

(No Model.)

2 Sheets—Sheet 1.

H. MARTIN.

CROSS TIE FOR CABLE RAILWAYS.

No. 356,595.

Patented Jan. 25, 1887.

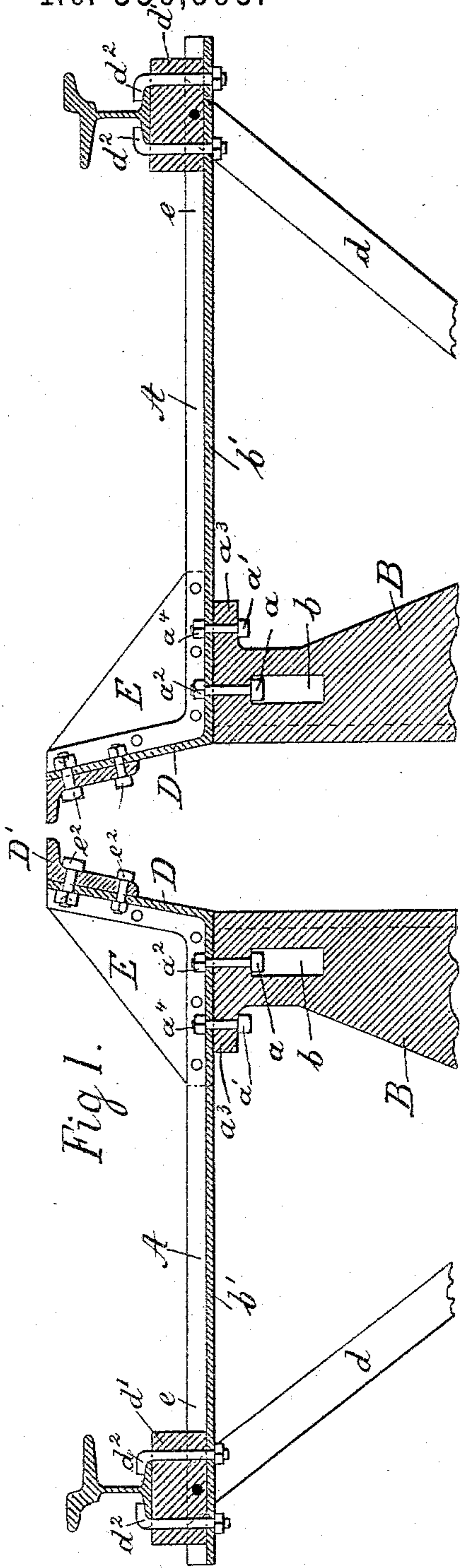


Fig. 1.

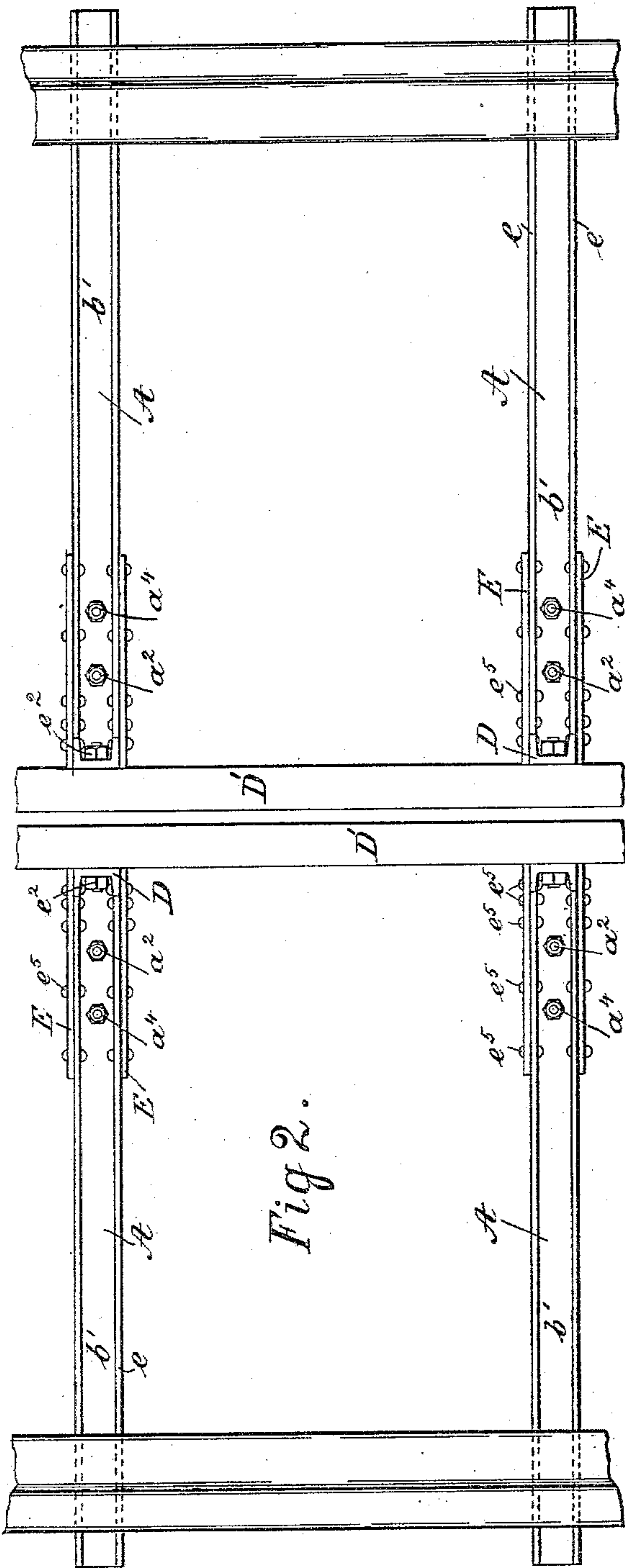


Fig. 2.

Witnesses.

D. J. Dawson  
F. H. Williams

Inventor.

Henry Martin  
per Geo. W. Prehli  
att'y.

(No Model.)

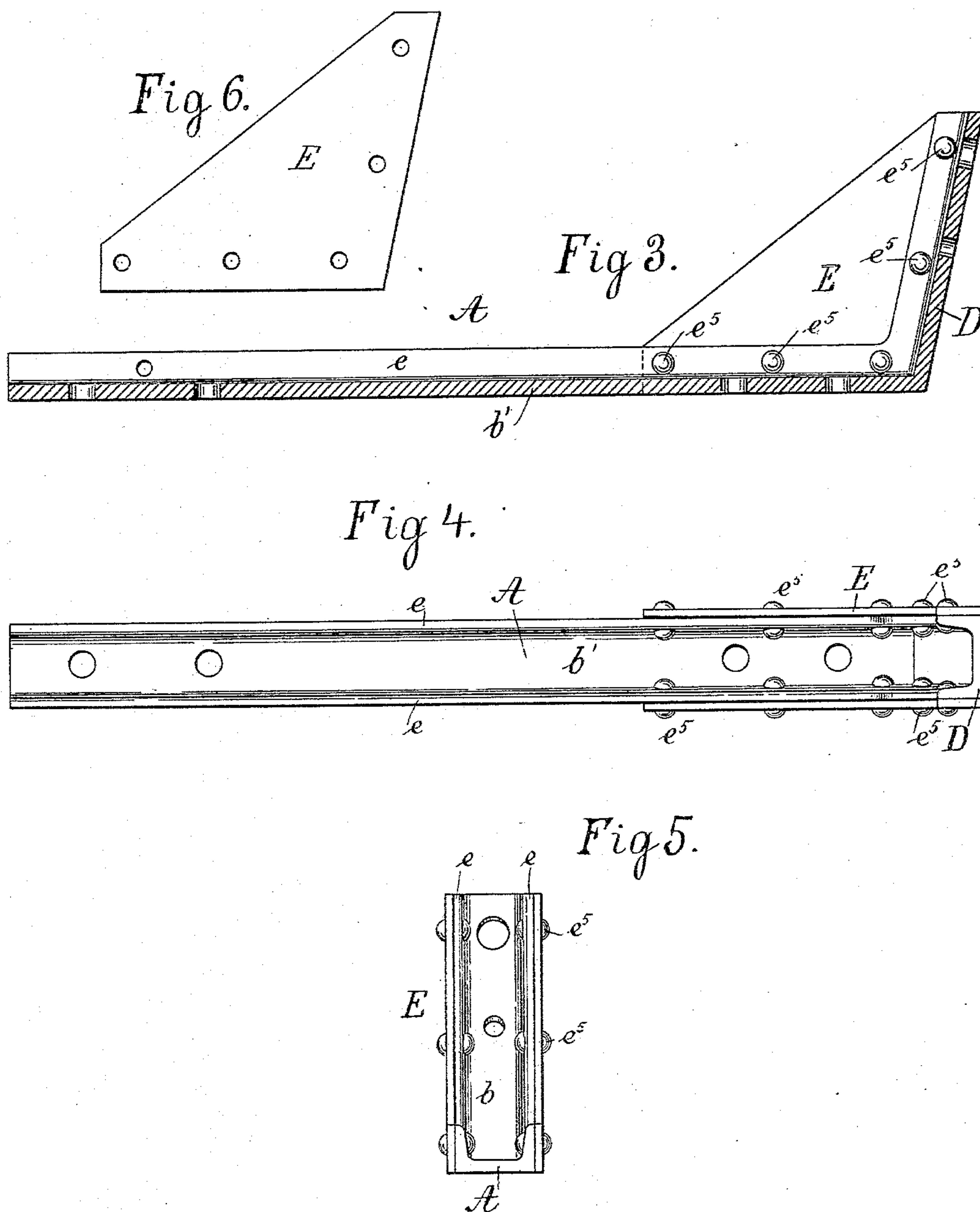
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Atty



# UNITED STATES PATENT OFFICE.

HENRY MARTIN, OF CINCINNATI, OHIO.

## CROSS-TIE FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 356,595, dated January 25, 1887.

Application filed October 18, 1886. Serial No. 216,477. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY MARTIN, a resident of the city of Cincinnati, in Hamilton county and State of Ohio, have invented certain new and useful Improvements in Cross-Ties or Tie-Bars for Cable Railways, of which the following is a specification.

The object of my invention is to provide a cross-tie or tie-bar for cable railways which shall be light, cheap of construction, and at the same time combine simplicity, strength, and neatness; also, to provide a brace or supporting-plate which shall, in connection with the cross-tie or tie-bar, support the slot-rail, and at the same time strengthen the connection between the cross-tie or tie-bar and slot-rail, where strength is most needed.

In the accompanying drawings, forming part of this specification, Figure 1 represents the cross-tie or tie-bar and supporting or brace-plate in position, the web of the cross-tie or tie-bar being in section, likewise the yoke, slot, and tram rails. Fig. 2 represents a top view showing the cross-tie or tie-bar and brace-plate in position, the slot and tram rails also being shown. Fig. 3 represents the cross-tie or tie-bar and brace-plate, the web of the cross-tie being shown in section. Fig. 4 represents a top view of the cross-tie and brace-plate and the mode of connecting them. Fig. 5 represents a view of the cross-tie and brace-plate as they appear when bolted together, and looking from the tram-rail toward the slot-rail. Fig. 6 is a side view of the brace-plate.

A represents the cross-tie or tie-bar, made of channel-iron. This tie-bar extends from the slot-rail to the tram-rail on each side of the cable-roadway.

B represents the yoke. The channel-iron tie-bar A rests on the top of this yoke B, and is rigidly held in position by the bolt-connections  $a$   $a'$ . The slots  $b$  in the yoke B are preferably of the same length as the bolts  $a$ , to allow the bolts to be slipped up through an opening between these slots and the top of the yoke, and through the web  $b'$  of the channel-iron tie-bar A, and when thus slipped into position the nuts  $a^2$  are screwed into position on the ends of the bolts  $a$ . The bolts  $a'$  pass through the short arms  $a^3$  at the top of the yoke through the web of the tie-bar A, and are held in position by nuts  $a^4$ .

The tie-bar A, in connection with the strut  $d$ , forms a bracket. Between the flanges  $e$   $e$  55 of the tie-bar A (where it is connected to the strut  $d$ ) is placed the block or shoe  $d'$ , through which pass the hook-bolts  $d^2$ , which hold the block and tram-rail in position. At the point where the tie-bar A reaches the mouth of the 60 yoke B it is bent upward at any desired angle to form a means of attachment for the slot-rail. To this upward projection D of the tie-bar A is securely fastened the slot-rail D', preferably by bolt-connection  $e^2$ . 65

E represents the brace or supporting plate, preferably somewhat triangular in form. One of these plates E is bolted by bolt-connections  $e^5$  to the outside of each of the flanges  $e$  of the channel tie-bar A. When desired, they may 70 be placed on the inside of the flanges. This connection formed between the channel tie-bar A, brace-plate E, and slot-rail D' is simple, cheap, and strong, forming a barrier 75 against all strains.

All the nuts used on the connecting-bolts between the tie-bar A, brace-plate E, and slot-rail D' are protected, inasmuch as they lie in the web of the channel tie-bar A and within 80 its walls or flanges  $e$ .

The form of the tie-bar A may be varied, and the brace-plate E may be of any other suitable form than the form herein shown.

What I claim as new and of my invention, and desire to secure by Letters Patent, is— 85

1. In cable railways, a channel-iron cross-tie or tie-bar having an upward projection, such as D, substantially as set forth.

2. In cable railways, a channel-iron cross-tie or tie-bar having the projection D, in combination with a brace-plate, as E, substantially as set forth. 90

3. In cable railways, the combination of a channel-iron tie-bar, A, having projection D, plate E, and slot-rail D', substantially as set 95 forth.

4. In cable railways, the combination of the tie-bar A, brace-plate E, slot-rail D', and bolts, as  $a$ ,  $a'$ ,  $e^2$ , and  $e^5$ , substantially as set forth.

HENRY MARTIN.

Witnesses:

WM. F. IRWIN,  
JOSEPH W. WEBER.