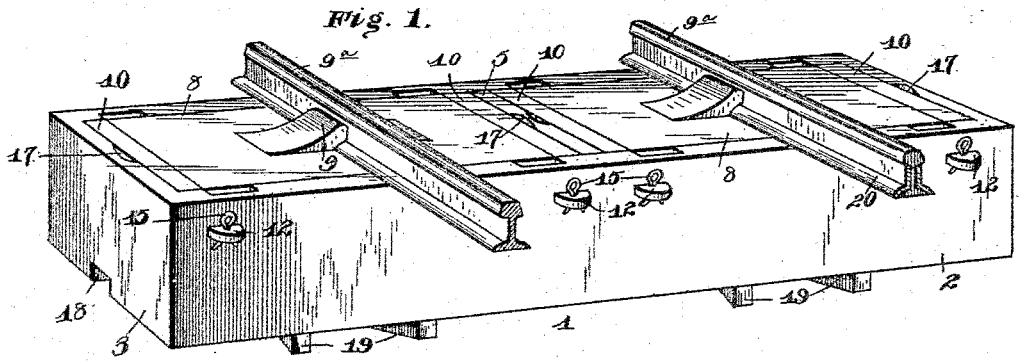


Fig. 2.

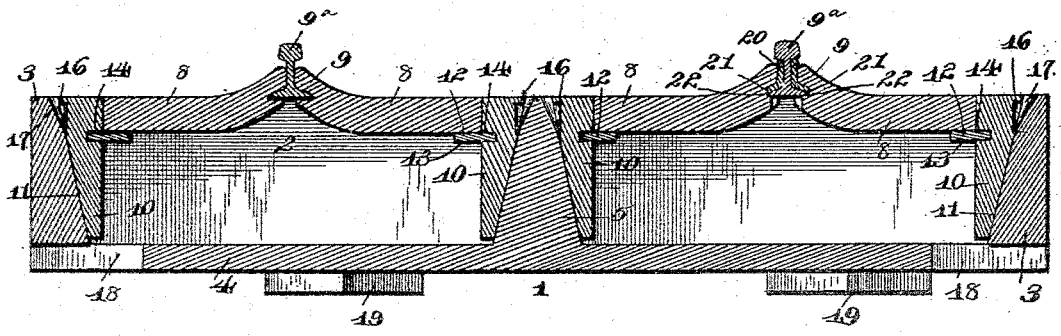
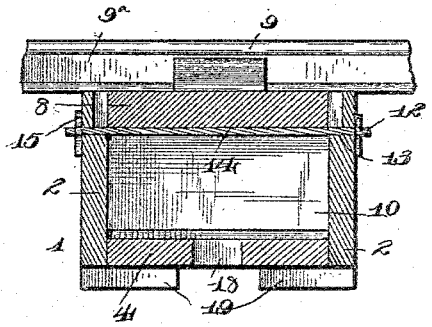


Fig. 3.



Witnesses

Chas. A. Ford.

A. P. Riley

Inventor

Nathan M. Thomas.

By his Attorneys,

C. A. Snow & Co.

(No Model.) 2 Sheets—Sheet 2.

N. M. THOMAS.

METALLIC CROSS TIE.

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Fig. 4.

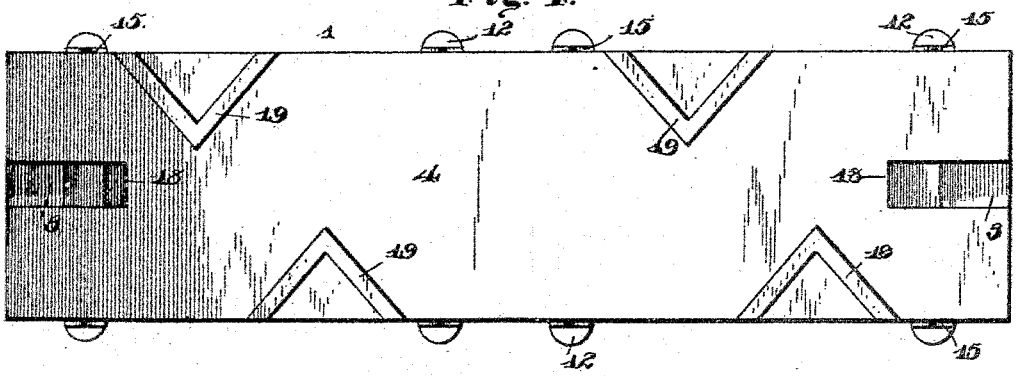


Fig. 5

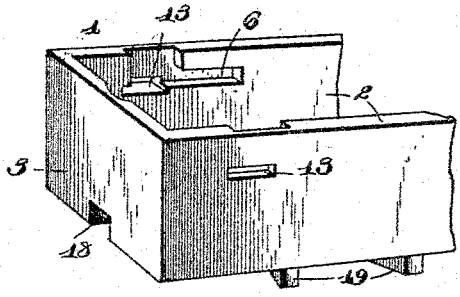
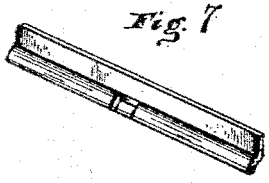
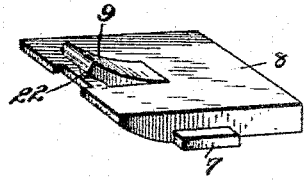


Fig. 6.

Fig. 7





Witnesses

Chas. G. Ford

N. P. Riley

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UNITED STATES PATENT OFFICE.

NATHAN M. THOMAS, OF ABERDEEN, MARYLAND, ASSIGNOR OF ONE-THIRD TO HARRY B. JAMES, OF SAME PLACE.

METALLIC CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 491,229, dated February 7, 1893.

Application filed August 13, 1892. Serial No. 443,035. (No model.)

To all whom it may concern:

Be it known that I, NATHAN M. THOMAS, a citizen of the United States, residing at Aberdeen, in the county of Harford and State of Maryland, have invented a new and useful Metallic Cross-Tie, of which the following is a specification.

The invention relates to improvements in metallic cross-ties.

The object of the present invention is to improve the construction of metallic cross-ties, to prevent the same slipping longitudinally, and to dispense with bolts in securing the rails to the cross-ties.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended.

In the drawings—Figure 1 is a perspective view of a metallic cross-tie constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view. Fig. 3 is a transverse sectional view. Fig. 4 is a reverse plan view. Fig. 5 is a detail view of a portion of the cross-tie showing the L-shaped grooves. Fig. 6 is a detail perspective view of one of the clip plates. Fig. 7 is a detail perspective view of one of the notched fish-plates.

Like numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a hollow metallic cross-tie comprising sides 2, ends 3 and a bottom 4 and strengthened by a transverse web 5 arranged at the middle of the tie and connecting the sides thereof and provided with inclined faces. The transverse web divides the tie in halves and adjacent to the end of each half the inner faces of the side walls are provided with L-shaped grooves 6 having vertical mouths and horizontal branches, and adapted for the reception of lugs 7 of clip plates 8 which are provided with clips 9 adapted to receive the flanges of a rail 9^a, whereby the latter is secured to the cross-tie. The lugs 7 are inserted in the mouths of the L-shaped grooves and the clip plates are moved horizontally toward each other to receive and engage the bottom flanges of the rail 9^a, and they are fastened in such engagement by vertically disposed wedges 10 which have vertical faces engaging the adjacent edges of the clip plates and inclined faces engaging the inclined faces of the transverse web and inner inclined faces 11 of the ends of the tie. By forcing the wedges downward the clip plates are brought together and are caused to clamp the rails firmly, and the said wedges are secured in place by horizontally disposed locking bars 12 which are arranged transversely of the cross-tie and are located in slots 13 of the same, and in grooves 14 of the wedges.

The ends of the locking bars extend beyond the sides of the cross-tie and are provided with perforations in which are arranged keys 15 which may be removed to allow the locking bars to be withdrawn from either side of the cross-tie to permit the removal of the wedges and the clip plates. The wedges are provided near their upper edges at their outer sides with shouldered notches 16 adapted to be engaged by a suitable tool to enable the wedges to be withdrawn, and the ends of the cross-tie, and the transverse web thereof are provided with recesses 17 which permit the notches 16 to be engaged by a tool or instrument. By this construction, the rails are securely fastened to the cross-tie without the use of bolts and nuts, and may be readily removed when desired.

The cross-tie is provided in its bottom with drain openings 18 and is also provided with V-shaped ribs 19 which are arranged on the lower face of the body and disposed at opposite sides thereof to prevent the cross-tie slipping longitudinally. The adjacent sides of the V-shaped ribs 19 are arranged parallel with each other, and they enable earth or the like to be forced under the cross-tie from either side to form a firm bed.

In securing rails near the ends to effect a rail joint, the fish plates 20 are provided near their ends with notches 21 which are engaged by projections 22 of the adjacent clips to prevent the fish plates slipping longitudinally. By this arrangement the meeting ends of rails may be brought between two cross-ties instead of over one, thereby effecting the necessary spring joint.

It will be seen that the cross-tie is simple and comparatively inexpensive in construc-

tion, that the rails may be readily secured to the cross-tie and removed therefrom, and that bolts and nuts are not employed either in the construction of the cross-tie or in the means for securing the rails to the cross-tie.

The sliding clip-plates, which are arranged in the ways of the cross-tie, with the wedges, close the top of the cross-tie, but any moisture that may enter the cross-tie will drain out through the openings 18 which are arranged at the ends of the cross-tie.

What I claim is—

1. The combination of a hollow metallic cross-tie comprising end and side walls and provided at opposite sides with ways, a rail, the clip plates arranged in the ways and forming a top for the cross-tie and provided with clips receiving and engaging the bottom flanges of the rail, and the wedges arranged at the outer edges of the clip plates and forcing the latter into engagement with the rail, substantially as described.

2. The combination of a cross-tie having the inner faces of its ends inclined and provided at its center with a transverse web having inclined faces, the sides of said cross-tie being provided on their inner faces with ways, rails, clip plates arranged in said ways and provided with clips receiving the bottom flanges of the rails, and wedges arranged at the outer edges of the clip plates and having inclined faces engaging the inclined faces of the cross-tie, substantially as and for the purpose described.

3. The combination of a cross-tie having the inner faces of its ends inclined and provided in its sides with ways and having a transverse web provided with inclined faces, clip plates arranged in said ways and provided with clips, the wedges arranged at the outer edges of the clip plates and provided with horizontal grooves, and the locking bars arranged transversely of the cross-tie and engaging the grooves of the wedges, substantially as described.

4. A cross-tie provided in its sides with L-shaped grooves and having slots, the clip plates provided with clips and having lugs arranged in said grooves, the wedges arranged at the outer ends of the clip plates and provided with grooves, the transverse locking bars arranged in said slots and engaging the grooves of the wedges, and fastening devices arranged at the ends of the locking bar and securing the same to the cross-tie, substantially as described.

5. A cross-tie provided on its lower face with V-shaped ribs arranged at opposite sides of the cross-tie to prevent longitudinal movement of the same, and separated from one another by intervening spaces, and having their opposite sides parallel with each other, substantially as described.

6. The combination of the cross-tie provided at its sides with ways, the clip plates arranged in the ways and provided with clips and having projections in the same, a rail, fish plates arranged on opposite sides of the rail and provided with notches engaged by said projections, and wedges arranged at the outer ends of the clip plates, substantially as described.

7. The combination of a hollow cross-tie comprising end and side walls and provided with ways, the clip plates arranged in the ways and forming a top for the cross tie and provided at their inner ends with clips to receive the bottom flanges of a rail, wedges arranged at the outer ends of the clip-plates and locking bars passed transversely through the cross-tie and engaging the wedges, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

NATHAN M. THOMAS.

Witnesses:
H. F. RILEY,
BERNICE A. WOOD.