No. 819,483. PATENTED MAY 1, 1906.

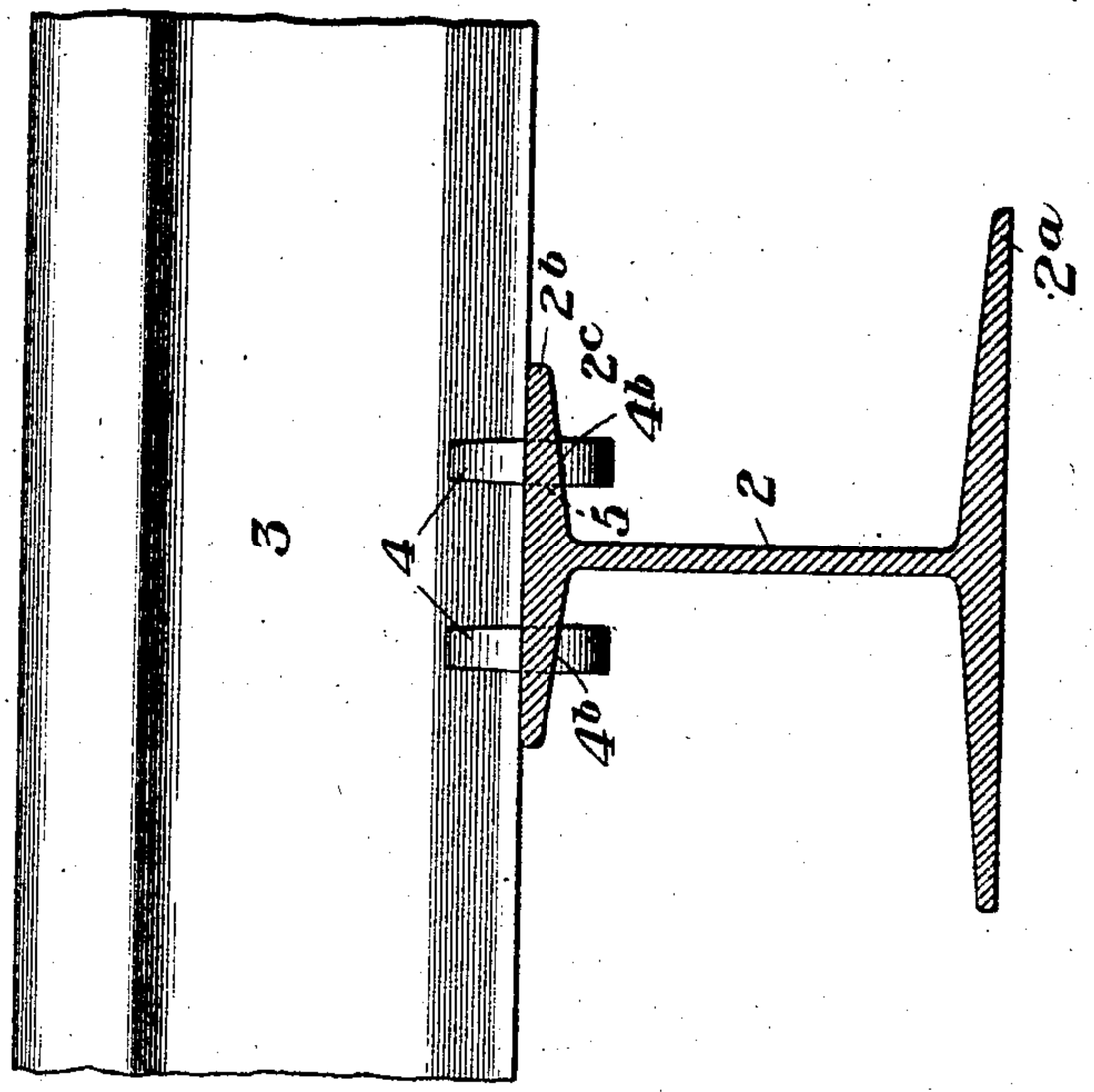
W. WHIGHAM.

METALLIC TIE AND RAIL FASTENING.

APPLICATION FILED DEC. 16, 1905.

2 SHEETS—SHEET 1.

Fig. 2.



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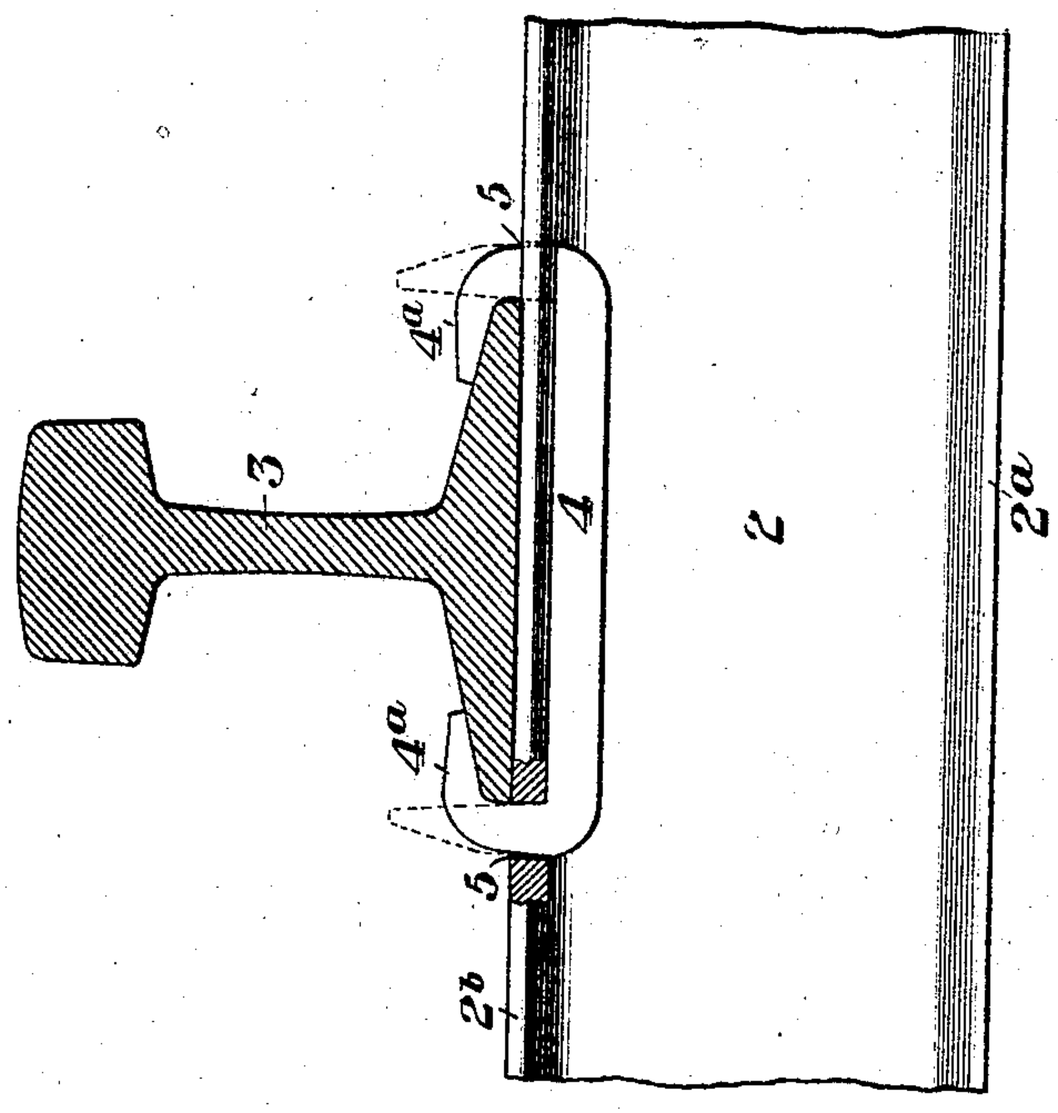

WITNESSES

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Warren W. Swartz

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2 SHEETS—SHEET 2.

Fig. 4.

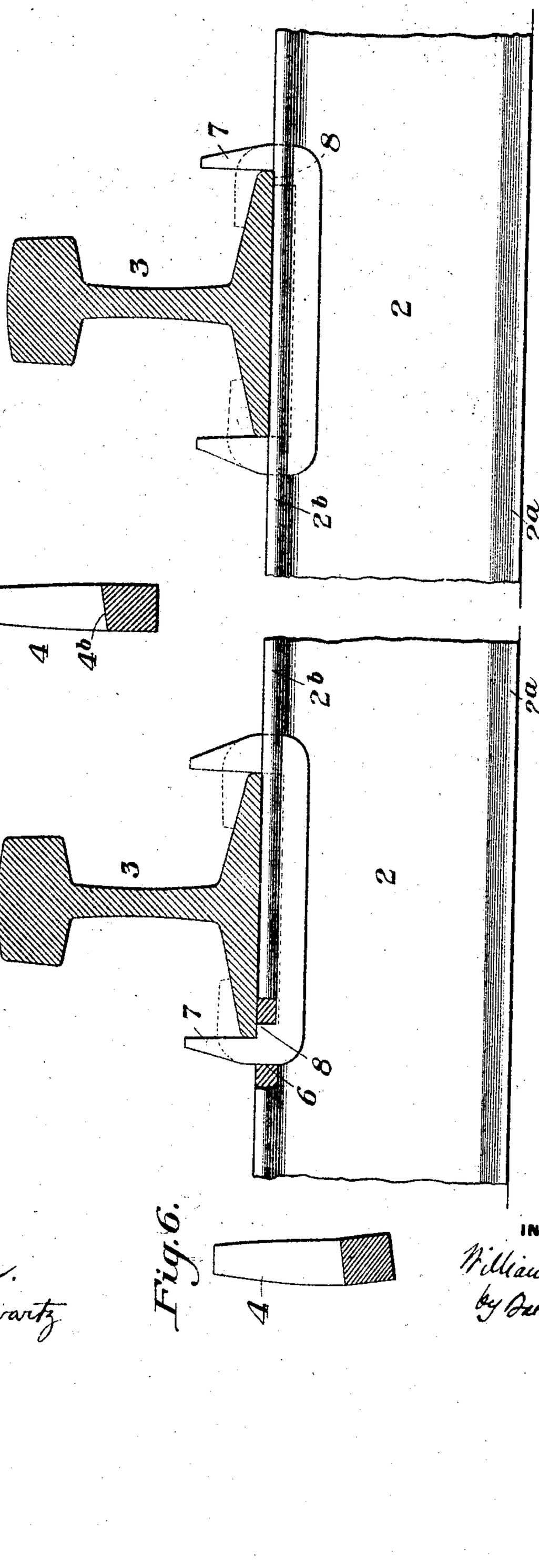

Fig. 5.

Fig. 3.

Fig. 6.

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UNITED STATES PATENT OFFICE.

WILLIAM WHIGHAM, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO CARNEGIE STEEL COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

METALLIC TIE AND RAIL-FASTENING.

No. 819,483. Specification of Letters Patent. Patented May 1, 1906.

Application filed December 16, 1905. Serial No. 292,027.

To all whom it may concern:

Be it known that I, WILLIAM WHIGHAM, of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful Improvement in Metallic Ties and Rail-Fastenings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figures 1 and 2 are sectional views taken in planes at right angles to each other, showing my improved metallic tie and rail-fastening. Figs. 3 and 4 are cross-sections taken through the rail and illustrating a modification of the fastening-clip. Fig. 5 is a detail cross-sectional view of the key, and Fig. 6 is a similar view showing a modified form of key.

The object of my invention is to combine with the advantages of a metallic tie of I-beam form simple and rigid means for securing the rails which can be readily applied and which are of such character as to equalize the strains upon the ties, also to provide means whereby the gage of the rails may be changed to compensate for wear.

With these objects in view my invention consists in the novel construction and arrangement and combination of the parts, all substantially as hereinafter described, and pointed out in the appended claims.

In the drawings the numeral 2 designates a metal tie of general I-beam form, its lower or base flange 2^a being preferably wider than its upper or rail-seating flange 2^b.

3 indicates a rail supported upon the tie 2 and secured thereto by means of the metallic clips 4. These clips consist each of a piece of metal of initially U shape, the vertical arms of which are passed upwardly through apertures 5, which are cut, punched, or otherwise formed in the flange 2^b at opposite sides of the central plane of the web portion of the tie and symmetrical with respect to such plane. The holes for each clip are properly spaced longitudinally in the flange 2^b and are of the proper size so that the arms of the clips will pass freely but neatly through them. The clips are made of forgings or castings which are sufficiently malleable so that when they have been applied to the I-beam with their vertical portions extending upwardly through the apertures 5 in the manner indicated in dotted lines in Fig. 1 they can, by means of a sledge, be bent over to tightly engage the base-flange of the rail. The upper end portions of the vertical arms of the clips are preferably beveled or tapered, as shown at 4^a. This not only economizes metal, but it also facilitates the bending operations, particularly at the start. The transverse portions of each clip are beveled, as shown at 4^b, to fit the beveled or inclined lower surface 2^c of the rail-seating flange 2^b of the tie, thus giving the clip a square grip or bearing on both the tie and the rail. This bevel may be formed as shown in Fig. 5 or the arms may be bent at an angle to the connecting portion, as shown in Fig. 6, to bring the upper surface thereof into an inclined plane. The clips or fastenings can in this manner be very rapidly applied and hold the rail securely against spreading, there being no keys or other loose parts which can jar or shake loose. Inasmuch as two of the fastening-clips are preferably employed at each of the ties upon opposite sides of the web portions thereof the upward thrust or strains imparted to the tie by the wheels of passing trains are equalized and uniformly transmitted. The fastenings can readily be removed when necessary either by bending up their overturned ends or by cutting them off with a cold-chisel or other suitable implement.

In the modification shown in Figs. 3 and 4 the holes 6 for the clips are spaced apart a distance less than the width of the base-flange of the rail, and the clips have one vertical arm 7, formed with the step or offset 8, which seats underneath such flange. The clips in this form are made in right and left forms with respect to the inclined portions 4^b, and when it is desired to change the gage of the track to compensate for wear the old clips or fastenings (which are seated and applied, as shown in Fig. 3) are removed, the rail is moved in, and new keys are applied in the manner shown in Fig. 4—that is to say, with the step or shoulder 8 at the inner side of the rail. In this manner an adjustment of the rail is secured equal to the extent of the step or shoulder.

The advantages of my invention result from the simplicity of the fastening means, as the clips can be very cheaply manufactured, also in the absence of keys or other loose

parts which can be jarred or shaken loose by the vibration of the rails and thus allow the rails to spread. Furthermore, inasmuch as the rail-engaging portions of the clips are brought into engagement with the rail-base by sledging an accurate fit of the engaging surfaces is insured. This means of fastening is also particularly advantageous in connection with the I-beam form of the ties, for the reasons above stated, and also in that the shape of the ties is such as to facilitate the application and removal of the clips, and the application of means for holding the clips while they are being bent to engage the rails.

What I claim is—

1. The combination with a metallic tie of I-beam form, having its rail-seating flange formed with inclined lower faces, and with apertures therethrough, of fastening means consisting of one or more clips having each a transverse portion inclined or beveled to fit the inclined face of said flange, and upwardly-extending portions to engage said apertures and bend over upon the base-flange of the rail; substantially as described.

2. The combination with a metallic tie having a rail-seating flange formed with apertures therethrough, the distance between which is less than the width of the rail-base, of a removable fastening-clip having arms adapted to engage the said aperture and to be bent over into engagement with the rail-base, one of said arms having a step or shoulder; substantially as described.

3. A rail-fastening, consisting of a U-shaped clip having the end portions of its arms beveled; substantially as described.

4. A rail-fastening, consisting of a U-shaped clip, having the upper surface of the transverse portion beveled or inclined; substantially as described.

5. A rail-fastening, consisting of a U-shaped clip having a rail-engaging arm provided on the inner side with a step or shoulder; substantially as described.

6. A rail-fastening, consisting of a U-shaped clip having one of its arms provided on the inner side with a step or soulder, and the other arm having an approximately straight vertical face; substantially as described.

7. The combination with a metallic tie of I-beam form having a rail-seating flange whose under surface is inclined to the vertical plane of the web, of a rail-fastening clip having arms engaging both sides of the rail-base, and a portion connecting said arms and having its upper surface inclined to the vertical plane of the web portion of the tie at substantially the same angle as the under surface of the flange; substantially as described.

In testimony whereof I have hereunto set my hand.

WILLIAM WHIGHAM.

Witnesses:
H. M. CORWIN,
GEO. H. PARMELEE.