

No. 656,799.

Patented Aug. 28, 1900.

A. B. ALLEN.

METALLIC CROSS TIE AND RAIL FASTENING.

(Application filed Apr. 25, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

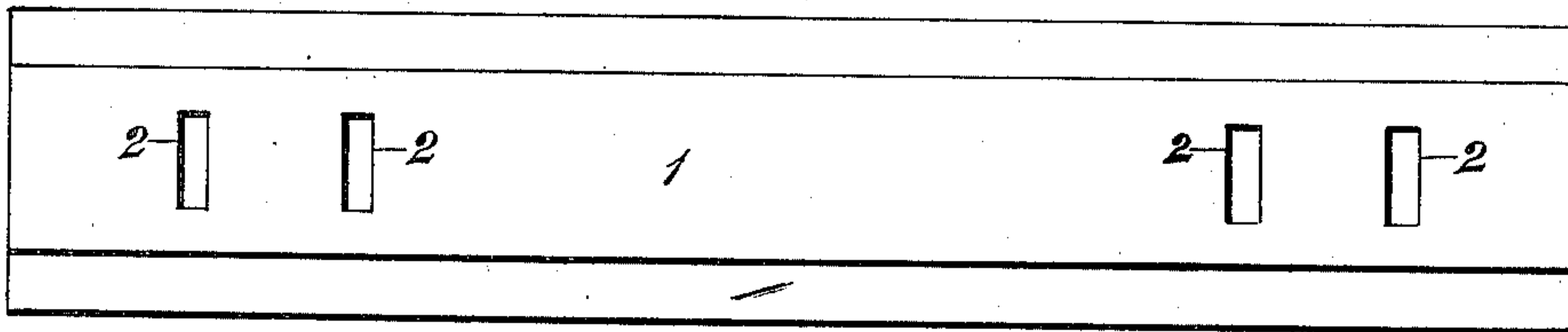


Fig. 2.



Fig. 3.

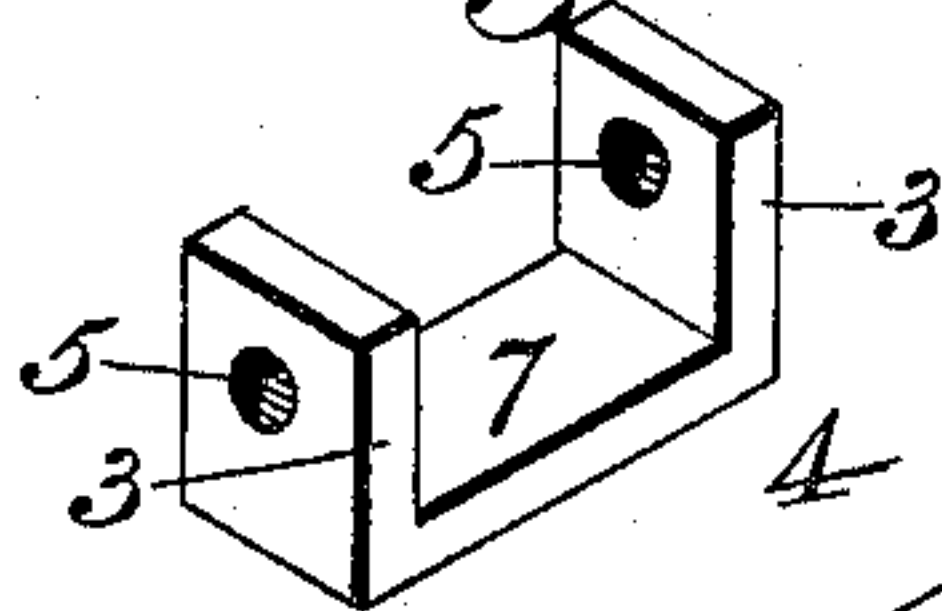


Fig. 4.

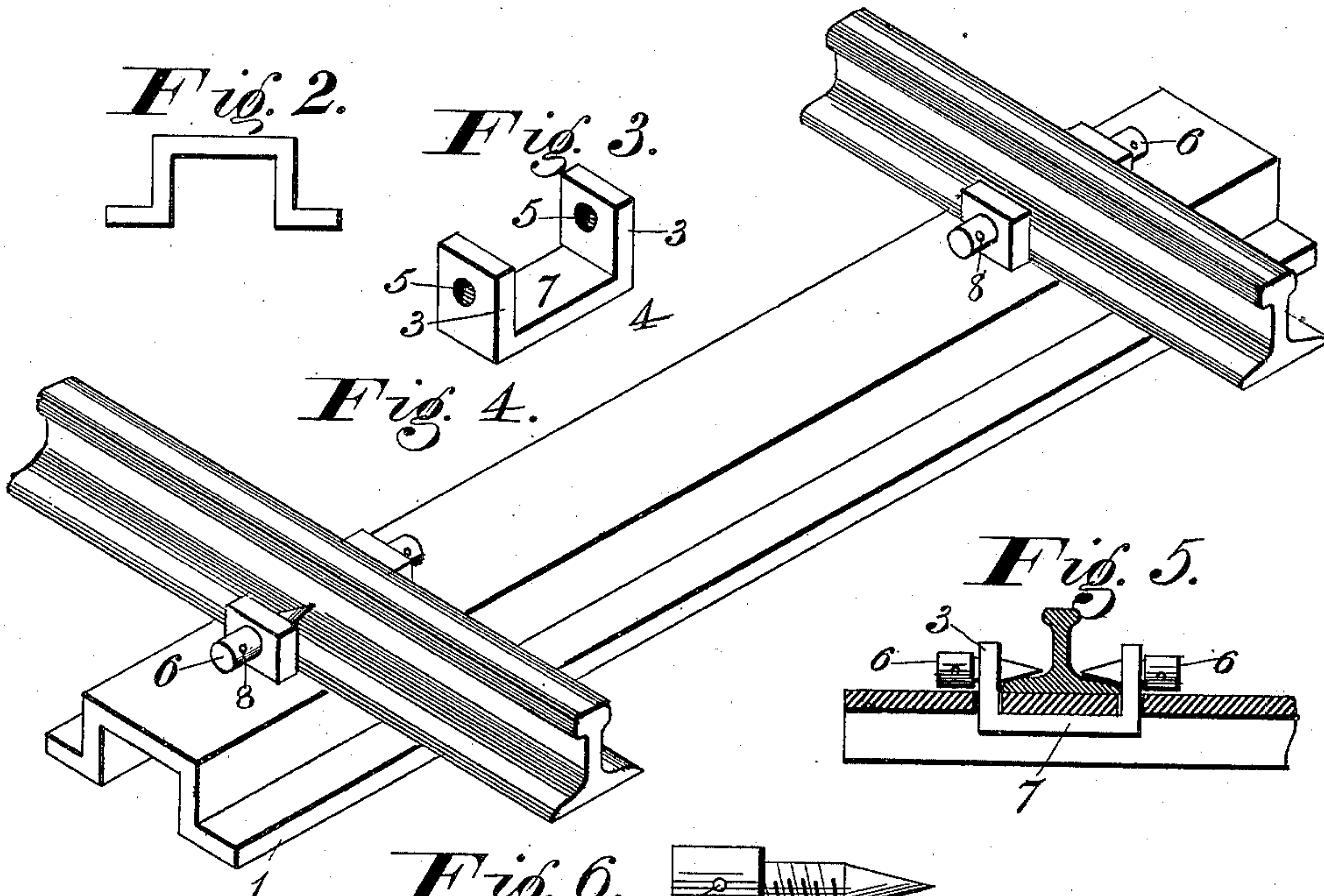


Fig. 5.

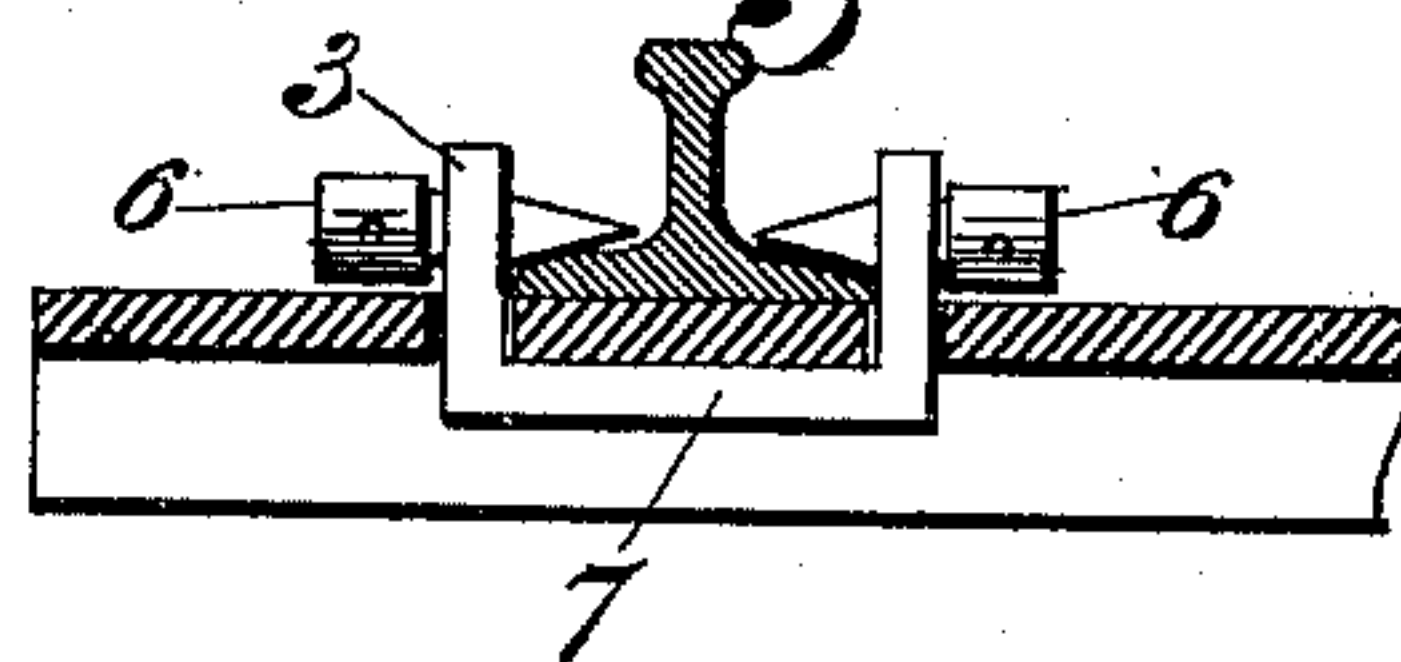
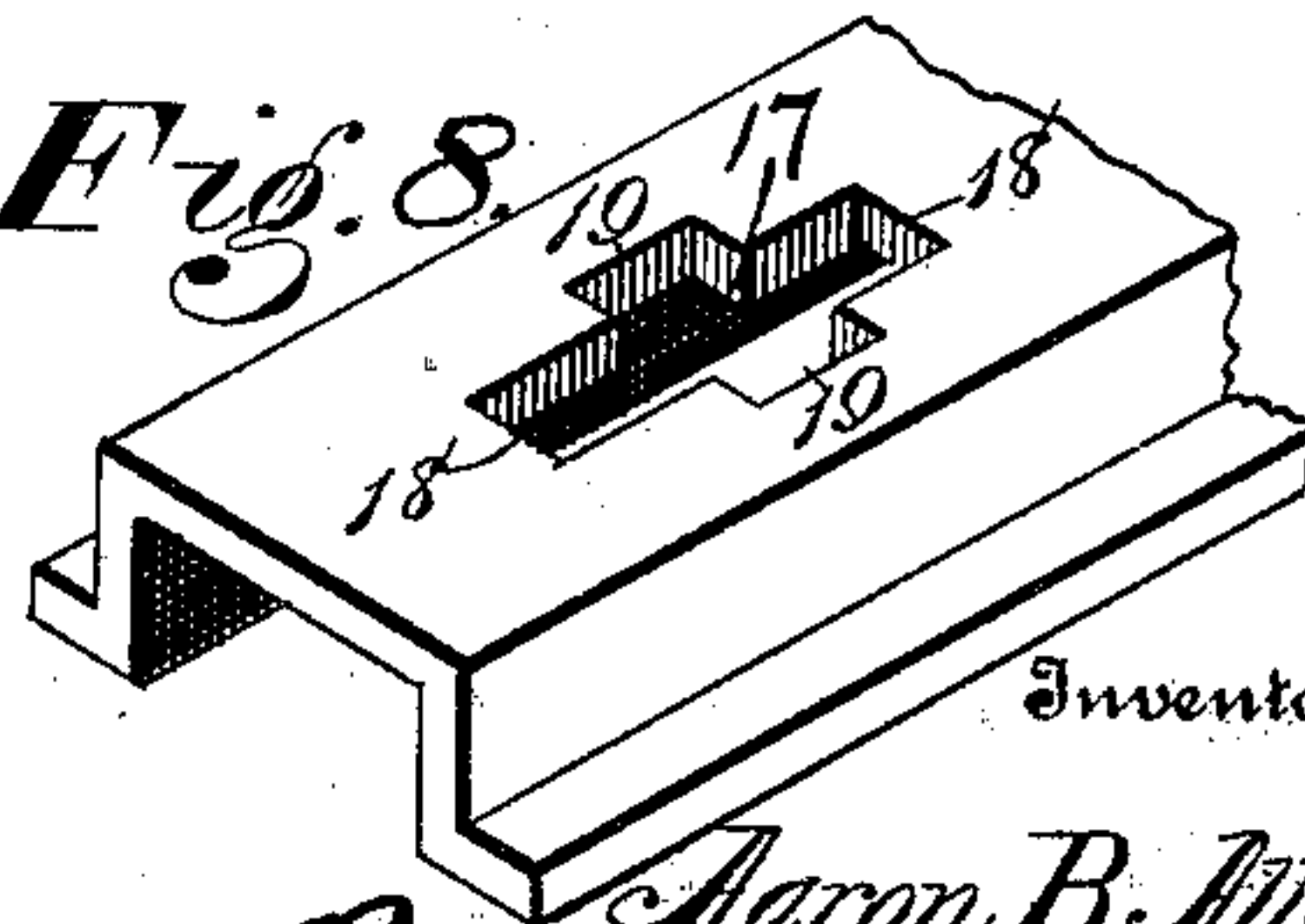


Fig. 6.



Fig. 8.



Inventor

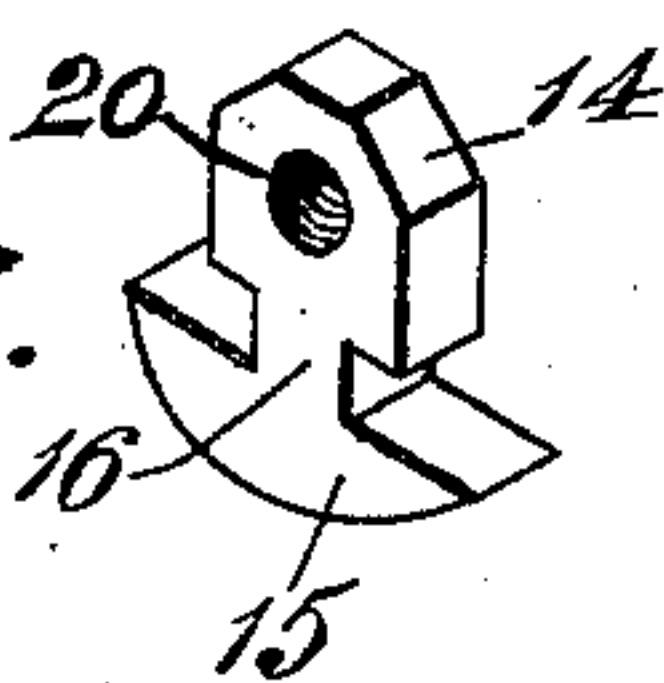
Aaron B. Allen

By *W. J. F. B. Allen*
Attorneys.

Witnesses

E. C. Overholt
A. S. Miller

Fig. 7.



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Fig. 9.

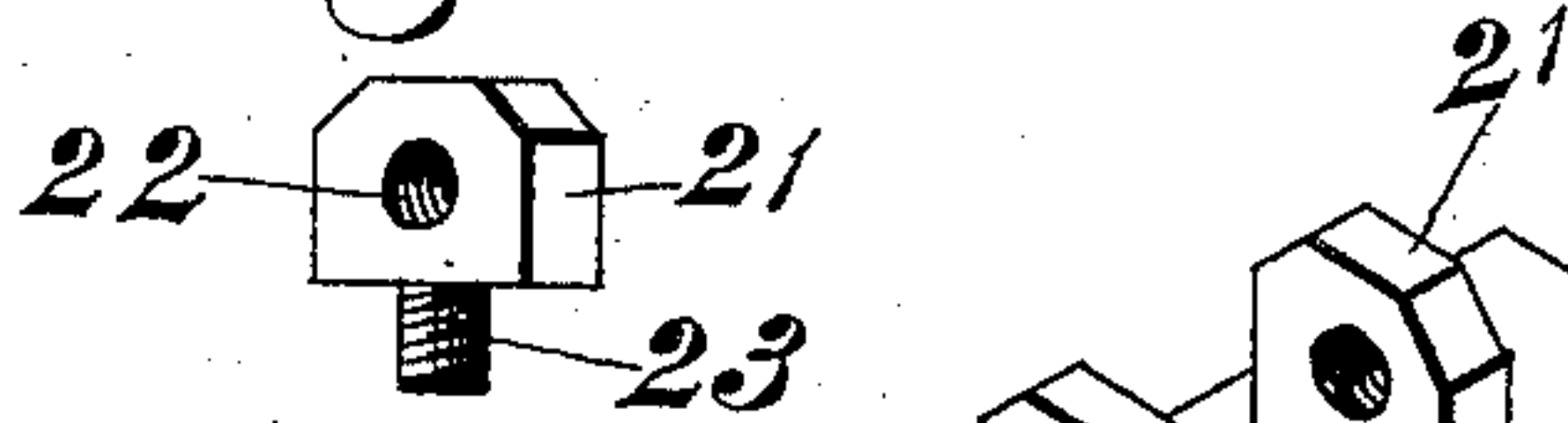


Fig. 10.

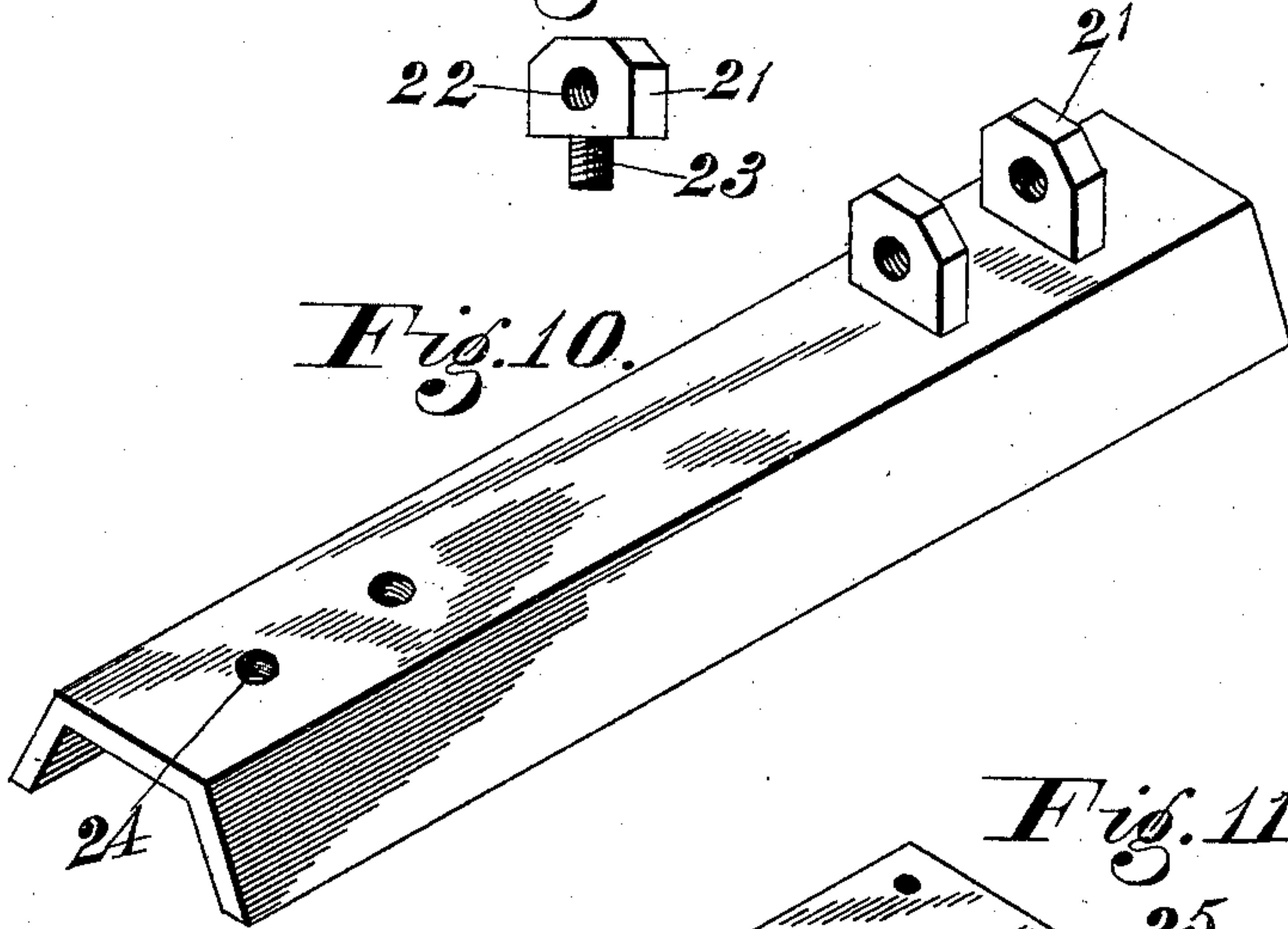


Fig. 11.

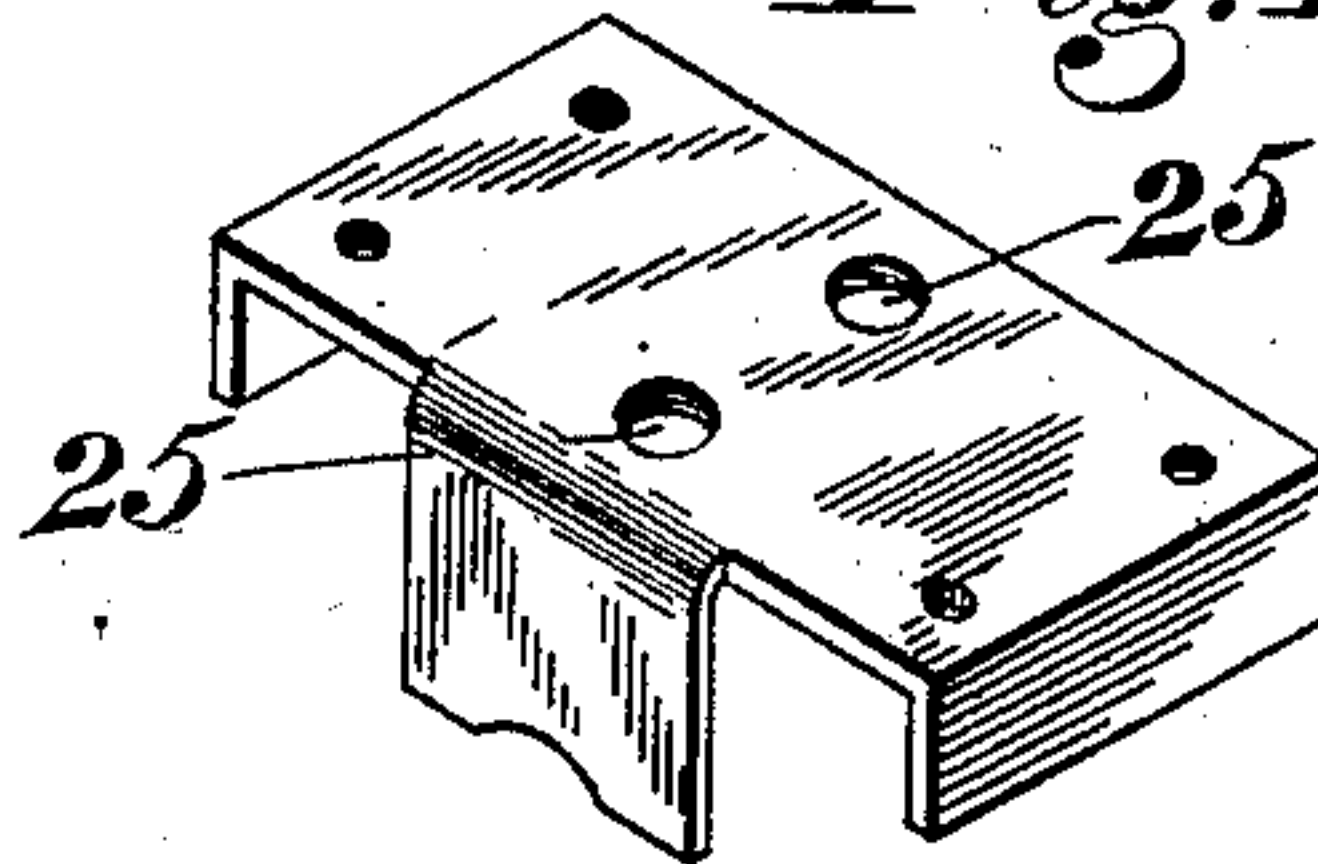


Fig. 12.

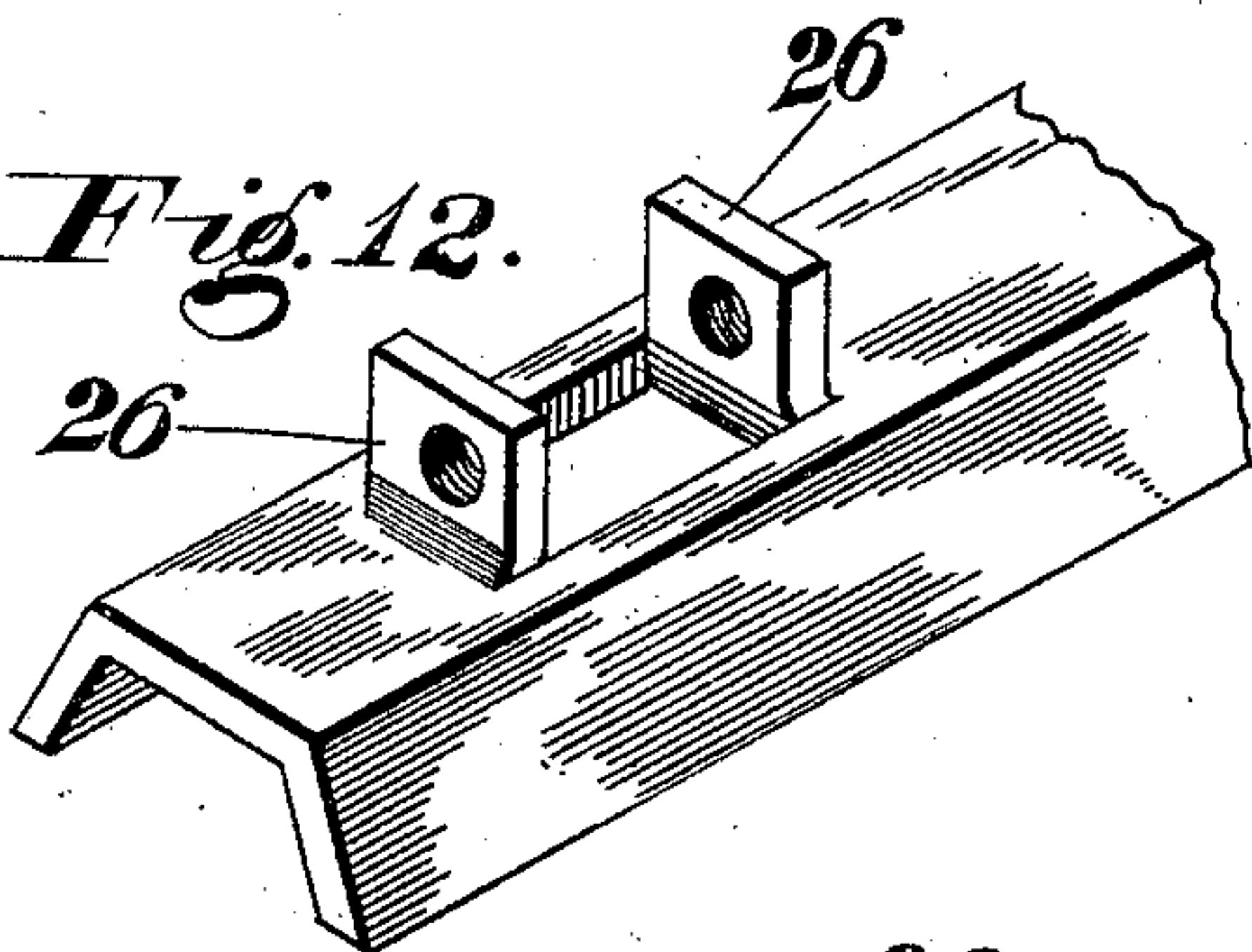


Fig. 13.

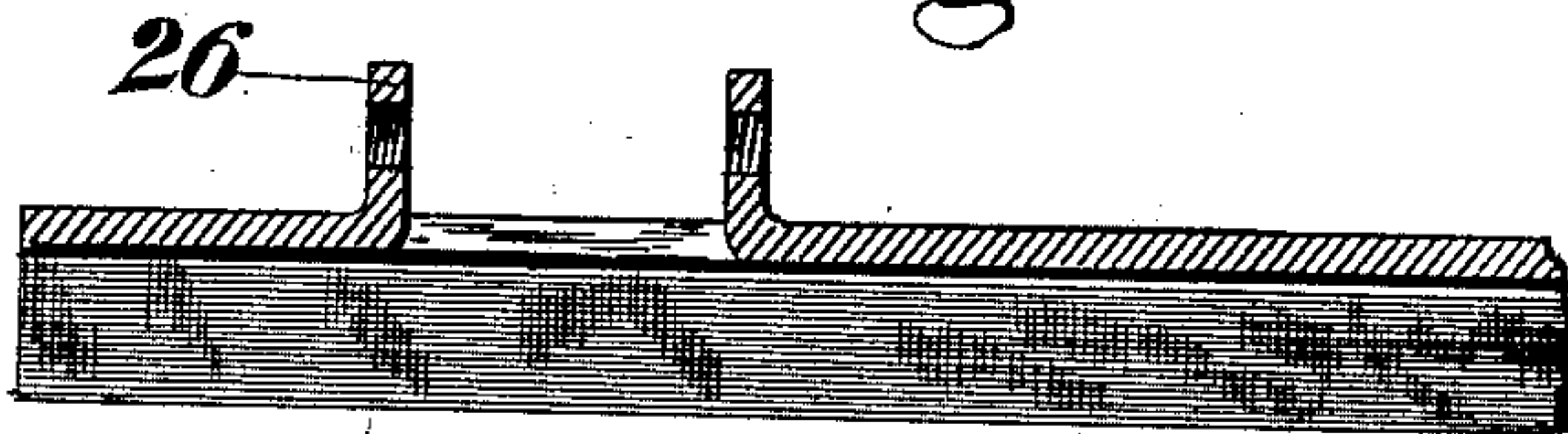
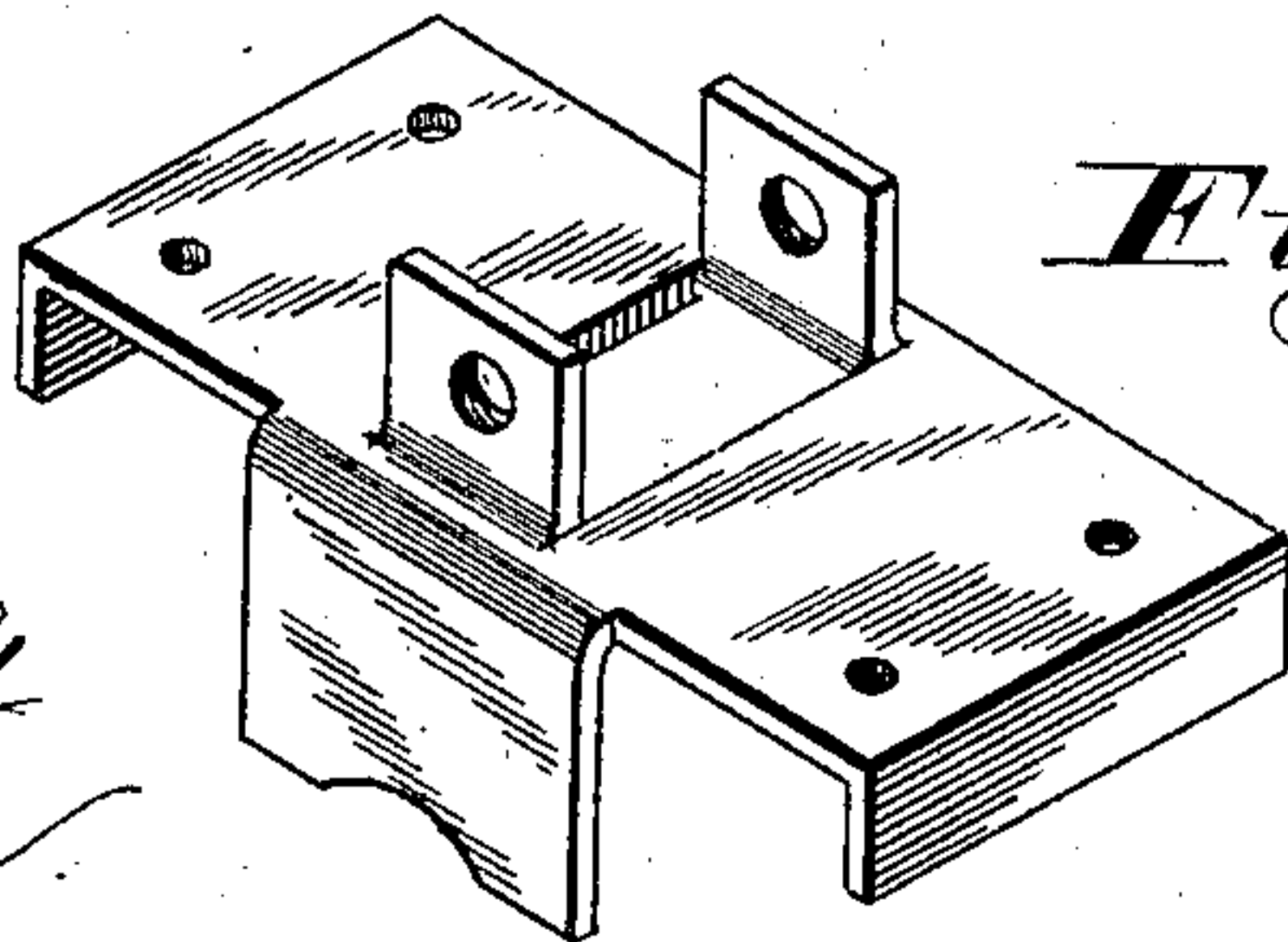


Fig. 14.



Witnesses

E. C. Overholt.
A. H. Miller.

Inventor

Aaron B. Allen

By W. J. F. Bernald
Attorney.

UNITED STATES PATENT OFFICE.

AARON B. ALLEN, OF PUEBLO, COLORADO.

METALLIC CROSS-TIE AND RAIL-FASTENING.

SPECIFICATION forming part of Letters Patent No. 656,799, dated August 28, 1900.

Application filed April 25, 1899. Serial No. 714,445. (No model.)

To all whom it may concern:

Be it known that I, AARON B. ALLEN, a citizen of the United States, residing at Pueblo, in the county of Pueblo and State of Colorado, have invented certain new and useful Improvements in Metallic Cross-Ties and Rail-Fastenings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to metallic cross-ties and rail-fastenings for railroads.

My object is to provide a tie that while reliably serving its purpose will be strong, durable, and cheap and one that can be readily substituted for the ordinary wooden tie, together with a reliable rail-fastening adapted to cooperate with said metallic tie.

The construction of my invention is clearly illustrated in the accompanying drawings, which form a part of the application.

For convenience of reference similar numerals are used to refer to similar parts throughout the various figures of the drawings.

Figure 1 is a top plan view of my improved metallic tie. Fig. 2 is an end view thereof. Fig. 3 is a perspective of the yoke used in securing the rail to the tie. Fig. 4 is a perspective view of my tie, showing the rails secured thereto. Fig. 5 is a sectional view more fully illustrating the manner of securing the rail in operative position. Fig. 6 is a view of the bolt used. Fig. 7 illustrates one of the two ears which may be used instead of the yoke illustrated in Fig. 3 in securing the rail to the cross-tie. Fig. 8 illustrates the form of aperture employed in the cross-tie or in the bridge-plate when the ears illustrated in Fig. 7 are used. Fig. 9 illustrates a varied form of securing-ear which may be used. Fig. 10 illustrates a cross-tie provided with apertures adapted to cooperate with the kind of ears illustrated in Fig. 9, two of said ears being placed in operative position. Fig. 11 is a perspective view of the bridge-plate used with this style of securing-ear. Fig. 12 is a perspective view of a cross-tie having the ears withdrawn from the top section of the tie and being integrally formed

therewith. Fig. 13 is central longitudinal section of Fig. 12. Fig. 14 is a perspective view of the bridge-plate, having integral ears similarly formed to those illustrated in Fig. 12.

When my tie (designated by the numeral 1) is disposed with the open side downward, as illustrated in Figs. 1, 2, and 4, it is provided near each end thereof with the two parallel transverse slots 2, separated from each other by a distance equal to the width of the base of the rail. The slots 2 are of a size and shape to snugly receive the ears 3 of the yoke 4, Fig. 3. These ears are provided with the threaded aperture 5, designed to receive the bolts 6, the inner ends of these bolts being provided with tapered or conical ends. When it is desired to secure the rails in position on the ties, the ears 3 of the yoke 4 are passed upwardly through the apertures 2 till the body 7 of the yoke rests against the under side of the top section of the rail. The base of the rail is then placed on the tie between the ears and the bolts 6 are screwed home in the ears 5, the conical ends of said bolts coming firmly into contact with the inclined faces of the rail-base, thus rigidly securing the rail in position, as illustrated in Figs. 4 and 5. The heads of the bolts 6 are round and are provided with the apertures 8 in order that said bolts may be easily screwed home in the ears 3 or removed therefrom when occasion requires. The upward pressure against the conical ends of the bolts when in their operative positions has a binding effect, which tends to prevent the bolts from working loose.

The outer ends of the bridge-plate are sufficiently extended to permit them to be bent around the outer edges of the flanges 11 of the cross-ties. This serves to prevent the tie from spreading. The bridge-plate 9 at one side thereof has the integral portion 12 bent downwardly substantially at right angles to the main body thereof. This downwardly-extending part has its bottom edge resting against the bottom section of the tie and its side edges snugly received between the vertical walls thereof. Hence it is apparent that while my improved bridge-plate prevents the tie from spreading, as already explained, it also, by means of this downwardly-extending section 12, resists any tendency of the two

vertical walls to approach each other. Moreover, by means of this downwardly-extending section 12 a part of the weight of the rolling-stock is distributed to the bottom section 5 of the tie, so that the vertical walls do not have to bear the strain of the entire load that passes over the track. The lower edge of the downwardly-extending section 12 is provided with the slight cut-away portion 13, which in 10 rainy weather permits water to seep out of the "trough," so to speak, of the tie.

In Fig. 7 I illustrate a form of ear two of which are adapted to take the place of the yoke shown in Fig. 3. This ear consists of 15 the head 14 and the body portion 15, connected by the narrow portion or neck 16. When this form of ear is employed, the cross-tie or bridge-plate, whichever is used, will be provided with the cruciform slot 17. (Illustrated in Fig. 8.) This slot consists of a cut-away portion in the shape of a cross, having 20 the longitudinal extension 18 and the lateral extensions 19, the former extending in the direction of the longitudinal reach of the tie and the latter at right angles thereto. When it is desired to secure the rail in position, the body portion 15 of one of the ears illustrated in Fig. 7 is passed downwardly through the lateral extension 19 of the cruciform slot. 25 The ear is then moved sidewise, so that the neck 16 is received by one of the longitudinal extensions 18. Then the other ear is entered in the same manner and received by the other longitudinal extension 18. The longitudinal extension of the slot 17 is such that when the securing-ears are in their places there will be just sufficient space between them to receive 30 the base of the rails, which are next placed in operative position and secured there by passing the bolts 8 through the apertures 20 in the securing-ears.

Where the width of the base of the rail is increased by the addition of the fish-plates at the ends of the rails, the longitudinal extensions of the cruciform slot must be correspondingly greater, so as to receive the width 45 of the rails, with the fish-plates added, between the ears cooperating with said slots. In this case the transverse slots 2, Fig. 1, must also be correspondingly farther separated from each other for the same reason. 50

It is apparent that if I prefer to use the form of tie having diverging side walls, as illustrated in my Patent No. 607,906, the yoke 55 illustrated in Fig. 3 of my present application is admirably adapted to cooperate therewith.

In road-building the ties can be put down first and all the attachments put on afterward 60 when the rails are put down. Still another advantage of this form of tie is that it may be used to take the place of wooden ties, and that when thus used, all that is necessary is to remove the wooden tie and place my metallic tie in its place, as the metallic tie will just fill up the bed left by the wooden tie. 65

In Fig. 9 I have illustrated a modified form

of securing-ear, which consists of the head 21, having the threaded aperture 22 and the integral and downwardly-extending threaded 70 plug 23. When this form of ear is employed, the cross-tie is provided with the cooperating threaded aperture 24, adapted to receive the plugs 23 of the ears 21, as clearly illustrated in Fig. 10. The cooperating apertures 24 in 75 the cross-ties are just sufficiently removed from each other to permit the ears when screwed home therein to receive the base of a rail between them. When the rail is thus received between said ears, it locks them in 80 position. The threaded aperture 22 in the ears are adapted to cooperate with the bolt 6, Fig. 6, in rigidly securing the rails in operative position.

In Figs. 12 and 13 I have illustrated still 85 another method of providing ears adapted to cooperate with the conical bolts in securing the rails in position on the cross-ties. In this instance the ears or lugs 26 are struck upwardly from the top section of the cross-tie, 90 with which they form an integral part. Of course it is apparent that in cases when it is desirable to use the bridge-plate the ears or lugs may be struck upwardly therefrom, as illustrated in Fig. 14, in the same manner that 95 they are struck from the top section of the cross-ties.

It is thought that the form of tie and securing-ears illustrated in Figs. 10 and 12, on account of their simplicity and the rapidity 100 with which they can be taken up and put down, will be found specially serviceable in the construction of temporary roads used in connection with mining, &c.

Having thus fully disclosed the principles 105 of my invention and shown means of applying the same to use, I yet do not wish to be limited to the exact showing made, but desire protection in all that comes clearly within the spirit and scope of my invention. 110

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a tie or bridge-plate having openings, of securing-ears, a portion of which is adapted to be received by said 115 openings, said ears having a threaded aperture in combination with a threaded bolt fitting said aperture provided with a head circular in cross-section and with a conical end, the latter being adapted to bear directly 120 against the flange of the rail and thereby hold the same when disposed between two of said ears, substantially as specified and for the purpose set forth.

2. In cross-ties, and rail-fastenings, a securing-ear having a threaded stem, a cross-tie having threaded apertures and a bolt having a tapered end substantially as set forth. 125

3. In rail-fastenings, an ear having a threaded aperture carried directly by the cross-tie 130 and a threaded bolt fitting said aperture and provided with a conical end adapted to engage the flange of the rail whereby when the rail is placed between two of said ears it may

be securely held by said bolts, as and for the purpose set forth.

4. In cross-ties and rail-fastenings, a secur-
ing-ear having a threaded aperture and a
5 threaded stem; a threaded bolt having a ta-
pered end adapted to fit said aperture, in com-
bination with a tie having an aperture adapt-
ed to receive said stem, whereby one of said
ears may be located on either side of the rail

and thus secure it in place upon the tie as 10
and for the purpose set forth.

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

AARON B. ALLEN.

Witnesses:

G. C. BEAMAN,
WM. MIDDELKAMP.