

No. 697,480.

Patented Apr. 15, 1902.

A. J. HARMS.  
RAILWAY TIE.

(Application filed June 20, 1901.)

(No Model.)

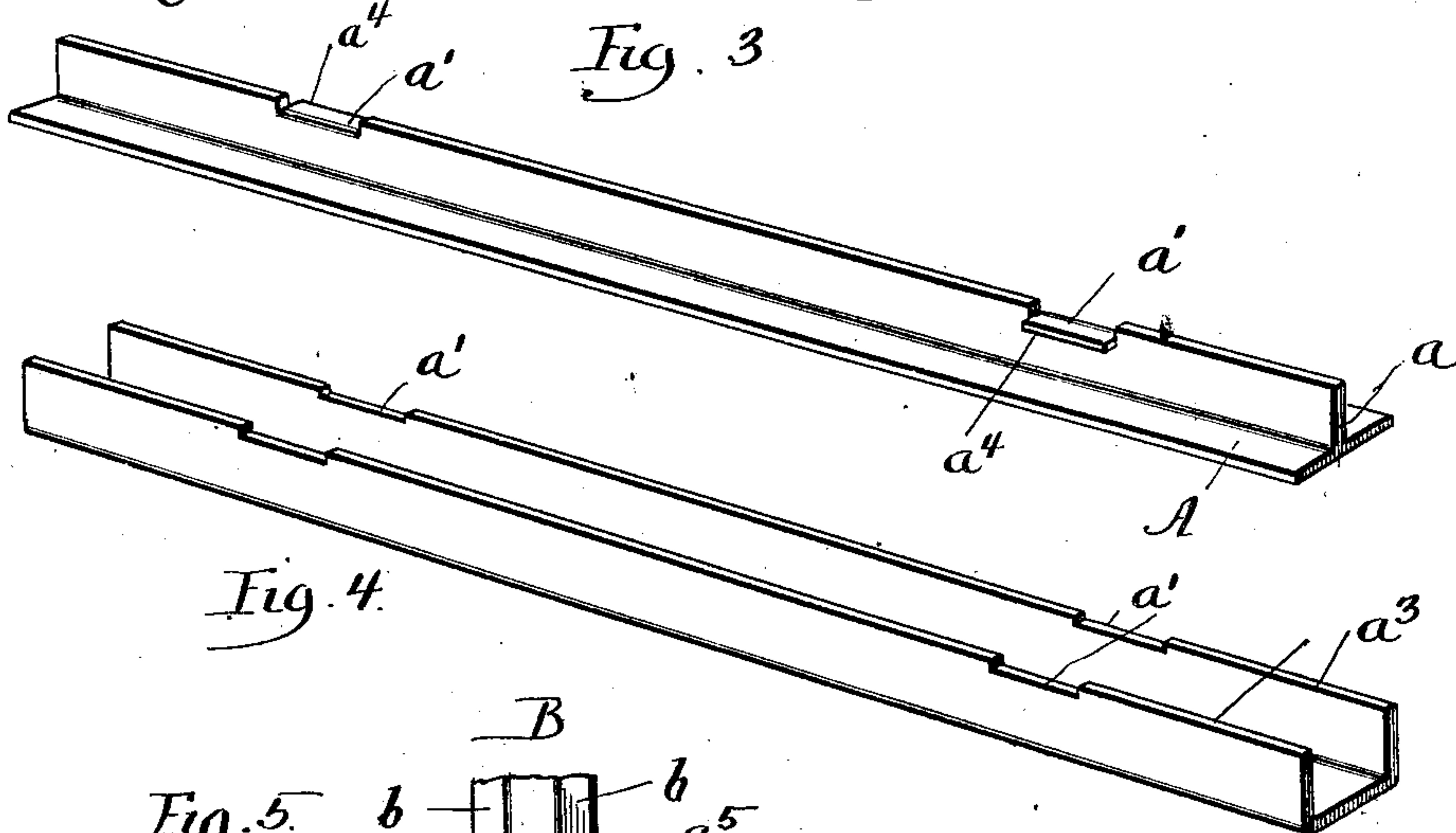
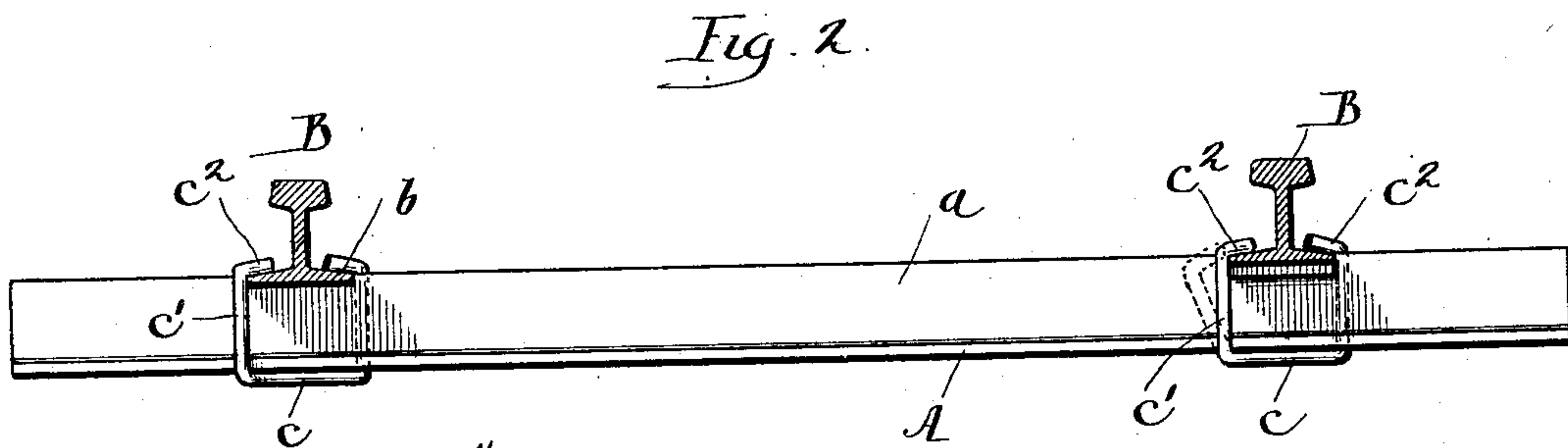
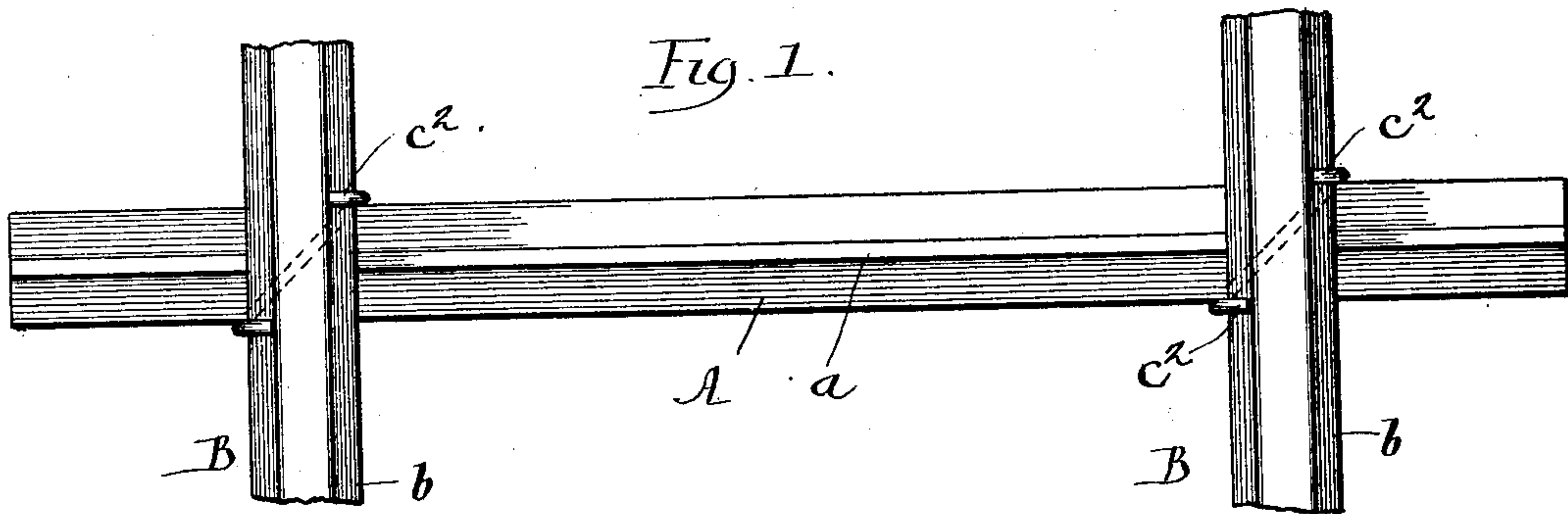


Fig. 4.

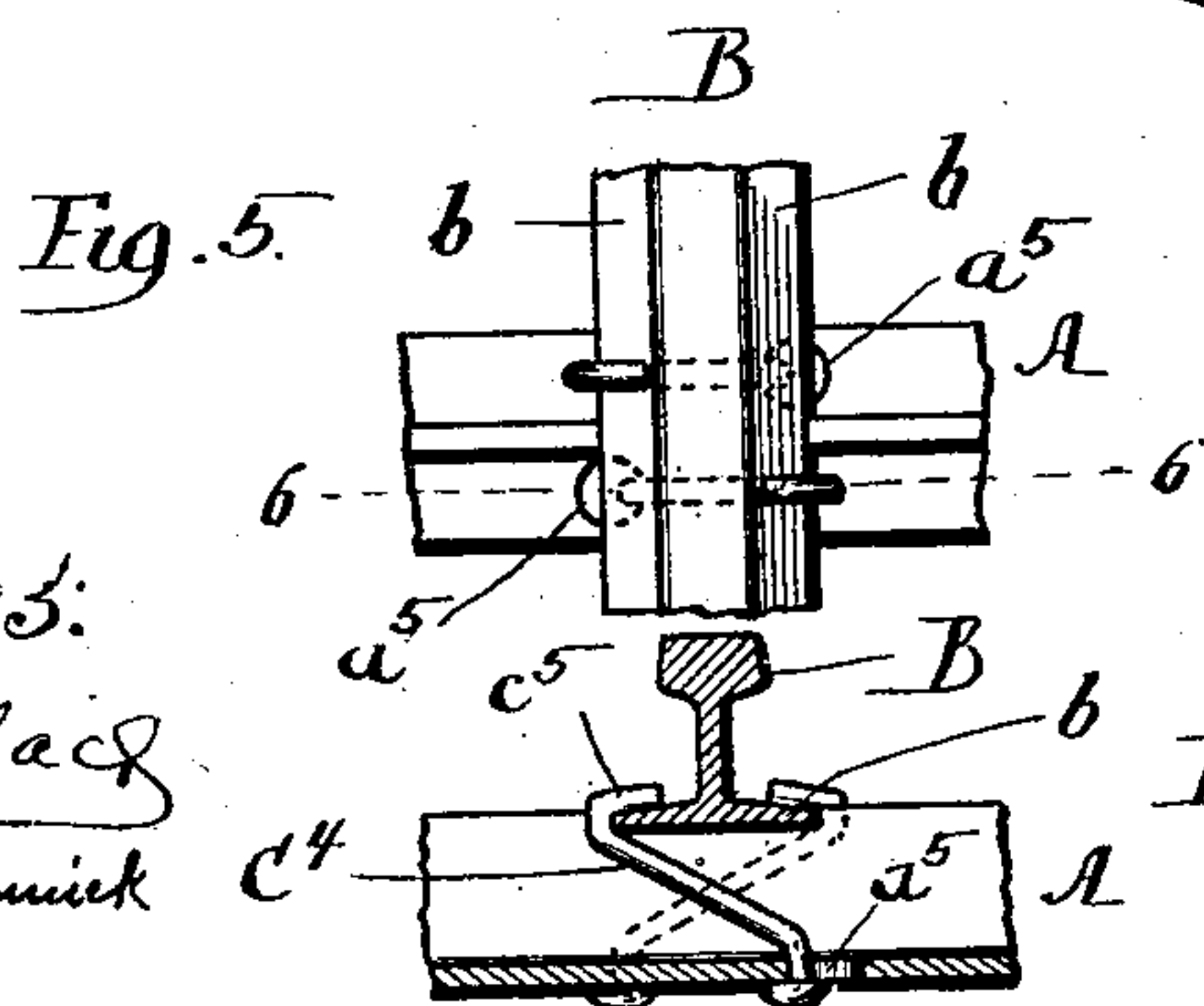


Fig. 6.

Witnesses:  
Fred Gulack  
Alberta Adamick

Inventor:  
A. J. Harms  
By R. A. Fisher  
his Attorneys.



# UNITED STATES PATENT OFFICE.

ALBERT J. HARMS, OF ETHERLEY, ILLINOIS.

## RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 697,480, dated April 15, 1902.

Application filed June 20, 1901. Serial No. 65,223. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT J. HARMS, a citizen of the United States, residing at Etherley, Knox county, Illinois, have invented certain new and useful Improvements in Railway-Ties, of which the following is declared to be a full, clear, and exact description.

This invention has for its object to provide a simple, cheap, durable, and effective construction of metallic railway-ties and means for holding the rails in place thereon. This object is accomplished by the features of improvement hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of the specification.

Figure 1 is a plan view showing a portion of the railway-track with one of my improved ties in position for use. Fig. 2 is a view in vertical cross-section through the rails, the ties and retaining-clamp being shown in elevation. Fig. 3 is a perspective view of one form of my improved tie. Fig. 4 is a perspective view of a modified form of the tie. Fig. 5 is a plan view of one of the ties with the portion of a rail thereon, showing modified clamps for retaining the rails in position. Fig. 6 is a view in vertical section on line 6 6 of Fig. 5.

In the embodiment of the invention shown in Figs. 1, 2, and 3 of the drawings the tie is T-shaped in cross-section, the expanded base portion A of the tie being adapted to rest upon the road-bed and affords a broad bearing thereon. The vertical web or body  $a$  of the tie is provided with suitable seats  $a'$  (preferably cut into the web or body  $a$ ) to receive the base-flanges  $b$  of the railway-rails B, the seats being of suitable width to admit the rail-flanges and securely guard the rails against movement in lateral direction. The bottoms of the seats  $a'$  are preferably expanded, so as to afford a broader bearing for the base of the rails, and this expansion of the bottoms of the seats  $a'$  may be accomplished either by upsetting the metal at such points or, as shown, by bending over the metal, as at  $a^4$ .

The preferred form of clamp for locking the rails to the tie is that shown in Figs. 1 and 2 of the drawings. This clamp comprises a base portion  $c$ , adapted to extend beneath the base A of the tie, and vertical side portions  $c'$ , having inwardly-turned arms or ends  $c^2$ , adapt-

ed to extend over the base-flanges  $d$  of the rails, and thus securely lock them in position upon the tie. The ends  $c^2$  of the clamps are preferably turned in offset relation, so as to extend at substantially right angles to the length of the rails B, as clearly shown in Fig. 1 of the drawings. These clamps before they are set in position for use have their vertical portions  $c'$  spread sufficiently apart, as shown by dotted lines at the right-hand side of Fig. 2, to permit them to be placed diagonally beneath the tie, and after the flanges of the rails are within the seats of the tie and the clamps are in the position shown the vertical portions of the clamps will be drawn or forced toward each other, thereby causing the arms  $c^2$  to extend over and bear upon the base-flanges of the rails, and thus securely hold them within the seats  $a'$  of the tie.

The advantages of metallic railway-ties have long been recognized, particularly in view of the growing scarcity of suitable timber for such purpose, and the desideratum has been to provide a metallic tie and means for securing the rails thereto so simple, durable, and effective as to more than compensate for their increase of cost over the ordinary wooden ties. The present invention will accomplish, I believe, this desideratum, since not only can my improved tie be readily and cheaply made, but the retaining-clamp is of such construction that it will enable the rails to be readily and effectively locked in position upon the tie, the seats of the tie serving not merely to hold the rails in position, but also insuring a uniform gage in placing the rails in position.

Instead of forming the tie of a single web  $a'$ , as shown in Figs. 1 and 2 of the drawings, the tie may be formed with two webs  $a^3$ , as shown in Figs. 3 and 4, each of these webs being provided with seats  $a'$  to receive the base-flanges of the rails B. It will be understood, of course, that the U-shaped tie shown in Figs. 3 and 4 can be readily rolled, and when in position for use its base will afford a broad bearing upon the road-bed.

In Figs. 5 and 6 of the drawings is shown a modified form of clamp for connecting the rails to the ties. The clamp shown in these figures consists of two separate arms  $C^4$ , bent as shown, these arms being provided with

heads  $c^4$  and inwardly-turned ends  $c^5$ . The heads  $c^4$  are adapted to pass through holes  $a^5$ , formed in the base of the ties at opposite sides of the vertical web, and interlock with  
5 the base-flange. The inwardly-turned ends  $c^5$  will engage the base-flanges  $b$  of the rail B, and thus hold the rail against movement.

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

1. A metallic railway-tie having a broad base, the vertical web portion of the tie being formed with seats of a width substantially equal to the base-flanges of the rails, and  
15 clamps extending beneath the rails and engaging the base of the tie, said clamps having

bent ends interlocking with the base-flanges of the rails on opposite sides of said web portion of the tie.

2. A metallic railway-tie having a broad  
20 base, a narrow vertical web or body portion provided with seats to receive the base-flanges of the rails and U-shaped clamps having inwardly-bent upper ends, said clamps extending diagonally beneath the tie and rails, the  
25 bent upper ends of the clamps overlapping the base-flanges of the rails.

ALBERT J. HARMS.

Witnesses:

GEO. P. FISHER, Jr.,  
ALBERTA ADAMICK.