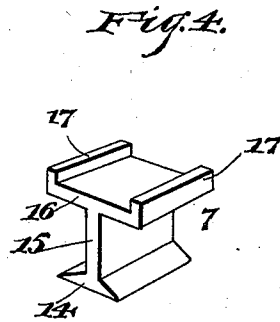
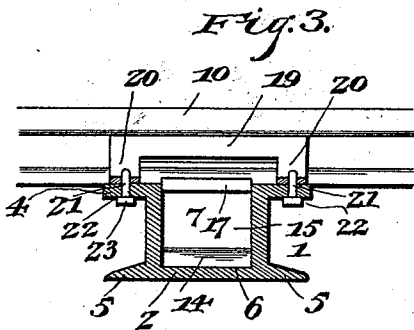
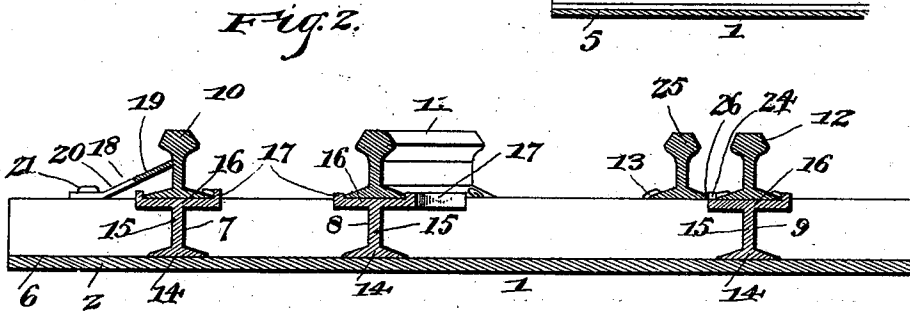
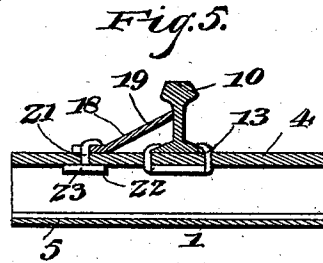
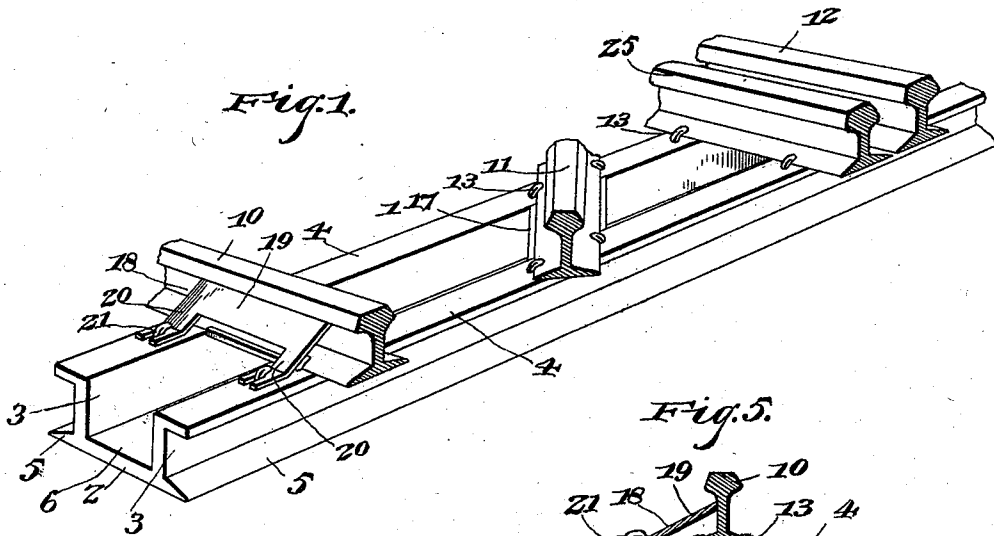


(No Model.)

A. G. BUDINGTON.  
METALLIC CROSS TIE.

No. 517,915.

Patented Apr. 10, 1894.



Inventor

Albert G. Budington,

Witnesses

B. S. Ober  
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By his Attorneys.

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# UNITED STATES PATENT OFFICE.

ALBERT G. BUDINGTON, OF AUSTIN, TEXAS.

## METALLIC CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 517,915, dated April 10, 1894.

Application filed June 6, 1893. Serial No. 476,764. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT G. BUDINGTON, a citizen of the United States, residing at Austin, in the county of Travis and State of Texas, 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 inexpensive one which will possess the necessary elasticity and in which there will be no greater vibration than the ordinary wooden tie.

15 A further object of the invention is to provide a metallic cross-tie which will not require bolts or nuts and which may readily be handled, and which will be capable of being placed beneath and removed from rails with the same facility as the ordinary wooden tie.

20 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.

25 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 of the same. Fig. 3 is a transverse sectional view. Fig. 4 is a detail perspective view of one of the rail chairs. Fig. 5 is a detail sectional view showing the clips and illustrating the manner of securing the brace and a rail to the cross-tie.

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

40 1 designates a cross-tie constructed of rolled metal and consisting of a bottom plate 2, integral vertical sides 3, and upper and lower horizontal flanges 4 and 5, disposed longitudinally of the tie and extending laterally therefrom and forming recesses at the sides of the tie, whereby the latter will be securely anchored in the roadbed. The tie has a longitudinal opening 6, in which are arranged rail chairs 7, 8 and 9, supporting rails 10, 11 and 12, which are secured upon the upper flanges 4 of the cross-tie by clips 13. Each rail chair consists of a bottom plate 14, a central vertical web 15, and a top plate 16, which

is provided at opposite sides with vertical flanges 17, forming between them a recess for the reception of the bottom flanges of a rail. 55

In the accompanying drawings the rail chair is shown applied to rails in different positions. The rail 10, shown on a curve, is supported at the outer side by an inclined brace 18, which consists of a longitudinal body-portion 19, and inclined legs 20. The longitudinal body-portion is adapted to engage the rail at the top of the web in the angle formed by the latter and the head of the rail; and the lower ends of the inclined legs are bifurcated and receive shanks 21, of clips 22. The clips 22 consist of a head 23, and a shank 21, which is passed upward through the adjacent top flange of the tie and is arranged in the bifurcation of one of the legs 20, and is secured by being bent over upon or upset against the same. The clip 13 consists of a bar which extends beneath the top flange of the tie and prongs or shanks extending upward from the ends of the bar, passing through the tie-flange and being bent against the bottom flanges of the rail. 60 65 70 75

The chair may, without departing from the invention, be modified to adapt it to different kinds of rails; and the rail 11 is a switch-rail which is arranged at an angle to the main rail 10, and the chair 8 is shaped to conform to the configuration of the tie and the switch-rail and has its ends beveled. At curves and other places where guard-rails are employed, the flange at the inner side of the chair is reduced to form a lug 24, and the adjacent rail 25 is provided with a recess 26, to receive the lug and to enable its bottom flange to be arranged contiguous to the bottom flange of the rail 12. It will be seen that the cross-tie is simple and comparatively inexpensive in construction, and that it may be employed in railroad construction with the same facility as wooden ties, and that bolts and nuts are not employed for securing the rails to the tie. 80 85 90 95

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention. 100

What I claim is—

1. The combination with rails, of a hollow cross-tie having parallel vertical sides pro-

vided with flat upper faces supporting the rails, and the rail chairs arranged within the cross-tie and fitting snugly between the sides thereof, and each composed of a bottom flange resting upon the bottom of the cross-tie, a web and a top portion 16 arranged flush with the upper faces of the sides of the cross-tie and provided with integral parallel upward extending flanges arranged transversely of the cross-tie and projecting above the upper faces of the chair and the sides of the cross-tie and receiving the rails between them and embracing the same, substantially as described.

2. The combination of a hollow cross-tie, a chair arranged within the cross-tie and provided with side flanges extending upward, a rail mounted on the cross-tie and arranged between the upwardly-extending side flanges of the chair, and clips composed of bars arranged on the lower faces of the top flanges of the tie and provided at their ends with upwardly-extending prongs passing through the tie and engaging the bottom flanges of the rails, substantially as described.

3. The combination of a cross-tie, an inclined brace composed of a longitudinal body-portion engaging the rail beneath the head

thereof and inclined legs having their lower ends bifurcated and arranged on the cross-tie, and clips consisting of heads and shanks passing through the cross-tie and arranged in the bifurcations of the legs and bent over upon the latter, substantially as described.

4. The combination of a cross-tie, a rail chair arranged within the tie and comprising a bottom plate, a web and a top plate having upwardly-extending flanges, a rail mounted on the cross-tie and arranged between the upwardly-extending flanges of the chair, clips 13 having prongs extending upward through the tie and engaging the rail, an inclined brace having a longitudinal body to engage the rail beneath the head and provided with depending bifurcated legs, and clips 22 consisting of heads and shanks passing through the cross tie and arranged in the bifurcation of the legs and bent over upon the latter, 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.

ALBERT G. BUDINGTON.

Witnesses:

R. W. BUDINGTON,  
MINOS LONG, Jr.