

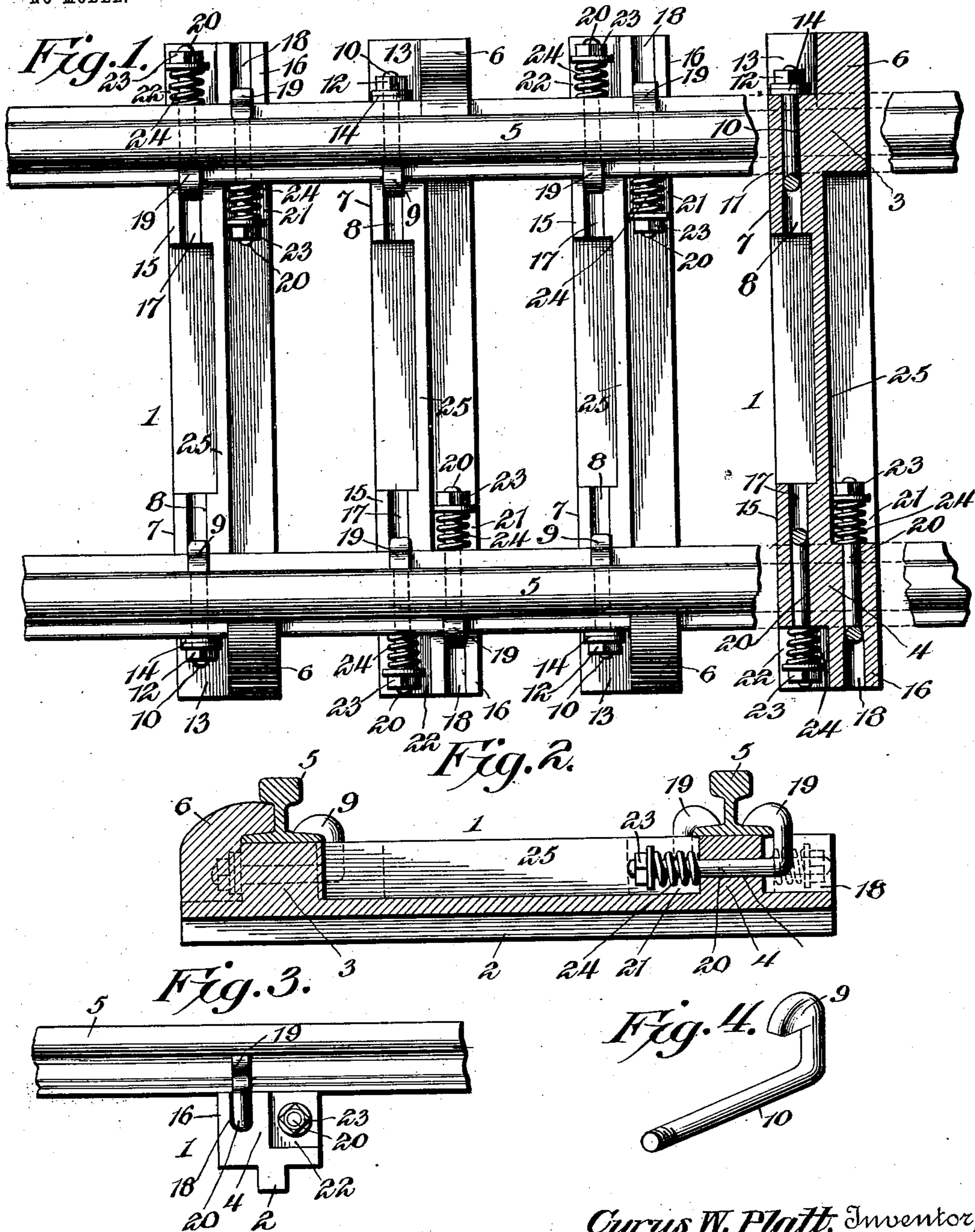
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C. W. PLATT.  
METALLIC CROSS TIE.

APPLICATION FILED JULY 28, 1903.

NO MODEL.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## METALLIC CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 754,693, dated March 15, 1904.

Application filed July 28, 1903. Serial No. 167,337. (No model.)

*To all whom it may concern:*

Be it known that I, CYRUS WESPY PLATT, a citizen of the United States, residing at Windfall, in the county of Tipton and State of Indiana, 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.

10 The object of the present invention is to improve the construction of metallic cross-ties and to provide a simple and comparatively inexpensive steel railway cross-tie of great strength and durability adapted to be readily  
15 placed in position and capable of expanding and contracting without liability of spreading the rails or otherwise interfering with the proper alinement and parallelism of the same.

A further object of the invention is to provide  
20 a metallic cross-tie which will permit the expansion and contraction of the rails and which will have one end firmly secured to one rail and its other end yieldably connected with the opposite rail, whereby the tie is adapted to ex-  
25 pand and contract independently of the rails.

Another object of the invention is to provide a cross-tie of this character adapted to be reversely arranged, so that each of the rails  
30 of a track will be firmly and positively held at regular intervals to preserve the proper parallelism and to prevent spreading.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts here-  
35 inafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within  
40 the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a plan view of a portion of a track provided with metallic  
45 cross-ties constructed in accordance with this invention. Fig. 2 is a sectional view taken longitudinally of one of the cross-ties. Fig. 3 is an end view of one of the cross-ties, showing a portion of one of the rails. Fig. 4 is a  
50 detail view of one of the fastening devices.

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

1 designates a metallic cross-tie, preferably constructed of steel and provided at its lower  
55 face with a central longitudinal flange 2 to strengthen the cross-tie and to enable a maximum amount of strength to be obtained from a minimum amount of material; but the cross-  
60 tie may be otherwise flanged or constructed to secure this result. The cross-tie is provided at its upper face with end enlargements  
3 and 4, forming chairs or seats for the rails  
5 of a track and provided with inward and outward extensions located at opposite sides of  
65 the cross-tie and reversely arranged, as clearly shown in Fig. 1.

The enlargement 3, which receives and which is rigidly connected with one of the rails, is provided at its outer extension with a rigid  
70 upwardly and inwardly projecting jaw 6, forming a recess between its engaging portion and the upper face of the enlargement or chair to receive the outer portion of the bottom flange of the rail, as clearly shown in Fig. 2 of the draw-  
75 ings. The engaging portion of the integral jaw 6 fits against the web of the rail at the outer face thereof and extends from the bottom flange to the lower face of the head of the rail, whereby the rail is firmly supported  
80 and held against outward movement. The inner extension 7 of the said enlargement or chair 3 is provided with a longitudinal slot 8, which receives the head 9 of a bolt 10 for engaging the rail 5 at the inner side thereof,  
85 whereby the rail is firmly clamped between the fastening device 10 and the rigid jaw 6. The fastening device 10 consists of an approximately L-shaped bolt having a projecting head of the shape of that of an ordinary  
90 spike, and the shank of the bolt extends through a bore or opening 11 of the enlargement or chair 3 and receives a nut 12. The outer extension of the enlargement or chair  
95 3 is one-half the width of the cross-tie and a recess 13 thereby formed at the opposite side of the cross-tie for the bolt 12. Washers 14 are preferably interposed between the nut and the adjacent end face of the enlargement  
100 or chair 3. The slot of the inner extension

protects the fastening device from the ballast and the side walls of the slot support the engaging portion of the fastening device. The other enlargement or chair, 4, is provided in its extensions 15 and 16 with slots 17 and 18 for the engaging portion 19 of fastening devices 20, which are similar in shape to the fastening device 10, heretofore described. The inner and outer extensions of the enlargement or chair 4 are one-half the width of the cross-tie, and recesses 21 and 22 are provided for the reception of the nuts 23 of the fastening devices and springs 24, which are interposed between the nuts and the adjacent end faces of the enlargement or chair, whereby the fastening devices are yieldingly held in engagement with the adjacent rail. By this construction the rail is yieldably engaged by the fastening devices, which permit the metallic cross-ties to expand and contract without spreading or otherwise effecting the rails. One of the rails is firmly and positively clamped by each cross-tie, and any expansion and contraction will therefore take place at the other end of each cross-tie, and the rails will not be spread by such expansion and contraction. The metallic cross-ties are reversely arranged, as illustrated in Fig. 1 of the drawings, and the rails are thereby positively clamped at regular intervals and are securely held in proper position, so that the yieldable character of the fastening devices at one end of each cross-tie does not affect the solidity of the rails.

The slots of the inner and outer extensions of the enlargement or chair 4 protect the engaging portions of the fastening devices from the ballast, and these fastening devices pass through longitudinal bores or openings of the enlargement or chair 4, and, if desired, the entire fastening devices may be shielded from the ballast by suitable casings. The inner extensions of the enlargements or chairs are connected by a longitudinal web or flange 25, located at the upper face of the cross-tie and adapted to strengthen the same. The longitudinal flanges at the top and bottom of the cross-tie also afford sufficient bearing-surfaces or engaging faces to prevent the cross-tie from shifting in the ballast.

It will be seen that the cross-tie is exceedingly simple and inexpensive in construction, that it possesses great strength and durability, and that it is capable of expanding and contracting without spreading the rails or otherwise interfering with the proper alignment and parallelism of the same. It will also be apparent that it will not interfere with the expansion and contraction of the rails and that it is as effective in this respect as the ordinary wooden cross-tie; also it will be clear that as the ties are reversely arranged the rails will be rigidly held at regular intervals and that the rigid attachment of the cross-tie at one end will cause the expansion and contraction

to occur at the other end, which is provided with yieldable fastening devices. Furthermore, the oppositely-disposed yieldable fastening devices will permit the cross-ties to expand and contract without releasing their grip on the rail. The cross-tie facilitates the ready removal of a rail when the same becomes worn or a new rail is required for any other purpose.

The cross-tie can also be modified to adapt it for switches, frogs, guard-rails, and the like.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with rails, of reversely-arranged cross-ties, each provided at one end with rigid fastening means and having yieldable fastening means at the other end, whereby the rails will be rigidly clamped at regular intervals and the cross-ties permitted to expand and contract without spreading the rails, substantially as described.

2. A cross-tie provided at one end with rigid rail-engaging devices and having yieldably-mounted rail-engaging devices at the other end, substantially as described.

3. The combination of a metallic cross-tie provided at one end with a fixed rail-engaging device, a fastening device adjustably mounted on such end of the cross-tie for rigidly clamping a rail in engagement with the said device, and means mounted at the other end of the cross-tie for yieldably engaging a rail, substantially as described.

4. The combination of a metallic cross-tie provided at one end with a rigid rail-engaging jaw, an adjustable bolt mounted on the cross-tie and arranged to clamp a rail in engagement with the said jaw, fastening devices located at the other end of a cross-tie and arranged to engage the opposite sides of a rail, and springs for yieldably holding such fastening devices in engagement with the rail, substantially as described.

5. The combination of a metallic cross-tie provided at its ends with chairs, a rigid jaw arranged at the outer end of one of the chairs, an adjustable fastening device arranged adjacent to the jaw in position for clamping a rail rigidly in engagement with the same, and yieldably-mounted fastening devices located at the other chair, substantially as described.

6. The combination of a metallic cross-tie provided at its ends with enlargements forming chairs, one of the enlargements having a rigid rail-engaging jaw at its outer end, an adjustable fastening device passing through the enlargement having the jaw, said fastening device being arranged to cooperate with the jaw for rigidly clamping a rail, and yieldably-mounted fastening devices extending through the other enlargement, substantially as described.

7. The combination of a metallic cross-tie

provided at its ends with enlargements having inner and outer extensions, the outer extension of one of the enlargements being provided with a rigid rail-engaging jaw and the other extensions being longitudinally slotted, an adjustable fastening device cooperating with the said jaw for rigidly engaging a rail and mounted in the slot of the adjacent inner extension, and fastening devices operating in the slots of the other extensions and provided with springs, substantially as described.

8. The combination of a metallic cross-tie having a bottom flange and provided at its upper face with enlargements forming chairs and having reversely-disposed extensions, said cross-tie being also provided with an upper longitudinal flange connecting the inner extensions of the enlargements, a rigid jaw arranged on the extension at the outer side of one of the enlargements, an adjustable fastening device cooperating with the jaw and mount-

ed on the other extension of such enlargement, and yieldable fastening devices arranged at the extensions of the other enlargement, substantially as described.

9. The combination of a metallic cross-tie provided at its ends with enlargements forming chairs and having reversely-disposed longitudinal extensions of a width less than the cross-tie located at opposite sides thereof and forming recesses at opposite sides of the cross-tie, and means mounted on the extensions for engaging the rails and having adjusting devices located in the recesses, 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.

CYRUS WESPY PLATT.

Witnesses:

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