

No. 681,508.

Patented Aug. 27, 1901.

R. RABY.  
METALLIC RAILROAD TIE.  
(Application filed Apr. 22, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

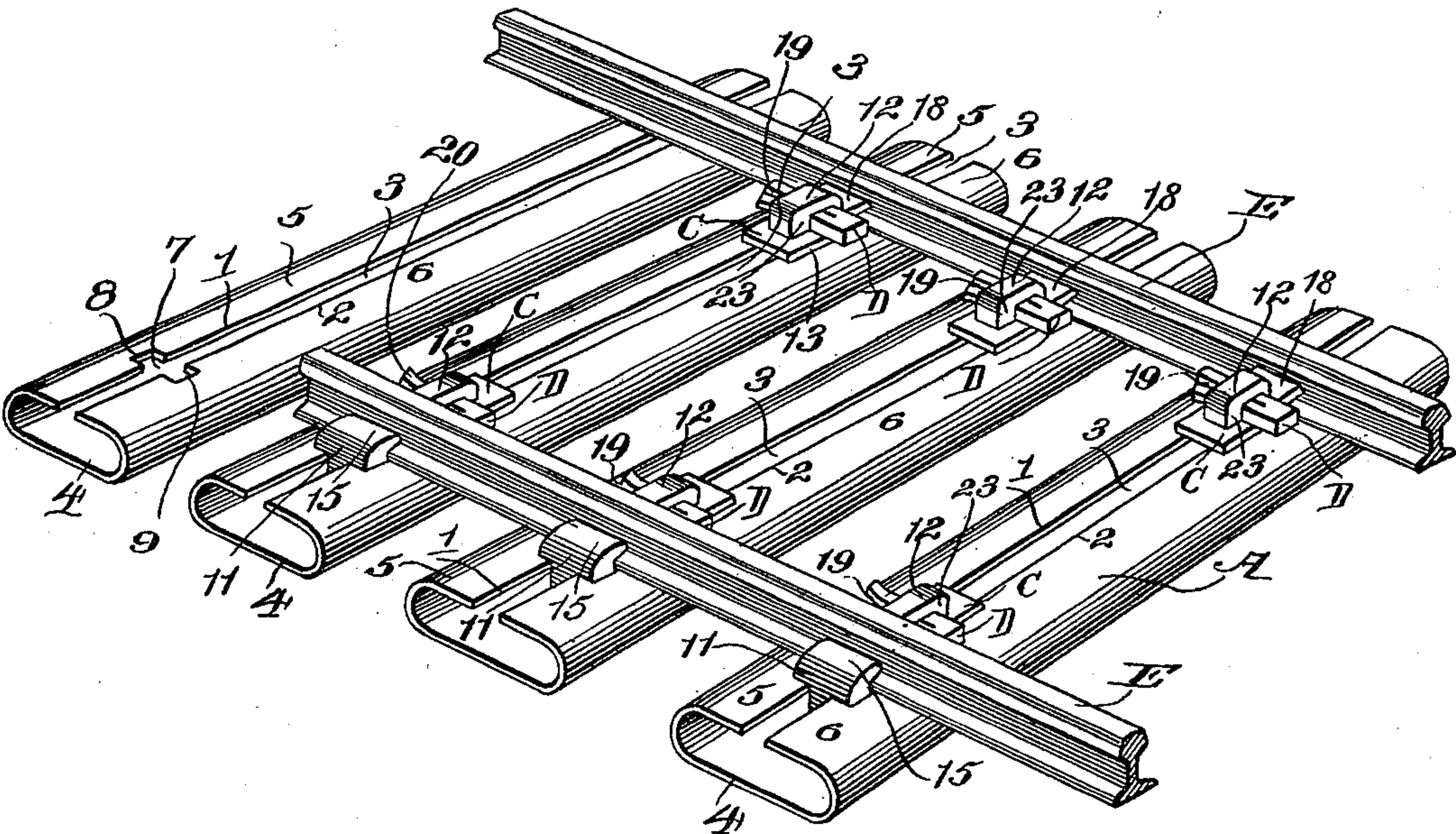


Fig. 2.

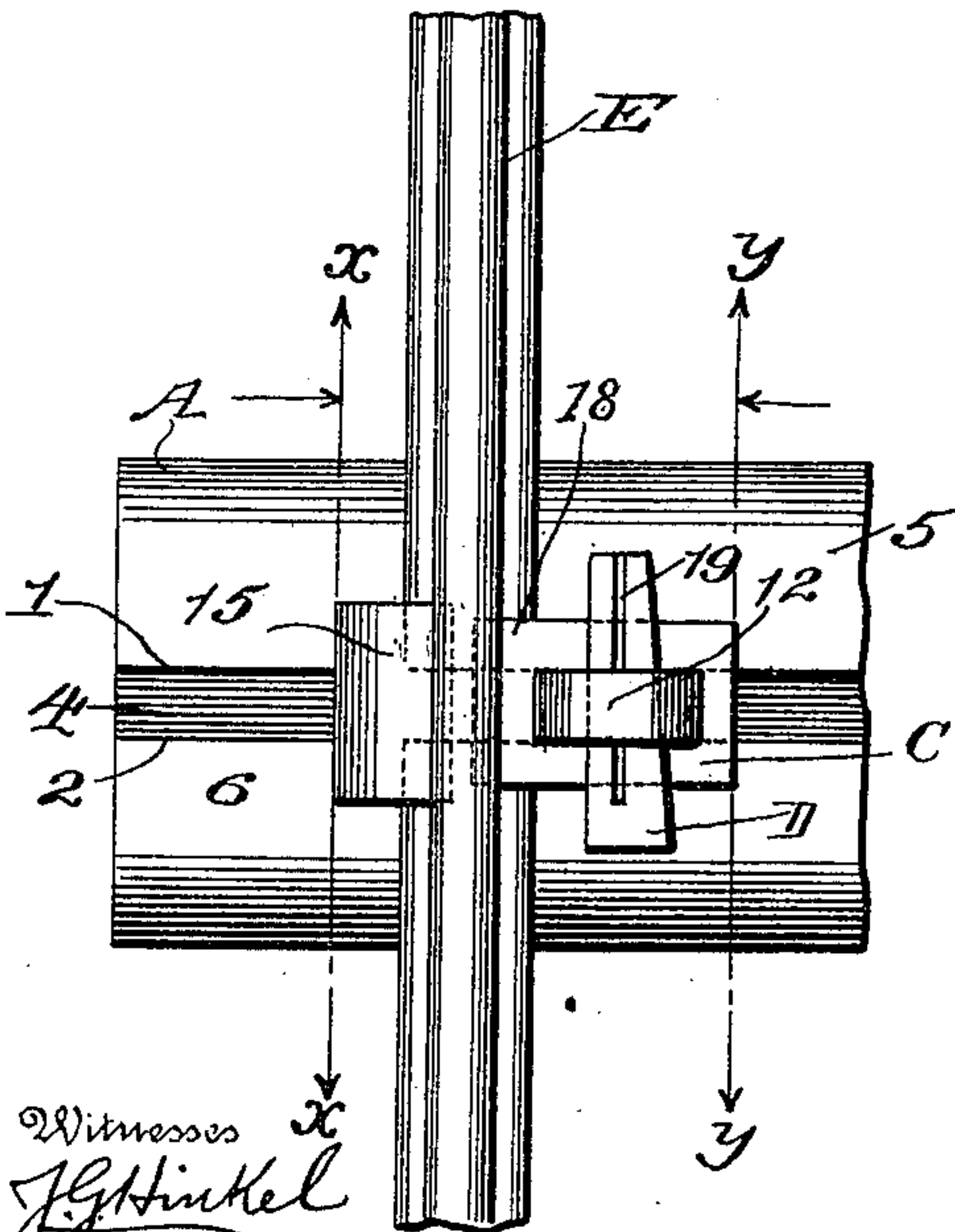
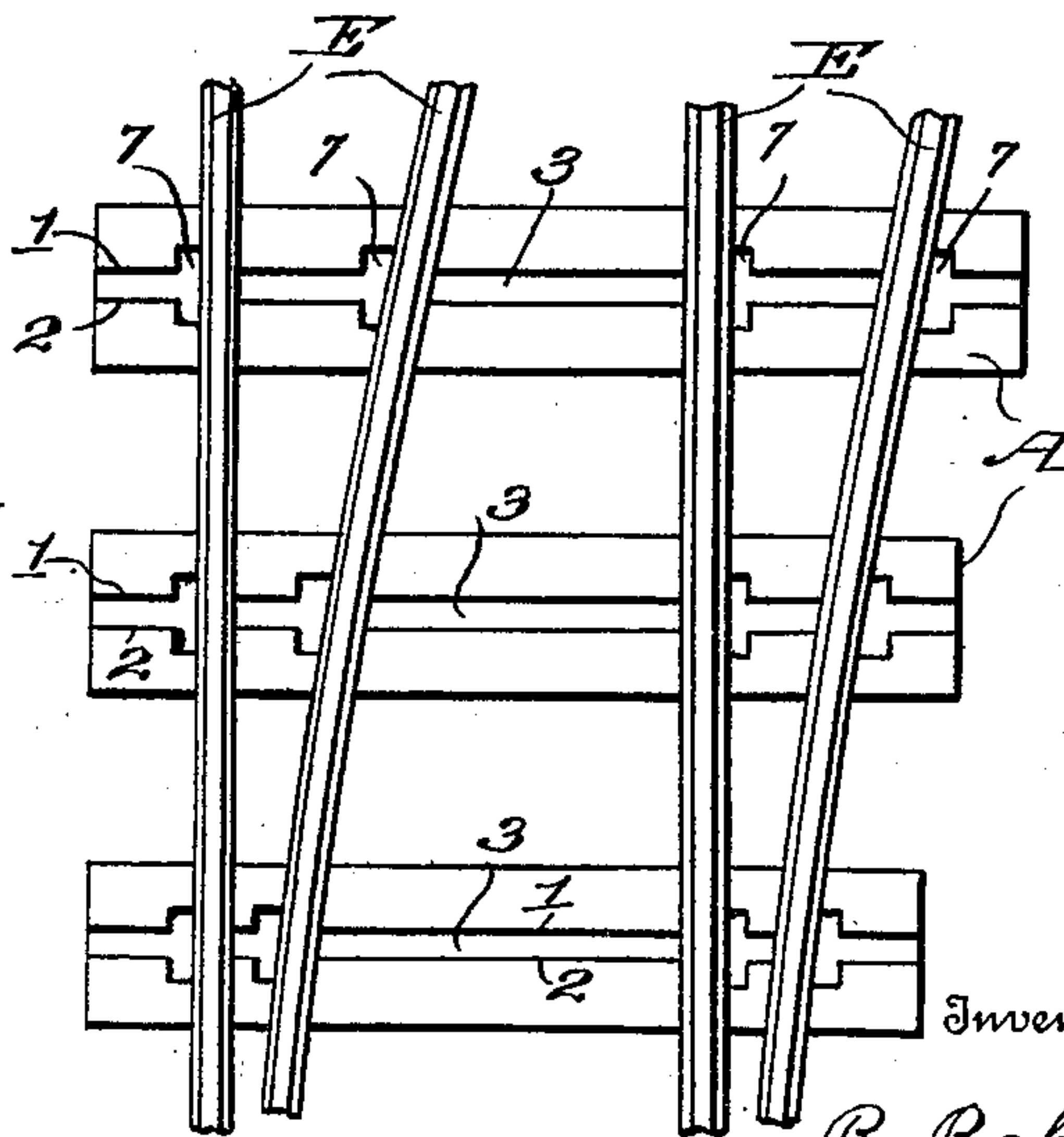


Fig. 11.



Witnesses  
J. Hinkel  
C. W. Clement

Inventor  
R. Raby  
By Watson & Watson  
Attorneys

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2 Sheets—Sheet 2.

Fig. 3

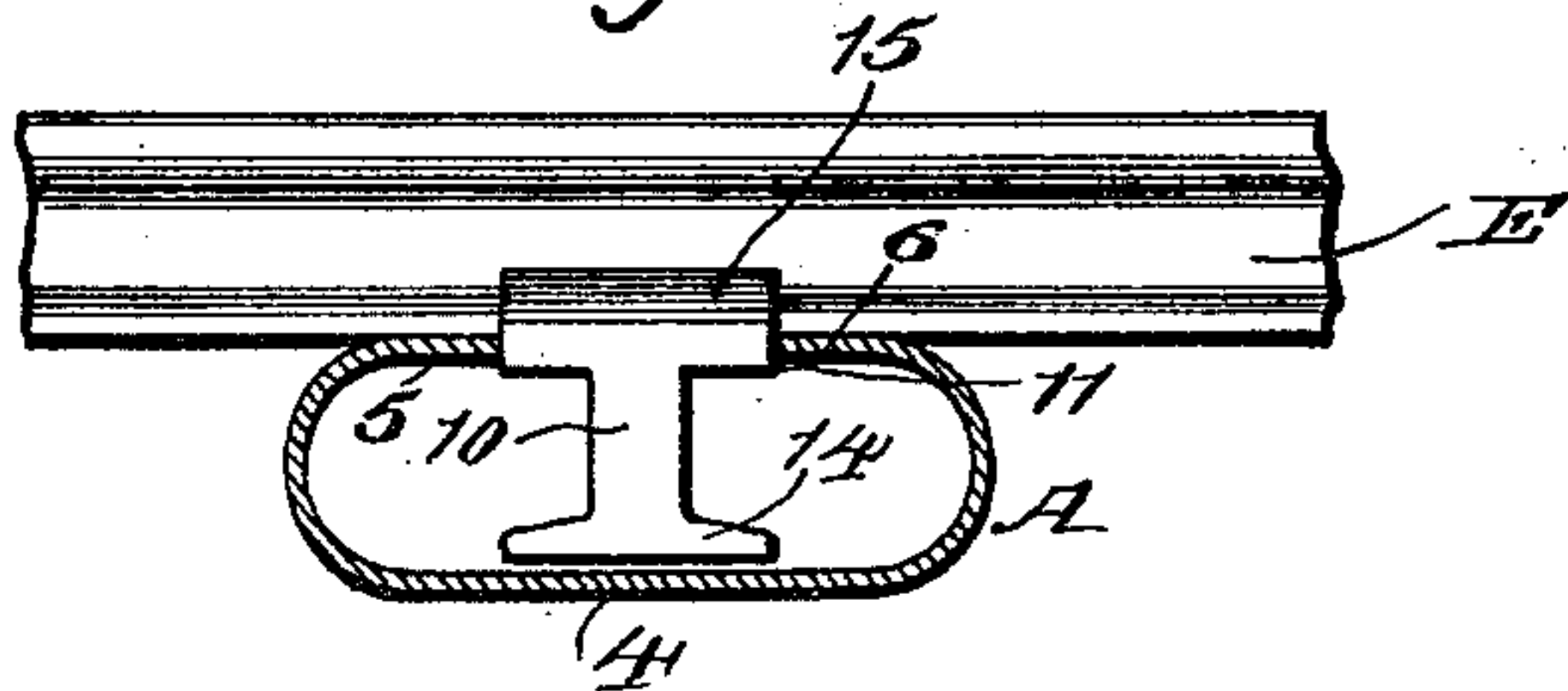


Fig. 4.

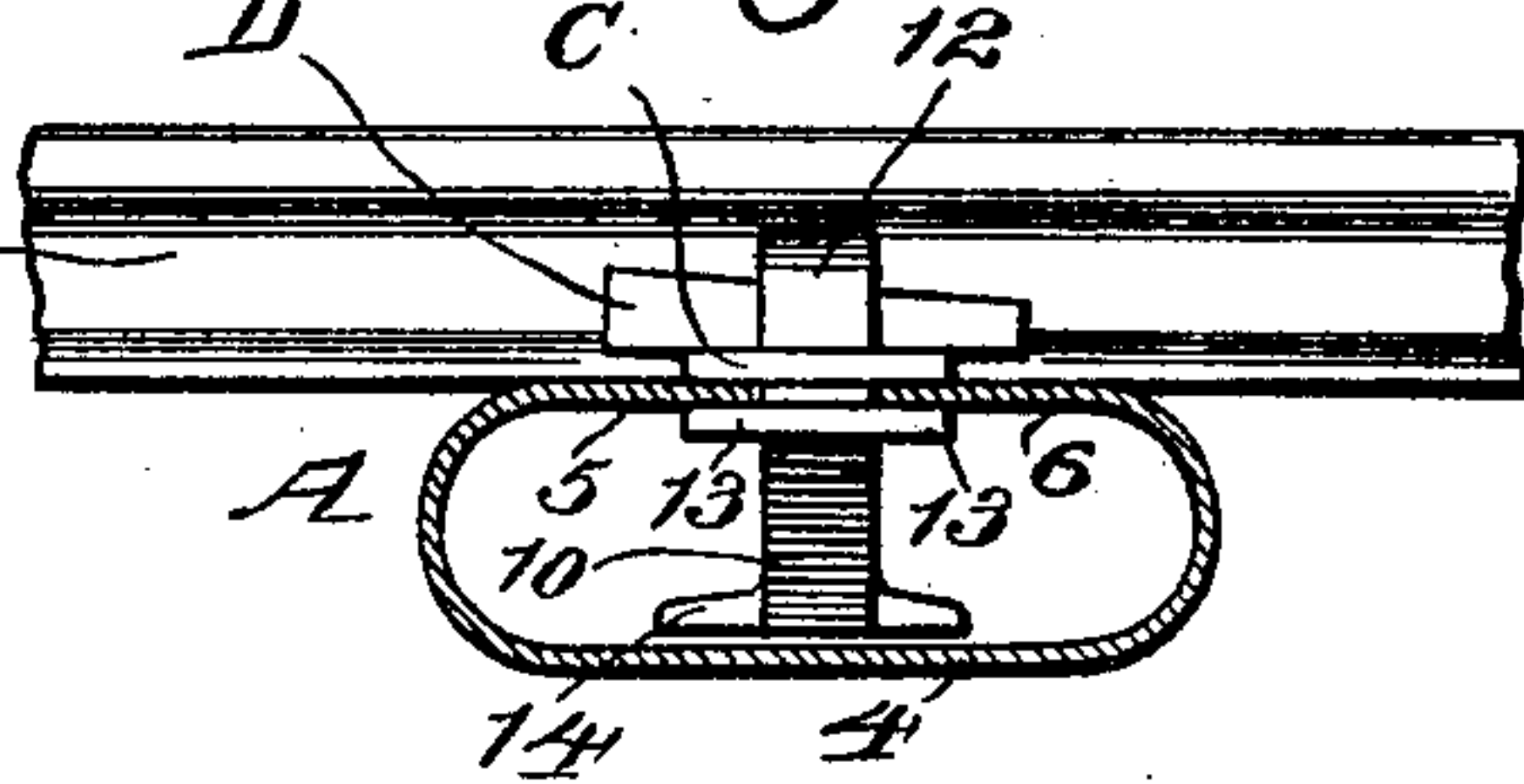


Fig. 5.

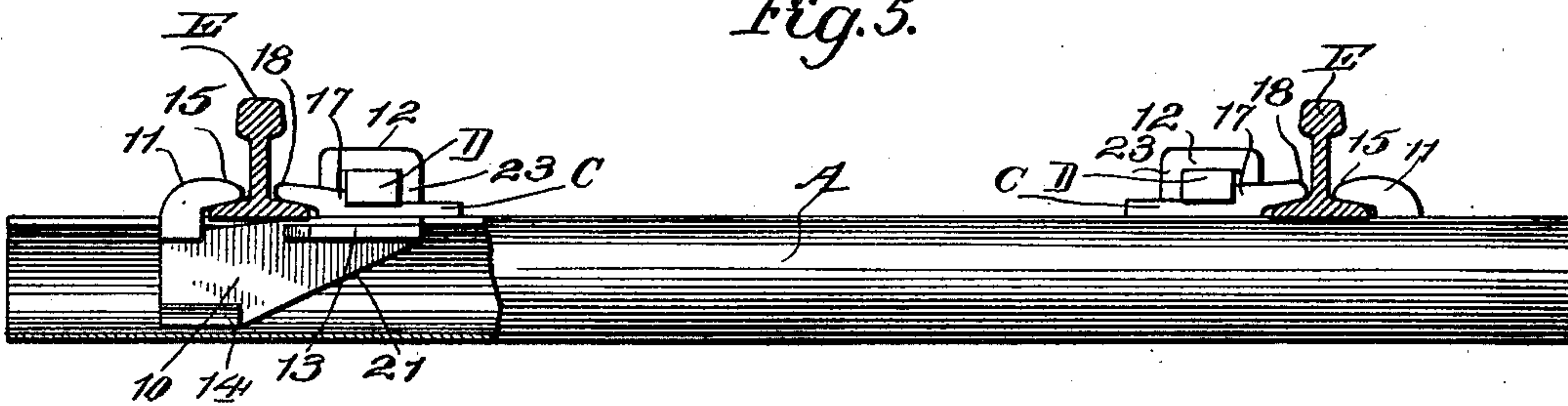


Fig. 6.

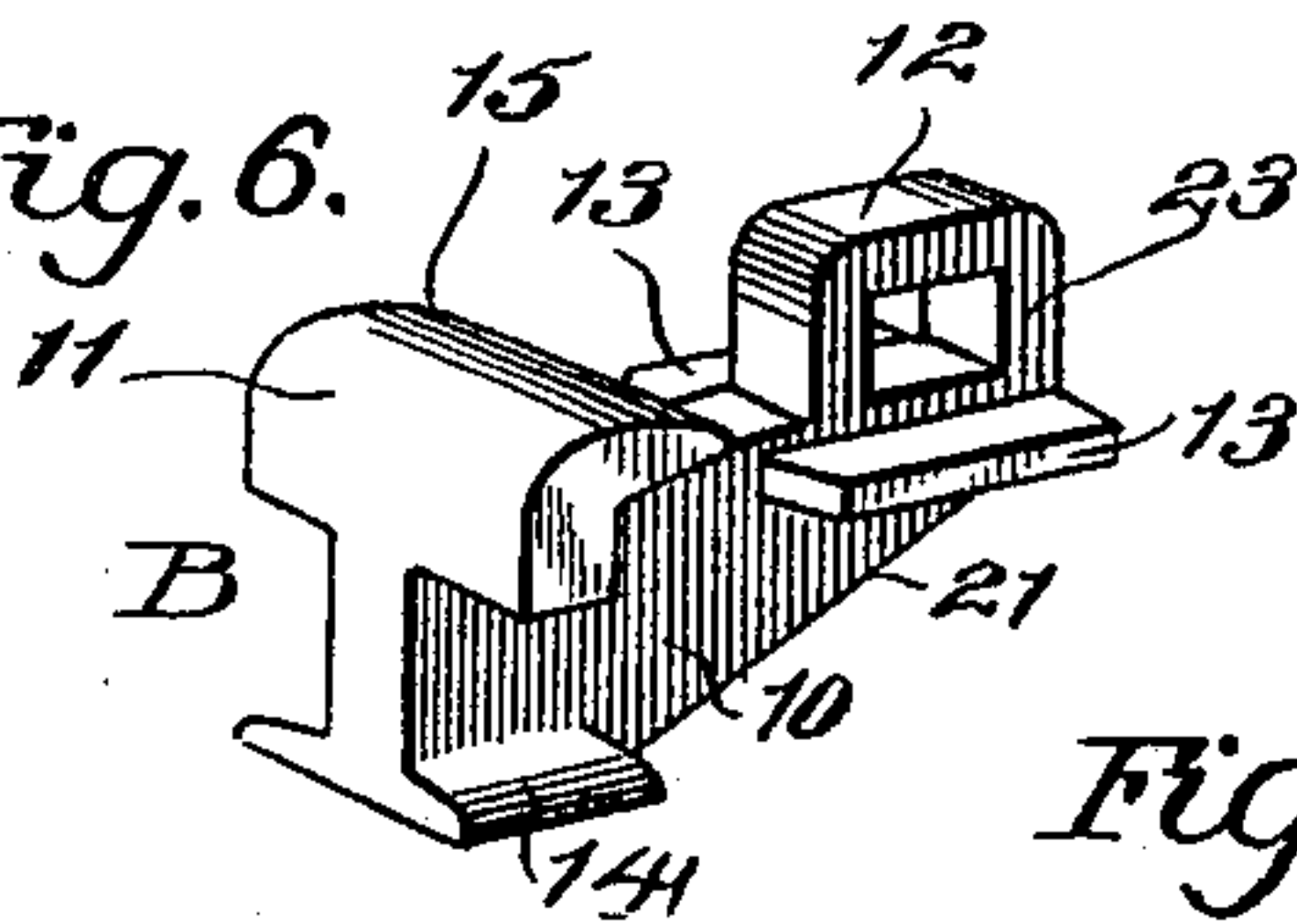


Fig. 7.

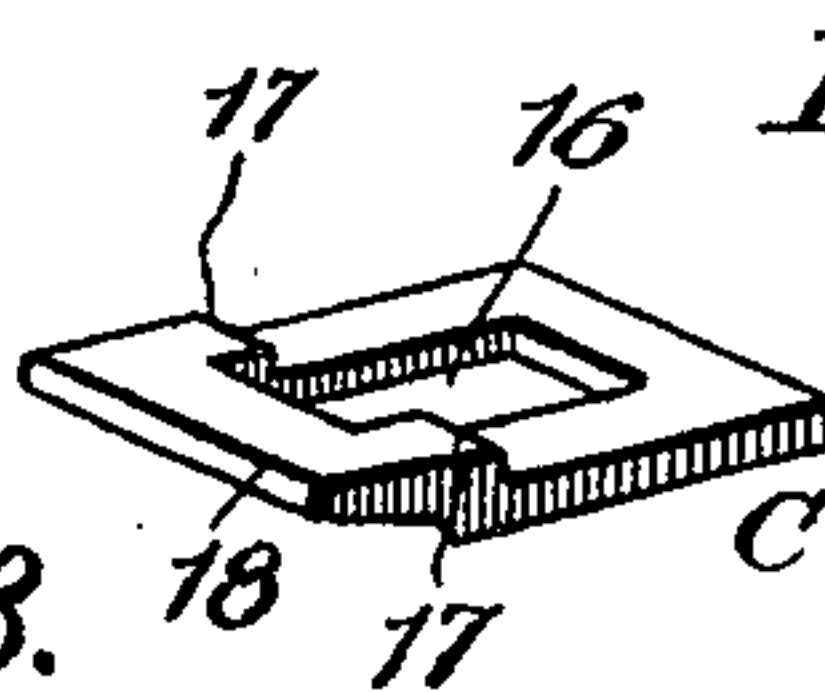


Fig. 8.

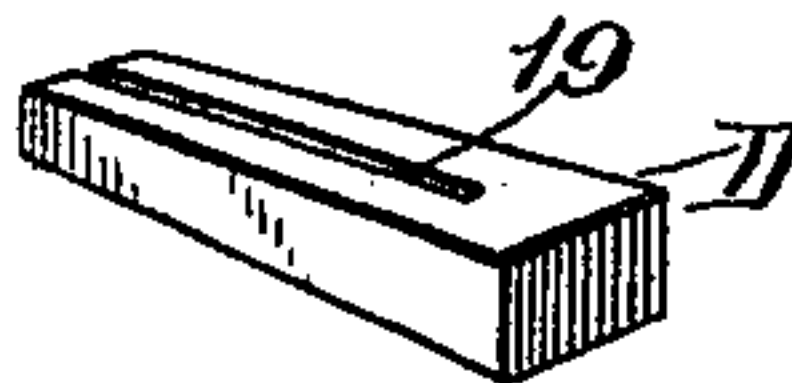


Fig. 9.

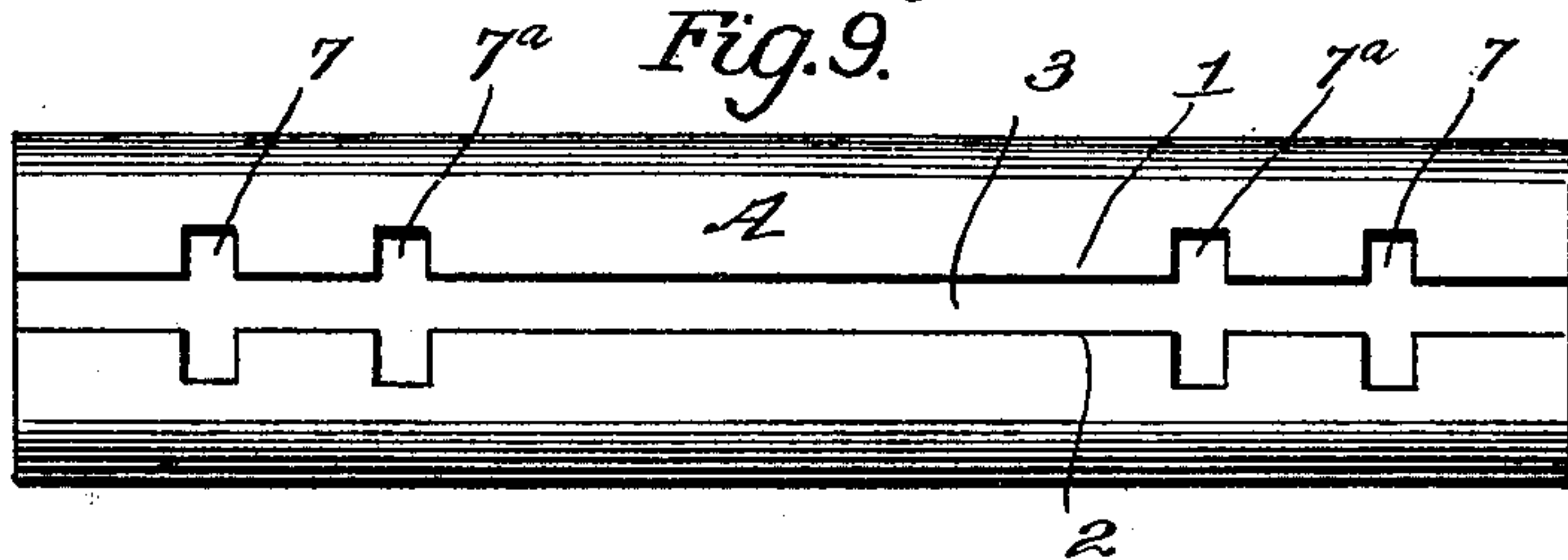
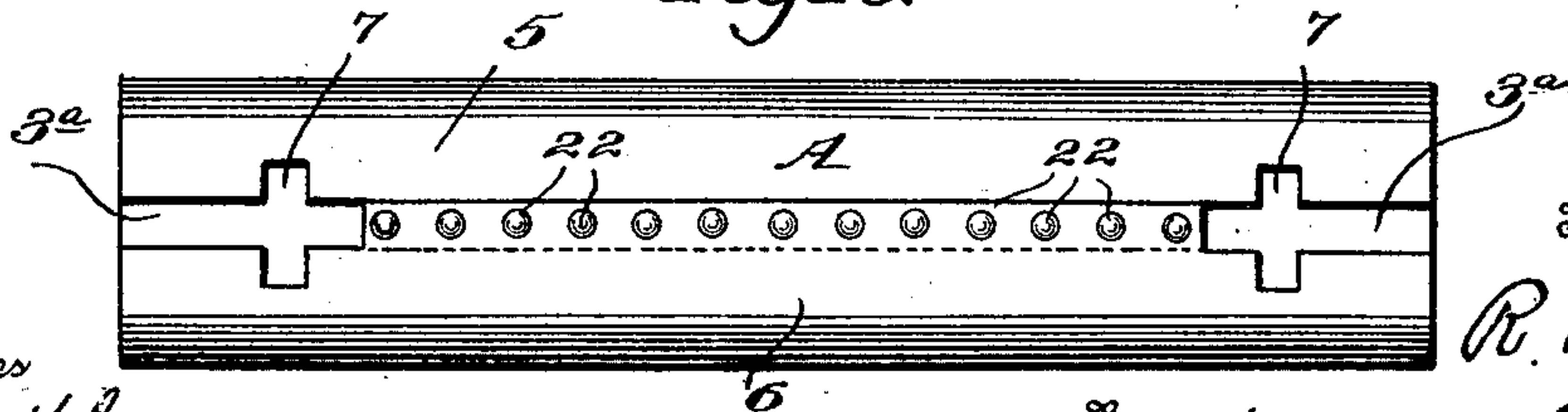


Fig. 10.



Witnesses

J. Hinkel  
C. H. Clement.

Inventor

R. Raby.

By

Watson & Watson  
Attorneys



# UNITED STATES PATENT OFFICE.

RICHARD RABY, OF YORK, PENNSYLVANIA.

## METALLIC RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 681,508, dated August 27, 1901.

Application filed April 22, 1901. Serial No. 56,892. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD RABY, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Railroad-Ties, of which the following is a specification.

This invention relates to improved metal railway-ties and fastening devices, the details of which will be pointed out in the following specification.

In the accompanying drawings, Figure 1 is a perspective view of a portion of a railway-track, illustrating the invention. Fig. 2 is a plan view of a portion of a tie and rail with the clamping device in position. Fig. 3 is a section on the line  $xx$  of Fig. 2. Fig. 4 is a section on the line  $yy$  of Fig. 2. Fig. 5 is a side elevation, partly broken away, showing a tie with the rails in position. Figs. 6 and 7 are perspective views of the jaws which clamp the rails to the tie. Fig. 8 is a similar view of the wedge for securing the clamping-jaws. Fig. 9 is a plan view of a tie adapted for a broad or narrow gage railway. Fig. 10 is a similar view of a modified form of tie; and Fig. 11 is a similar view of ties adapted for carrying switch-rails, the latter being shown in position.

As shown in Figs. 1 to 5, inclusive, the tie A is formed from a metal blank, preferably sheet-steel, bent into the form of a flattened tube. The meeting edges 1 and 2 of the blank are separated from one another in order to provide a slot 3, extending longitudinally through the upper side of the tie. The lower side 4 of the tie, as shown, is substantially parallel with the upper side, the latter being divided into the two parts 5 and 6 by the longitudinal slot 3. Near each end of the tie an opening 7 is formed, extending transversely of the slot 3, said opening being formed by notches 8 and 9, which are cut through the upper wall of the tie.

The rails are secured to the ties by means of fastening devices. (Illustrated in Figs. 6, 7, and 8.) Fig. 6 illustrates one of the clamping parts, (indicated by the reference-letter B,) comprising a body or connecting portion 10, adapted to extend beneath the rail, a flanged head or jaw 11, arranged at one end of said connecting portion, a projection 12 at

the opposite end having an opening there-through to form an eye, side flanges 13 below said projection, and a foot 14, arranged at the base of the connecting portion. The connecting portion tapers, as shown at 21, from the depending foot toward the end having the projection 12. The connecting or body portion and the projection 12 are somewhat narrower than the width of the slot 3, and the vertical portion of the head 11 is adapted to fit within the opening 7 in the tie. The flanged end 15 of the jaw 11 is adapted to grip the base of the rail E upon its outer side. The cooperating clamping part consists of a plate C, having a rectangular opening 16 adapted to fit over the projection 12 of the part B and having shoulders 17 extending above the body portion of the plate and a head or jaw 18, adapted to extend over the base of the rail upon its inner side.

In applying the fastening device to a tie, the rails E being in position, the part B is tilted and inserted in the slot through the end of the tie, with the projection 12 foremost, the flanges 13 passing within the tie and the head 11 extending over the tie until the latter reaches the opening 7. The vertical portion of the head is then depressed into the opening formed by the notches, and the projection 12 is raised through the slot until the flanges 13 abut against the under side of the upper wall of the tie. In this position the flanged portion 15 will extend over the base of the rail upon its outer side. The plate C is then placed over the projection 12, with the head or jaw 18 resting upon the base of the rail at its opposite side, and the wedge D, Fig. 8, is then driven through the eye above the plate C. The wedge D, as shown, is slightly tapering on the sides and edges and has a longitudinal kerf 19 extending inwardly from its smaller end. This wedge is adapted to fit against the shoulders 17 upon the plate C and against the end post 23 of the eye in the projection 12 and when driven into position forces the jaws tightly over the base of the rail and at the same time clamps the tie between the plate C and the flanges 13. After the wedge is driven into position one of the prongs 20 of the wedge is turned outwardly, as shown in Fig. 1, thus preventing the parts from working loose. As the



vertical portion of the head 11 extends through the opening 7, it will be seen that the fastening devices are thus locked against movement longitudinally of the tie, and spreading of the rails cannot occur. The foot 14 upon the depending portion of the connecting part does not normally rest upon the lower wall 4 of the tie, but is held a short distance above said wall, as shown in Figs. 3, 4, and 5. This arrangement permits the upper wall of the tie to yield to a certain extent under the weight of the train; but the extent of movement is limited by the contact of the foot against the lower wall when the weight or impact is excessive, and thus crushing of the tie is prevented.

In Fig. 9 is shown a tie in all respects the same as that illustrated in the previously-described figures, except that it is formed with an extra set of transverse openings 7<sup>a</sup>, so that the tie may be used for broad or narrow gage railways.

Fig. 10 illustrates a tie in which the two parts 5 and 6 of the upper portion of the tie are brought together along the central line and secured by suitable rivets 22. As it is only essential to have the slots 3<sup>a</sup> extend inwardly from the end a sufficient distance for the insertion of the clamping-pieces, the intermediate portion of the tube may be united as shown or in any other manner for the purpose of strengthening the tie.

Fig. 11 illustrates ties suitable for supporting switch-rails. For this purpose the ties are made of any desired length, and a transverse opening 7 is formed wherever a rail crosses a tie. In practice the ties may be laid, and the openings or notches to receive the clamping-heads 11 may be formed after the rails are in position; but generally the notches will be formed during the course of construction of the ties. The clamping-jaws will of course be formed to suit the angle at which the rail crosses the tie.

The clamping parts may be differently formed and connected.

Instead of forming an eye in the projection 12 the latter may be notched to form a hook, or it may be otherwise suitably formed for the attachment of a jaw.

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

1. A railway-tie comprising a flattened sheet-metal tube having in its upper wall a longitudinal slot and notches in the sides of said slot, in combination with a rail-fastening device comprising two cooperating jaws adapted to grip the base of a rail on its opposite sides, one of said jaws extending up-

ward through the notches in the tie and being removably connected to the other jaw by a connecting part extending through the interior of the tie beneath the rail.

2. The combination with a railway-tie comprising a flattened sheet-metal tube having in its upper wall a longitudinal slot and notches in the side of said slot, of a rail-fastening device comprising a connecting portion arranged within the tie beneath the rail, a jaw at one end of said portion extending upwardly through the notches, a projection at the opposite end extending through the slot, and a cooperating jaw secured to said projection.

3. The combination with a railway-tie comprising a flattened sheet-metal tube having in its upper wall a longitudinal slot and notches in the sides of said slot, of a rail-fastening device comprising a connecting part arranged within the tie beneath the rail and having a jaw at one end extending through the notches, an eye at the opposite end extending through the slot, side flanges below said eye within the tie, a plate having an opening fitting over said eye and having a jaw adapted to grip the rail, and a wedge fitting within the eye above the plate.

4. The combination with a railway-tie comprising a flattened sheet-metal tube, the upper wall of which is adapted to support the rail, of a support within the tie arranged to permit a limited downward movement of the upper wall of the tie relatively to the lower wall.

5. The combination with a railway-tie comprising a flattened sheet-metal tube having in its upper wall a longitudinal slot and notches in the side of said slot, of a rail-fastening device comprising a connecting portion arranged within the tie beneath the rail and having a depending foot normally held a short distance above the lower wall of the tie, and jaws at the opposite ends of said connecting portion adapted to grip the rail, one of said jaws extending through the notches.

6. The combination with a railway-tie comprising a sheet-metal tube, of fastening devices for securing the rail to the tie, and a support secured to one wall of the tie and extending to within a short distance of the opposite wall and normally out of contact with the latter.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD RABY.

Witnesses:

J. A. WATSON,  
S. A. TERRY.