

No. 690,691.

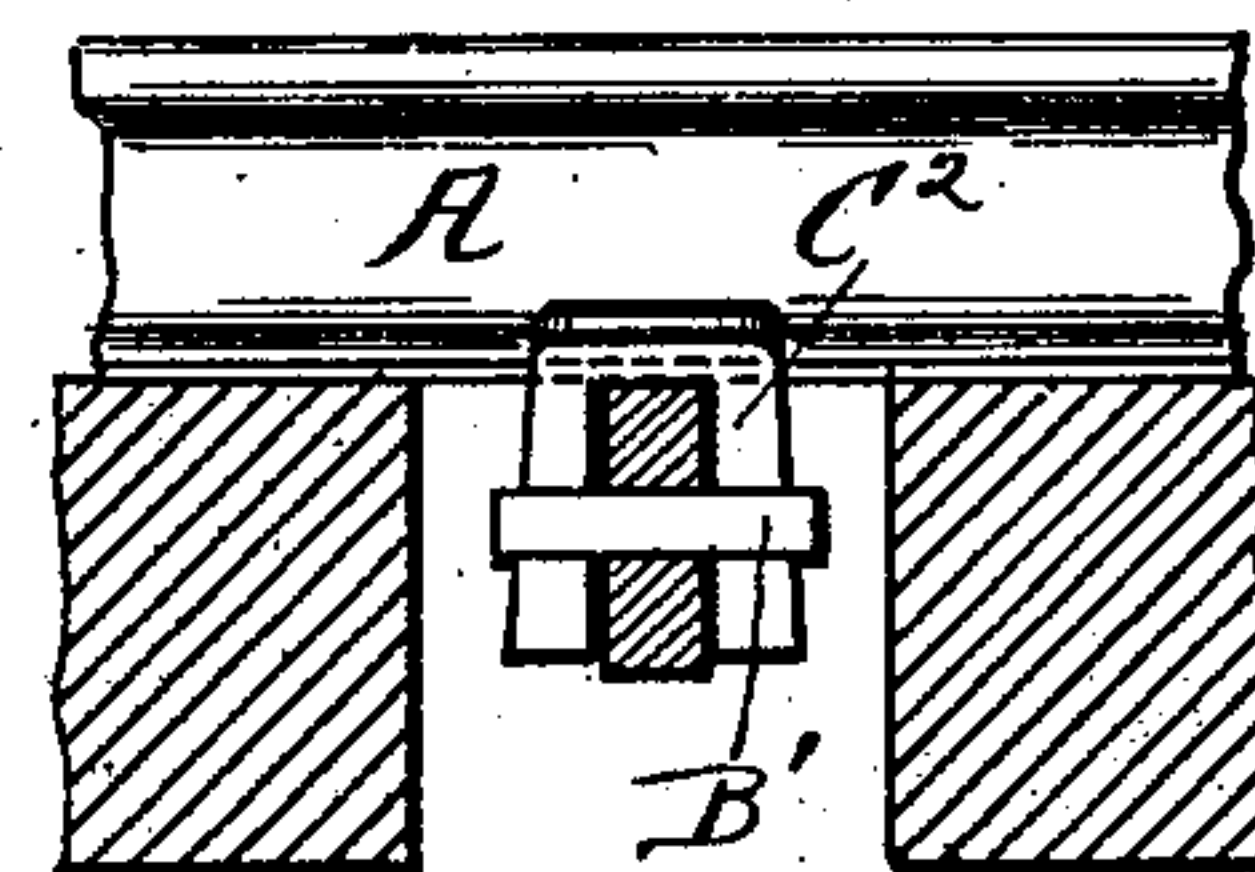
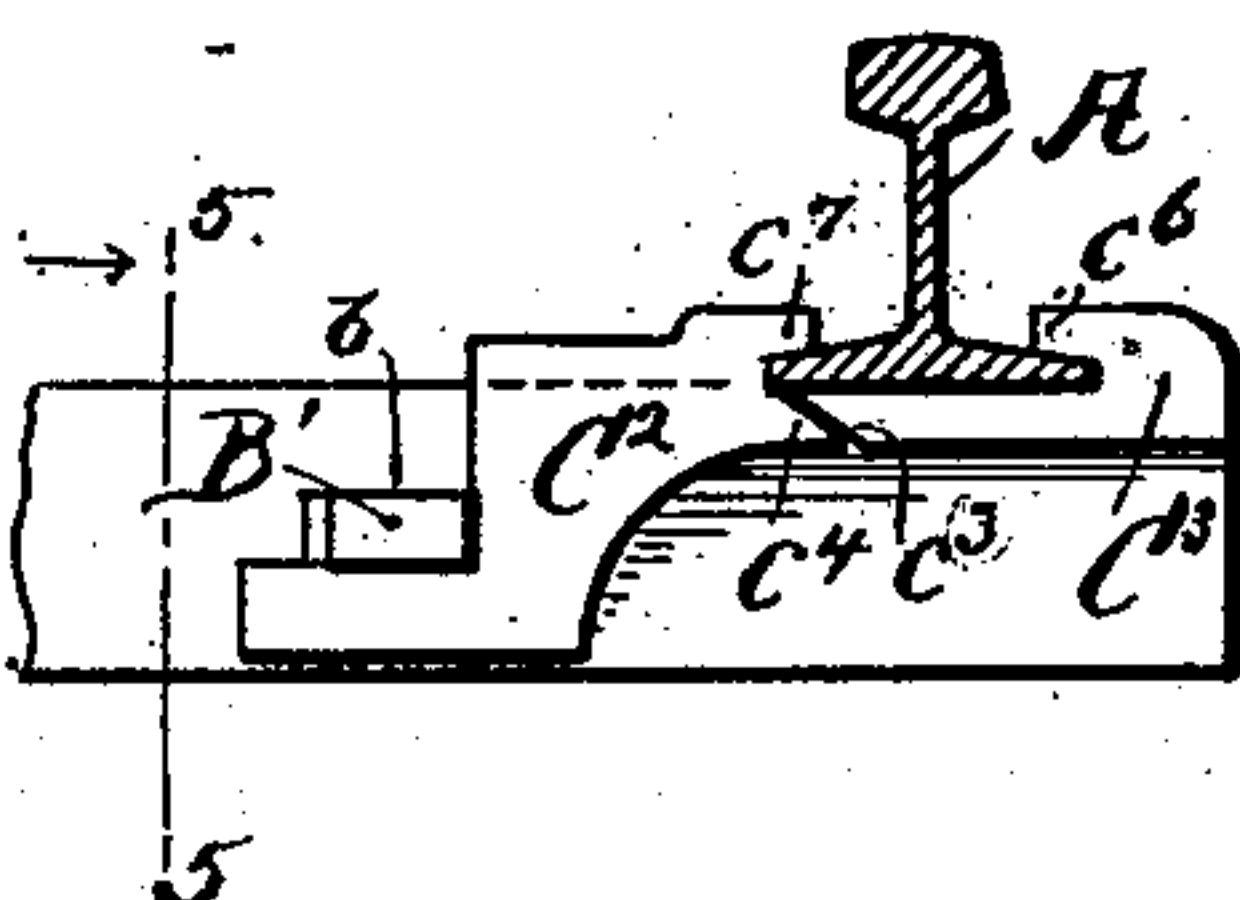
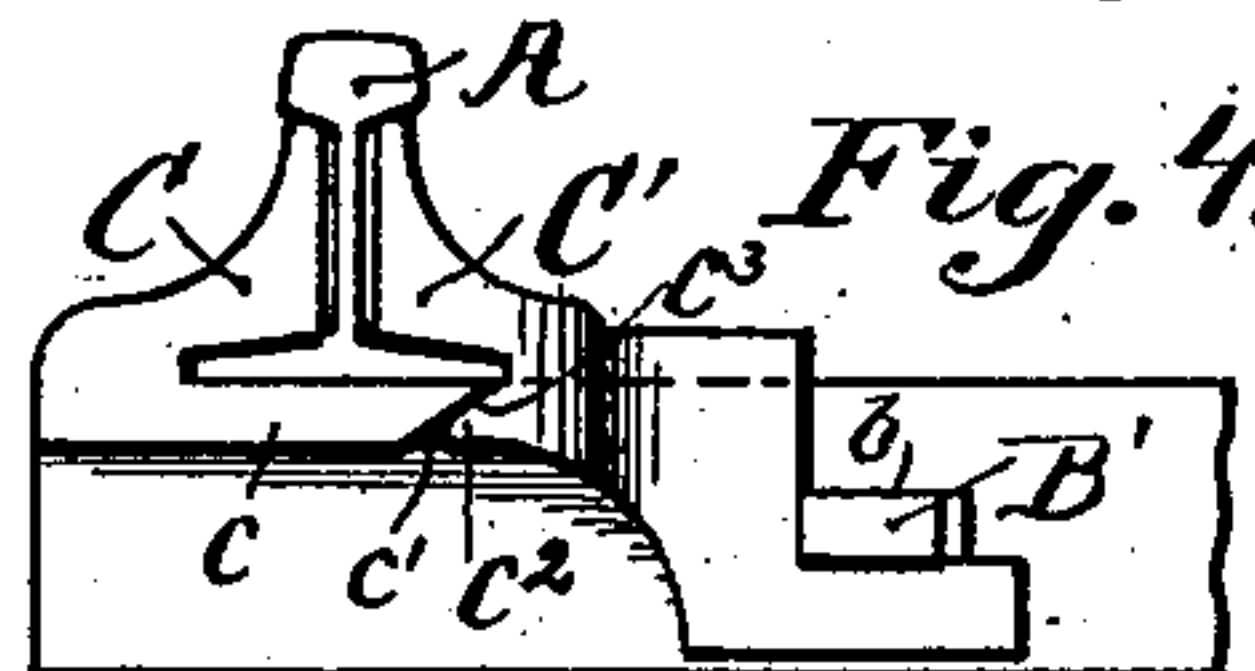
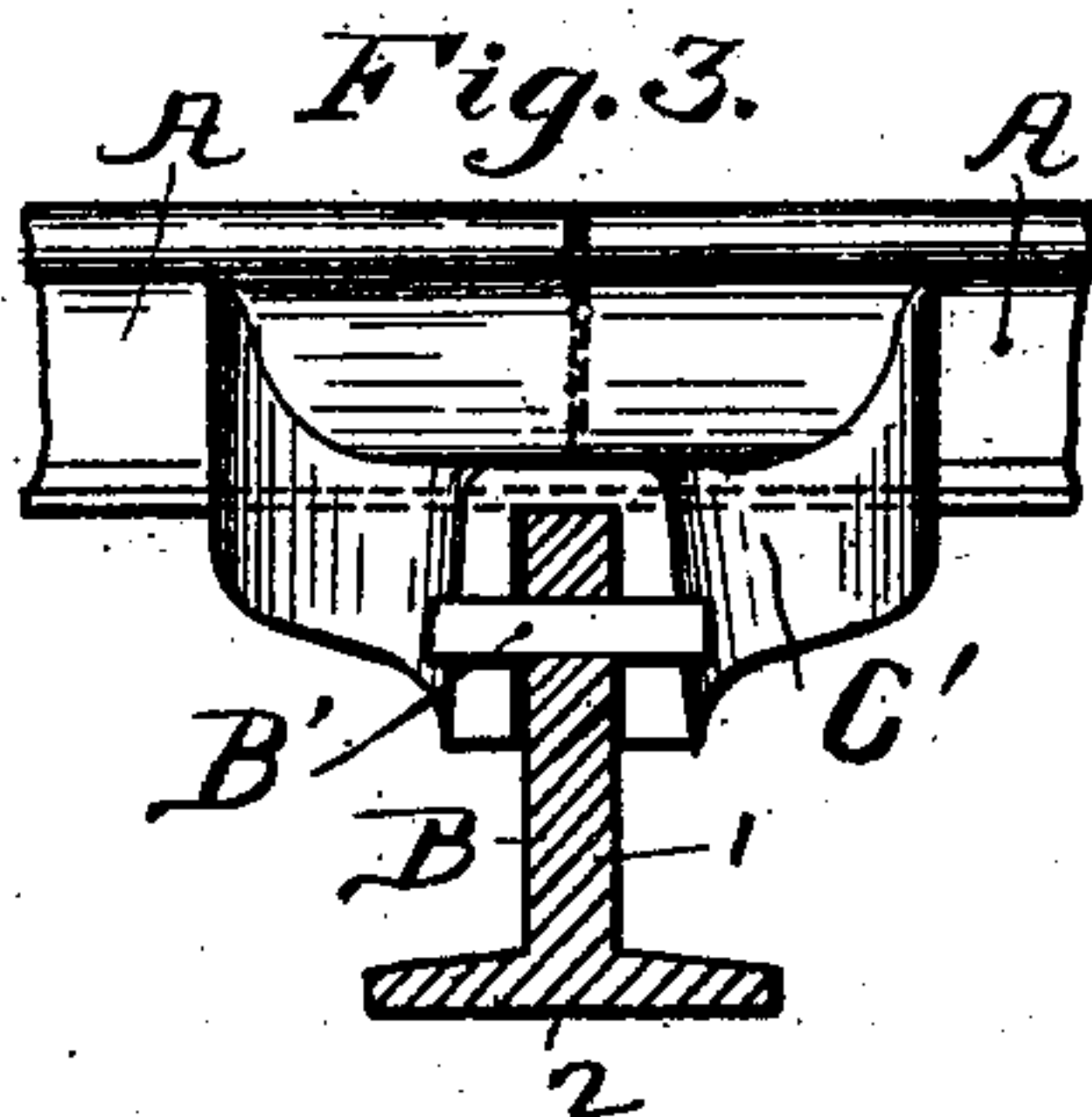
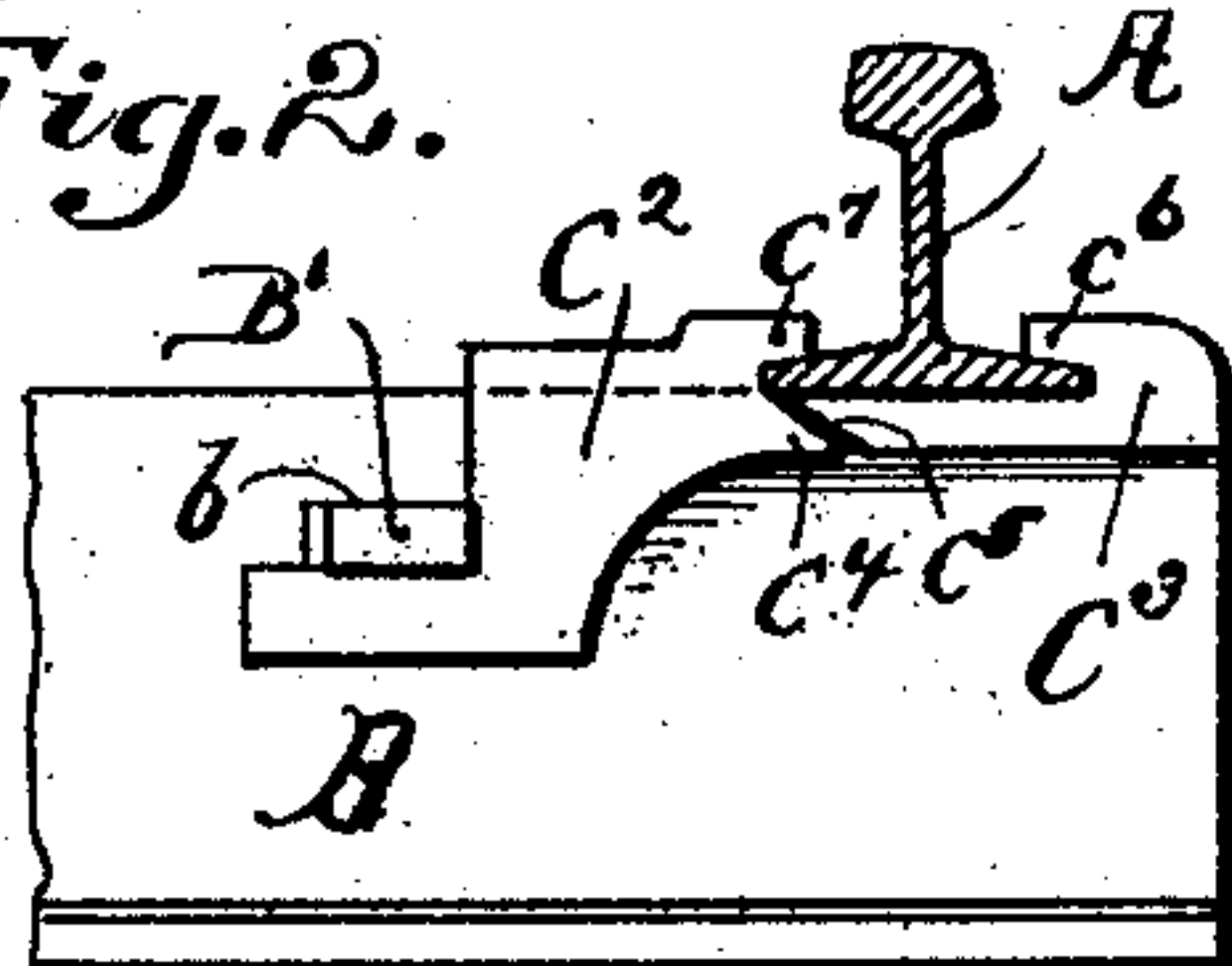
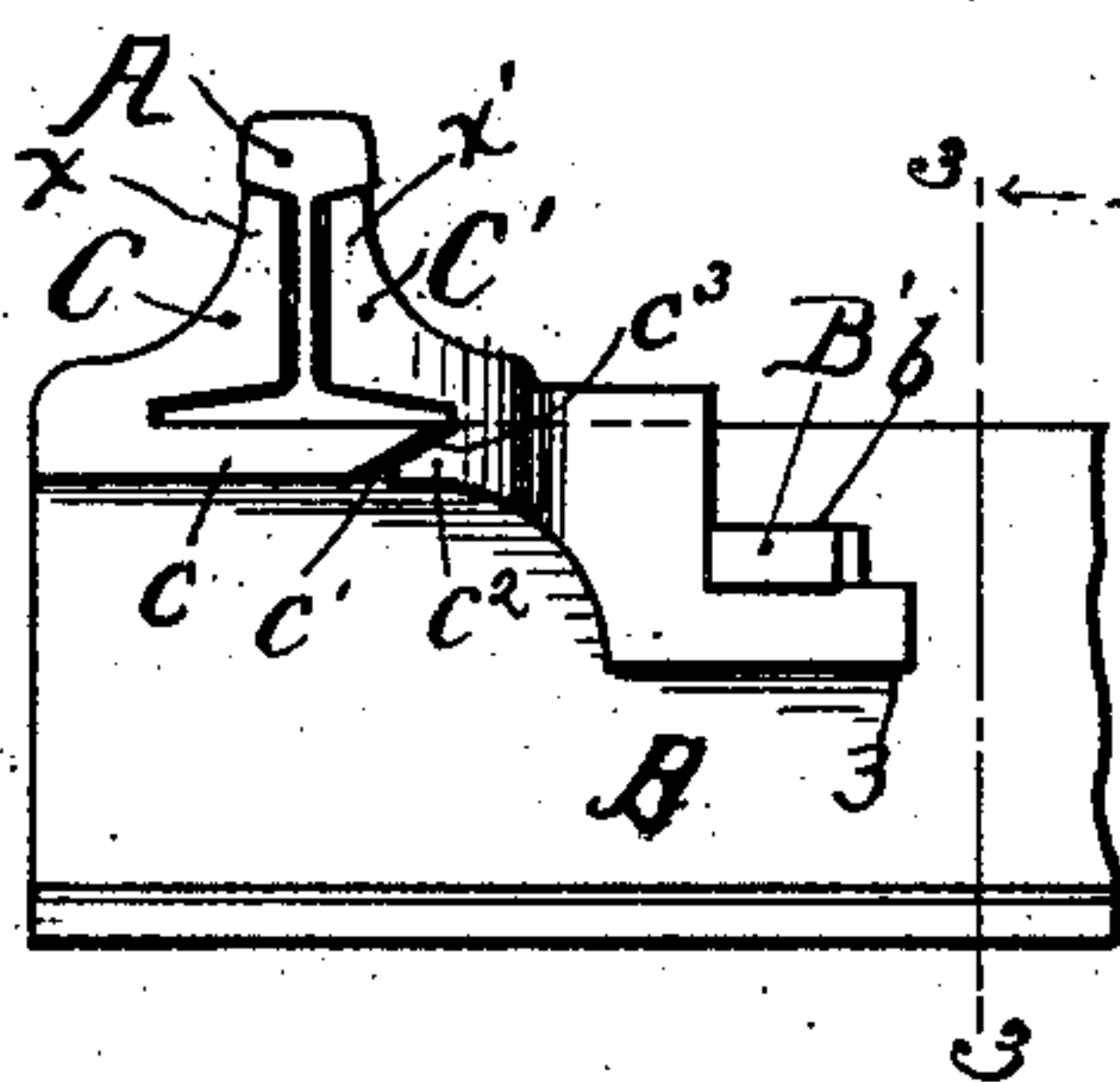
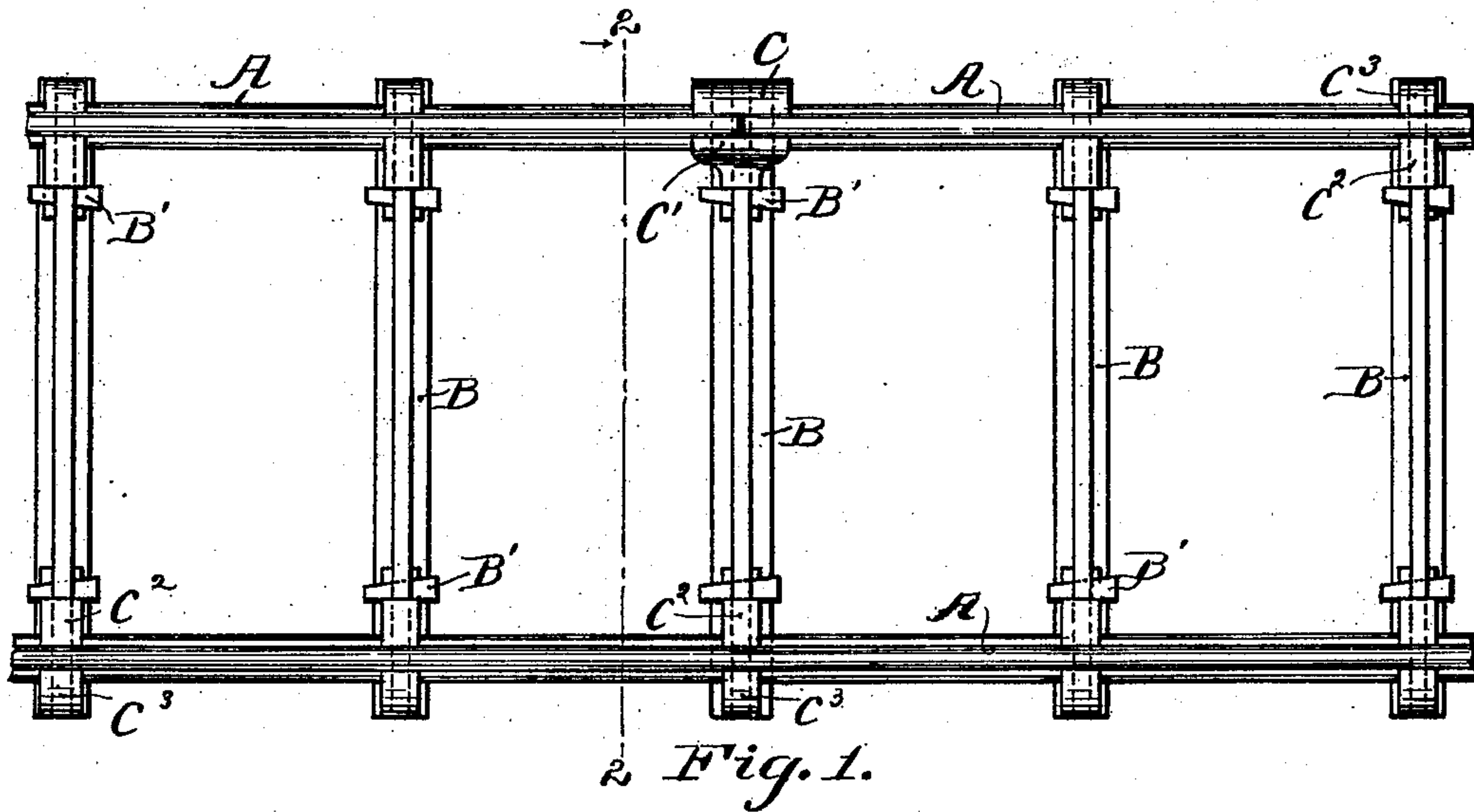
Patented Jan. 7, 1902.

J. P. BICKERSTAFF.

RAILWAY TIE.

(Application filed May 14, 1901.)

(No Model.)



Witnesses:  
H. W. Stevenson  
Thomas Whittaker.

Inventor:  
James P. Bickerstaff  
by J. W. Stevenson  
Attorney.



# UNITED STATES PATENT OFFICE.

JAMES P. BICKERSTAFF, OF ROCHESTER, PENNSYLVANIA, ASSIGNOR OF  
ONE-HALF TO JOHN A. MILLER, OF ROCHESTER, PENNSYLVANIA.

## RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 690,691, dated January 7, 1902.

Application filed May 14, 1901. Serial No. 60,211. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES P. BICKERSTAFF, a citizen of the United States of America, residing at Rochester, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Ties; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in metallic railway-ties, together with a device to substitute nuts, bolts, and splice-bars for rail-joints as rail-tie fasteners, all of which I fully describe hereinafter.

With this object in view my invention consists in the novel construction, arrangement, and combination of parts to form a perfect system of rail-tie fasteners and rail-ties united together.

In describing my invention in detail I refer to the accompanying drawings, forming a part of this specification, wherein like characters of reference will indicate similar parts throughout the several views.

Figure 1 is a plan view of a railway-track with my invention in place thereon, showing the rail-joint of two rails. Fig. 2 is a side view of one of my metallic ties and fasteners shown thereon. Fig. 3 is a sectional view of one of my rail-ties, showing the rail-fastening device in position at the rail-joint. Fig. 4 is a modified view of Fig. 2, showing the flange or lower portion of the tie cut. Fig. 5 is a sectional view of my railway-tie, showing the rail-fastening device for a single rail. Fig. 6 is a view of my railway-tie device, showing only the portion thereof at the joint as seen in Fig. 3 when used merely as a rail-tie fastener as a substitute for the usual bolts, splice-bars, nuts, &c. Fig. 7 is a perspective view of the movable shoe C'.

The tie B may be cross-sectionally of inverted-T shape having the base 2 and web 1. At each end it is provided with a fixed shoe forming a part of the rail-fastening devices. Where a joint is formed by two rails A A, the fixed shoes will be wider than those used for a single rail and will also be somewhat differ-

ently formed. A fixed shoe for a joint is indicated at C in Figs. 1, 2, 4, and 6, and a fixed shoe for a single rail is indicated at C<sup>3</sup> in Figs. 1, 2, and 4. Preferably these fixed shoes will be integral with the tie B; but they may be made separately and be rigidly secured to the tie B.

Referring to Figs. 2, 4, and 6, it will be observed that the shoe C has a base portion c, upon which the rails A are supported, and a brace part x, which fits in between the heads and flanges of the rails A and performs the function of the ordinary fish-plate. The inner edge of the base portion c is beveled, as indicated at c'.

The movable shoe or brace for a joint is indicated by C' in Figs. 1, 2, 4, 6, and 7, and this shoe is slotted, as indicated at y, to straddle the web portion 1 of the tie. This shoe is provided with a brace portion x', which fits between the flanges and heads of the rails A, and also with a lip c<sup>2</sup>, which projects under the flanges of the rails and which has a beveled surface c<sup>3</sup>, adapted to engage the beveled edge c' of the base portion c. The shoe C' is also provided with projecting fingers or lugs 3 3—one on each side of the slot. The web portion 1 of the tie is provided with an opening b for the passage of a wedge B', and when the parts are in position the fingers 3 will engage the lower surface of the wedge, and the shoe C' will be forced into close contact with the inner sides of the rails A by the wedge B', and the rails will thus be firmly secured without the aid of spikes or similar devices.

The shoes C<sup>2</sup> and C<sup>3</sup>, used for a single rail, are similar to the shoes C' and C<sup>3</sup>, except that the brace portions x and x' are omitted and they are not so wide. The shoe C<sup>3</sup> is integral with the tie B, while the shoe C<sup>2</sup> is removable. The lips c<sup>6</sup> and c<sup>7</sup> on the shoes which fit over the flange of the rail and the bevel parts c<sup>5</sup> and c<sup>4</sup> of the shoes will when wedged up tightly by the wedge B' against the rail and each other form a secure locking device for the rail.

Having described the invention, I claim—

1. The combination of a tie B having a shoe rigidly connected to it to engage the outer edge of a rail, said tie having a web portion provided with an opening b, a shoe provided with a slot to fit over said web portion and being movable thereon to engage the inner

side of the rail, a wedge fitted in said opening and engaging said movable shoe to force it against the rail, and said movable shoe having fingers projecting below and engaging said wedge, substantially as set forth.

2. The combination of a tie B having a shoe rigidly connected to it to engage the outer side of the rail and said shoe having a beveled inner edge below the rail, said tie having a web portion provided with an opening b, a shoe provided with a slot to fit over said web portion and being movable thereon to engage the inner side of the rail, a wedge fitting in said opening and engaging said mov-

able shoe to force it against the rail, and said movable shoe being provided with a lip projecting under the rail and having a beveled edge to engage the beveled edge of the other shoe, and having also fingers projecting below and engaging the said wedge, substantially as set forth.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JAMES P. BICKERSTAFF.

Witnesses:

JNO. R. NIBLO,

EDWIN O. MCCAULEY.