

945,519.

Patented Jan. 4, 1910.  
2 SHEETS—SHEET 1.

Fig. 1.

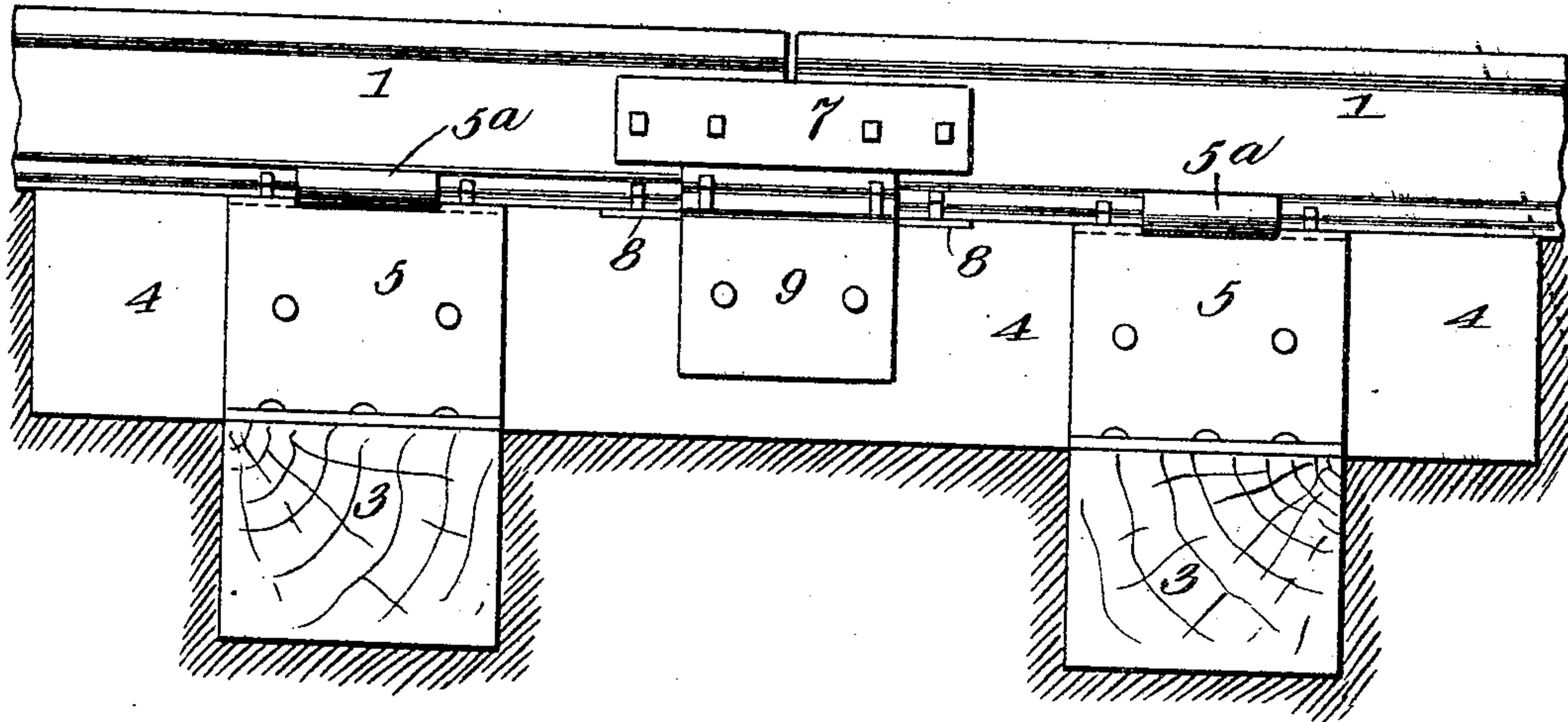
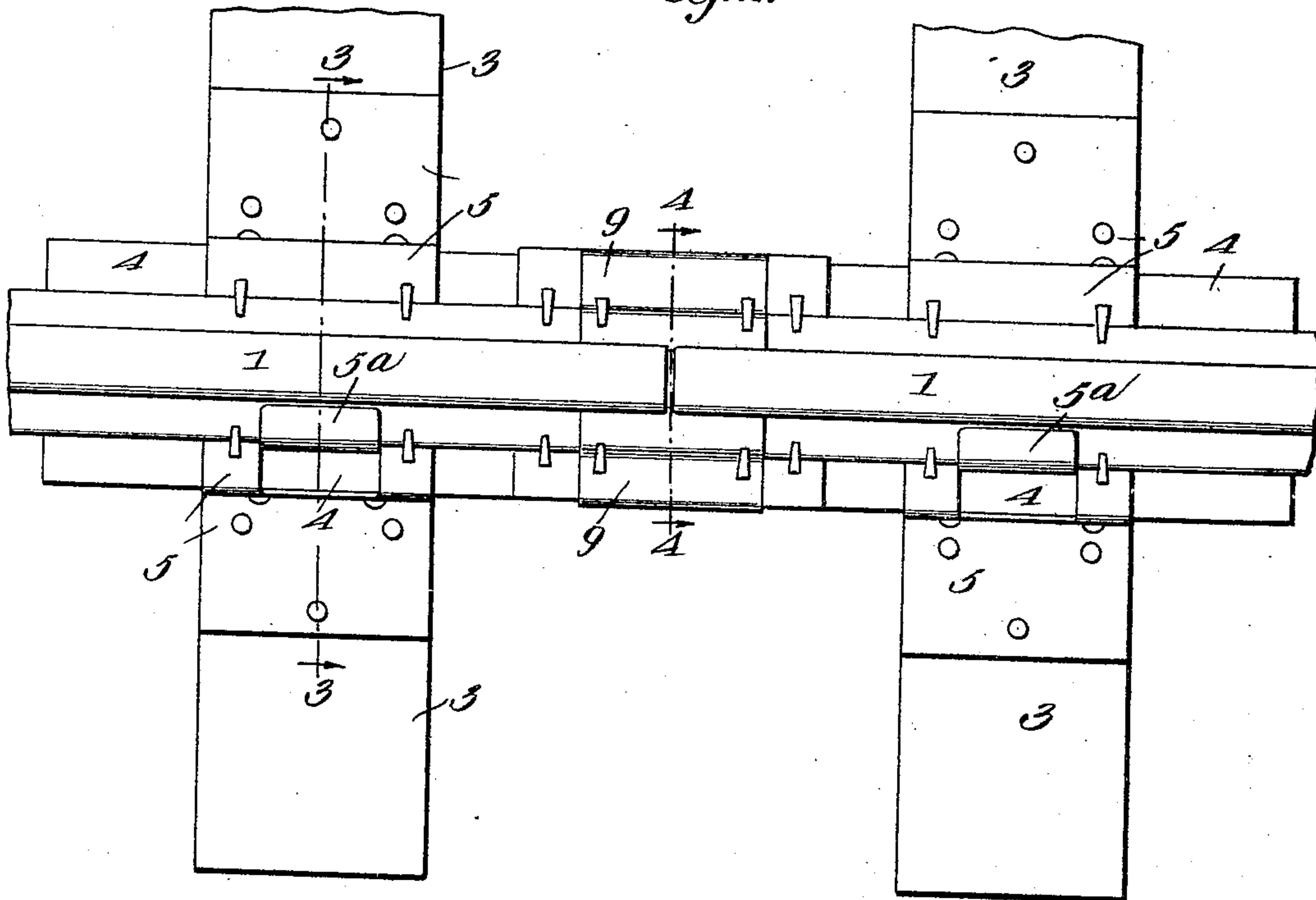


Fig. 2.



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RAIL CONNECTION.  
APPLICATION FILED AUG. 6, 1909.

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2 SHEETS—SHEET 2.

Fig. 3.

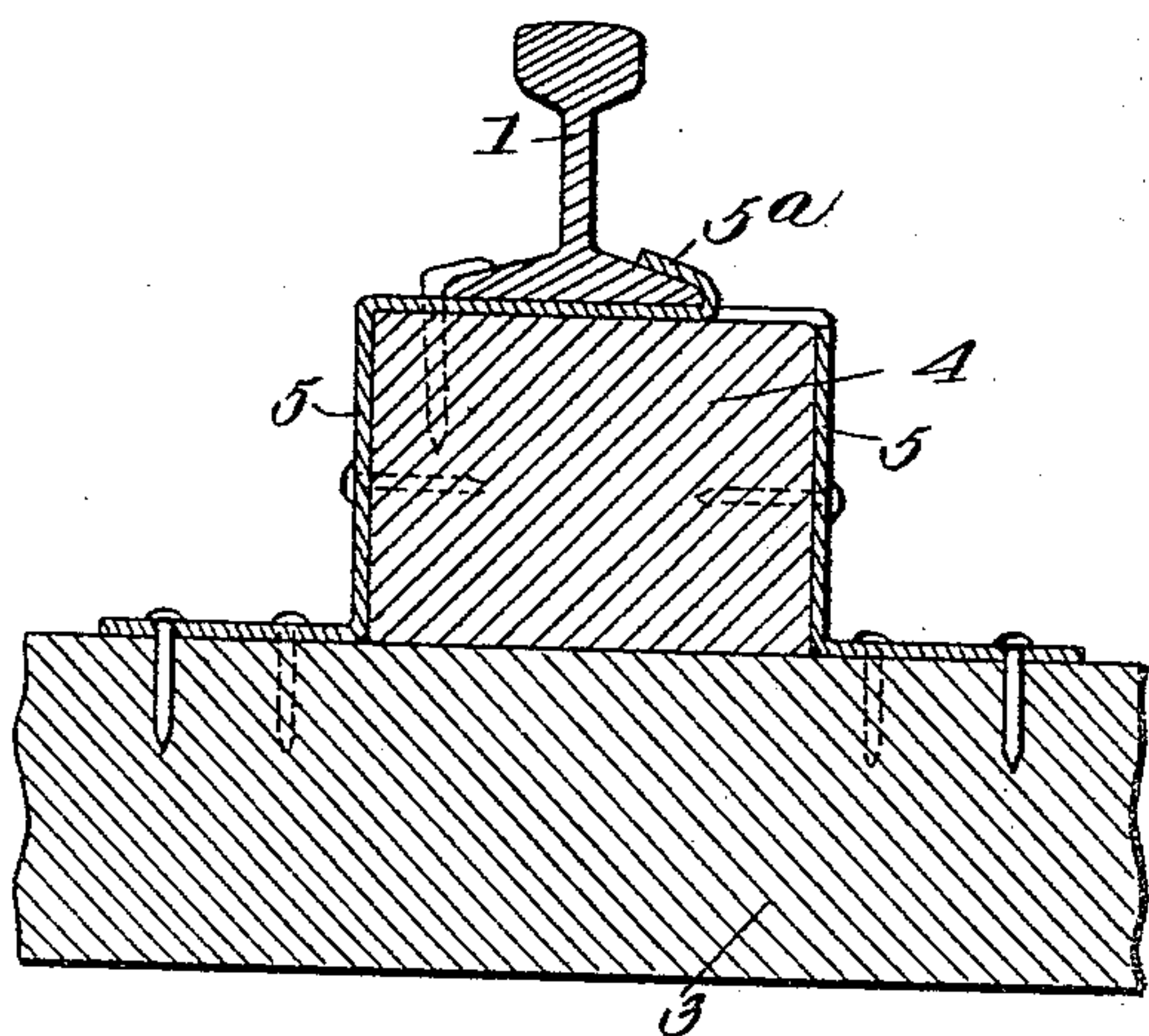


Fig. 4.

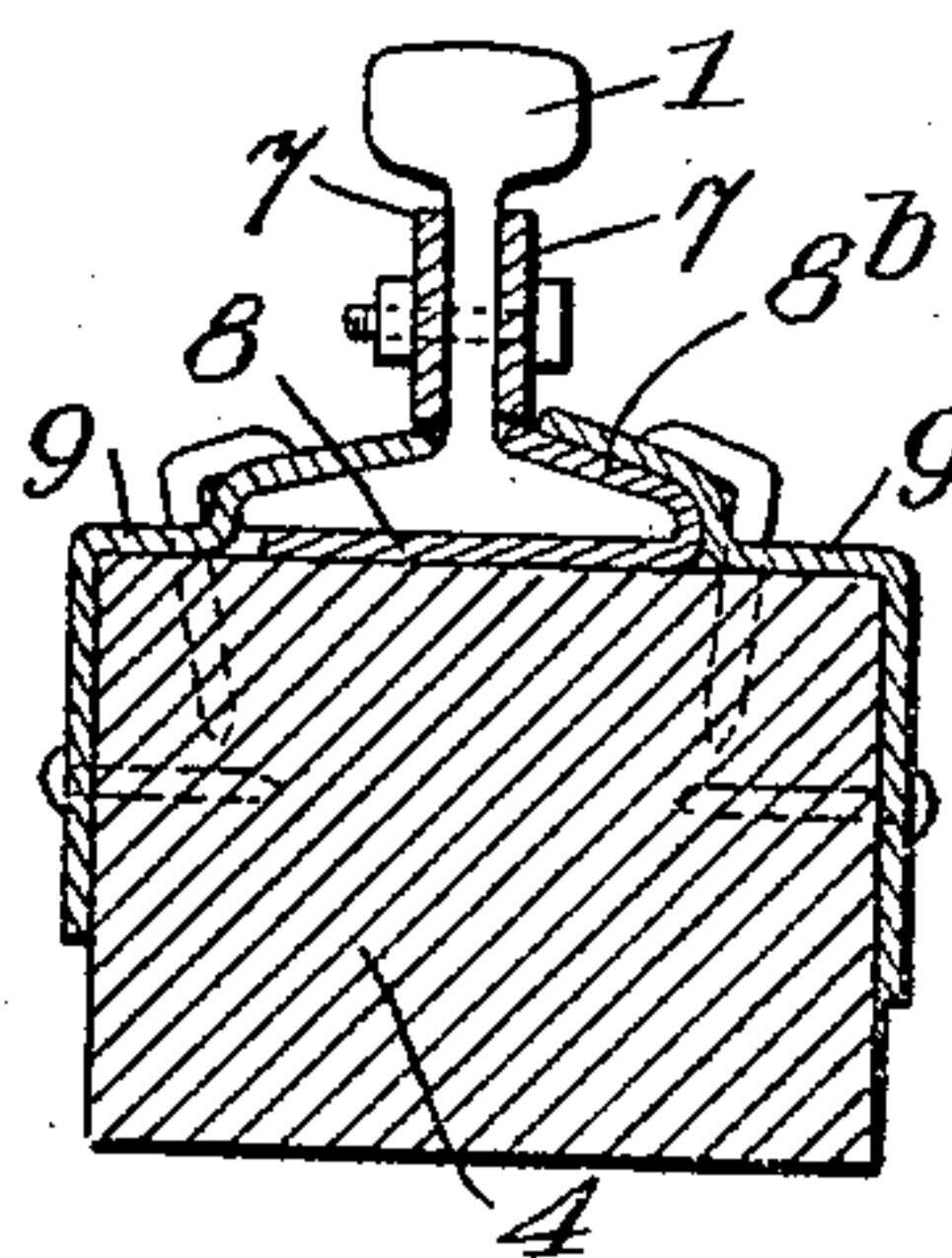


Fig. 5.

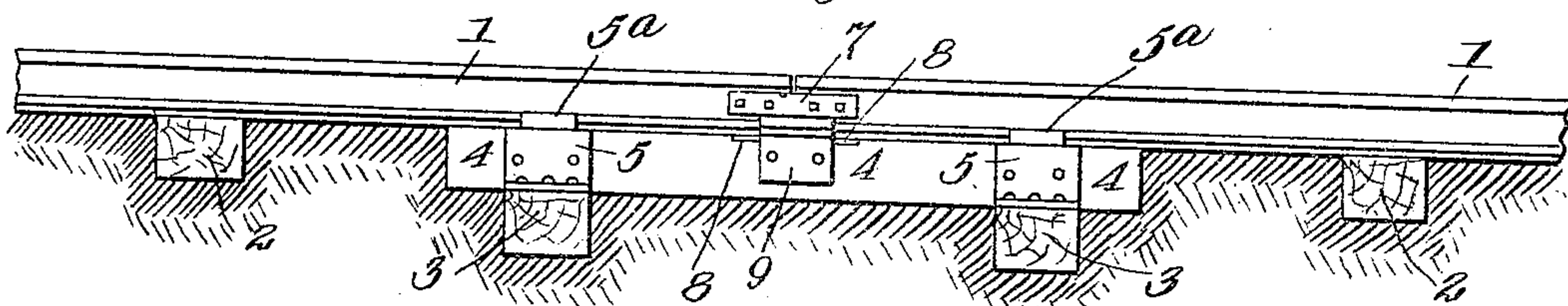


Fig. 7.

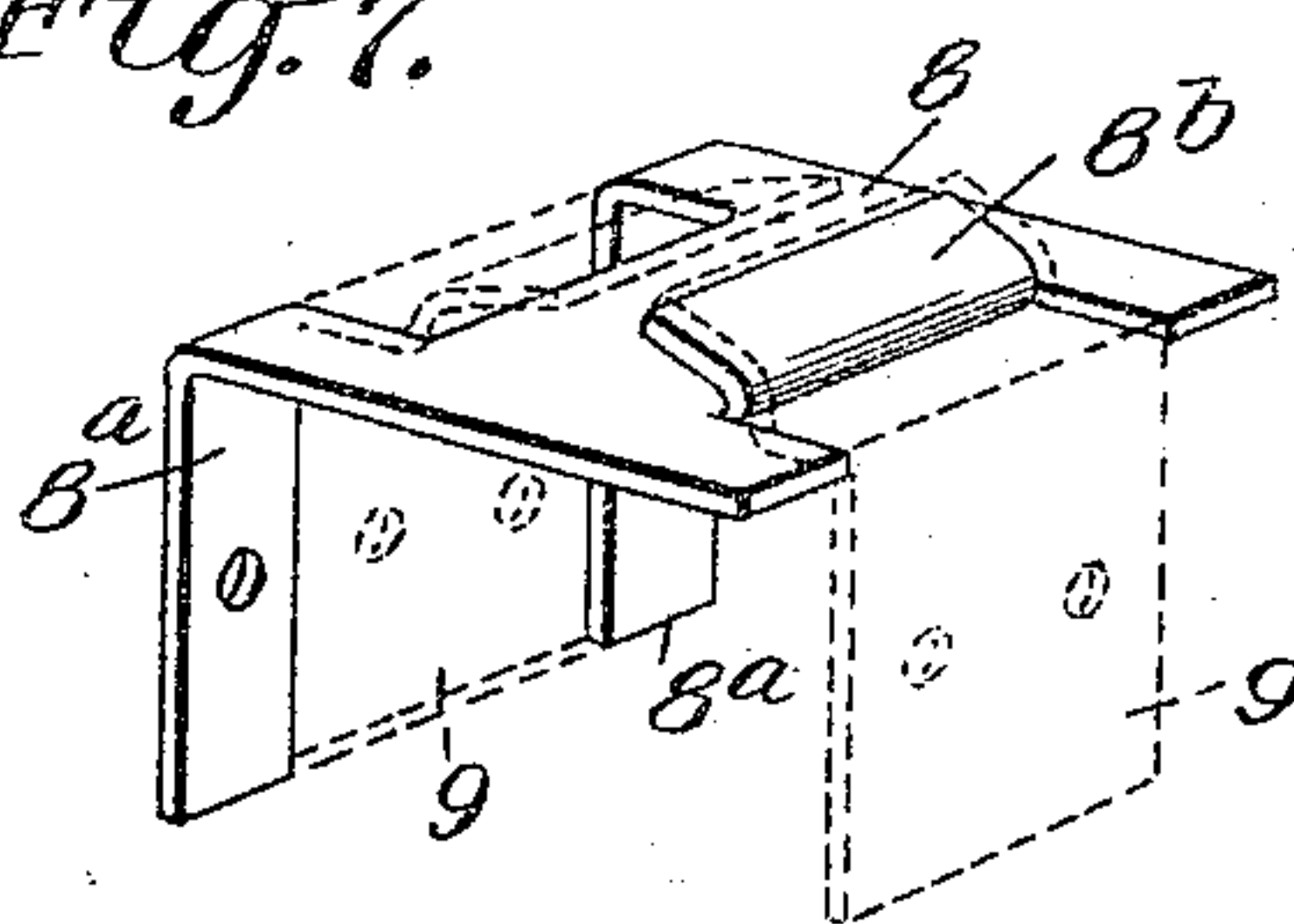


Fig. 6.

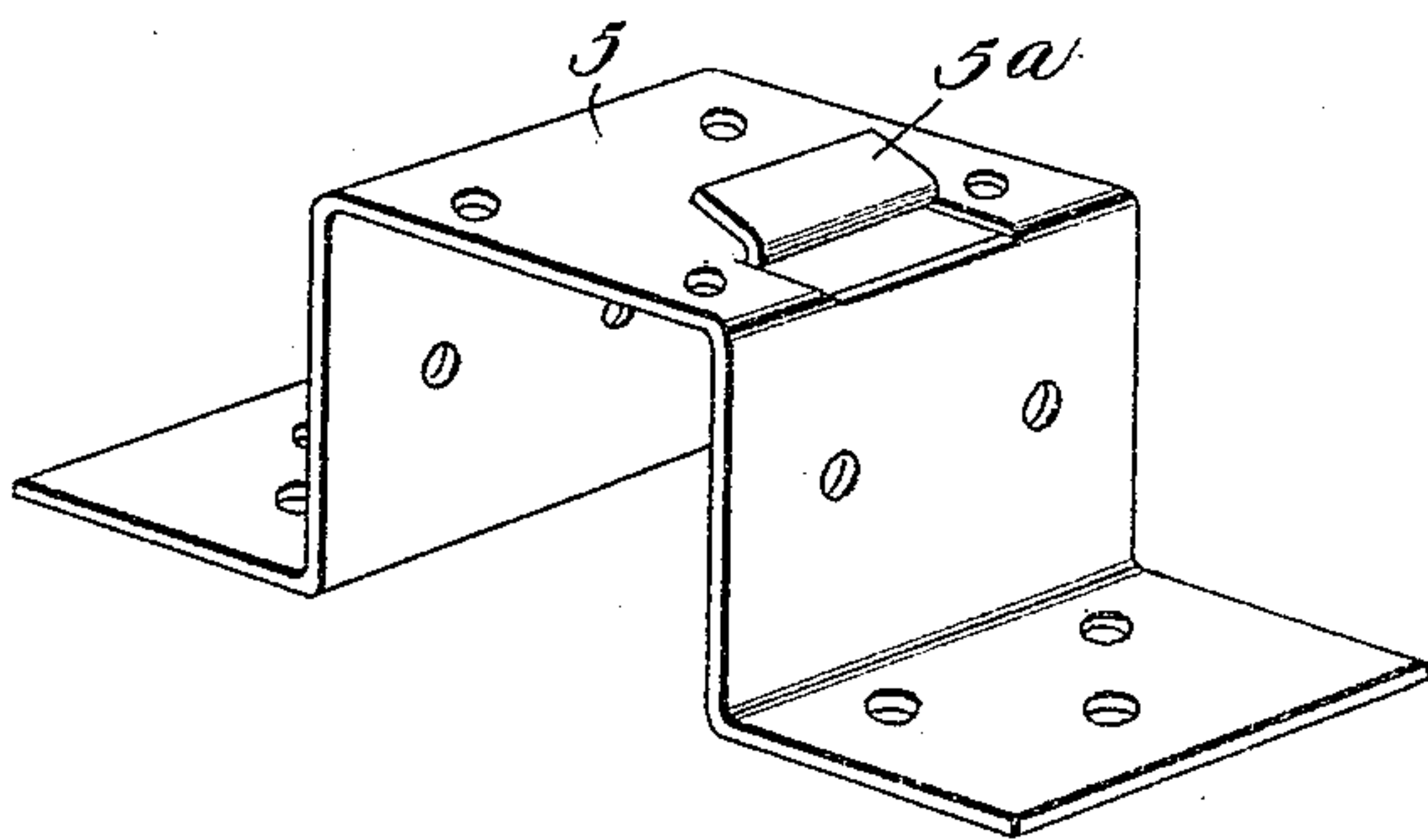
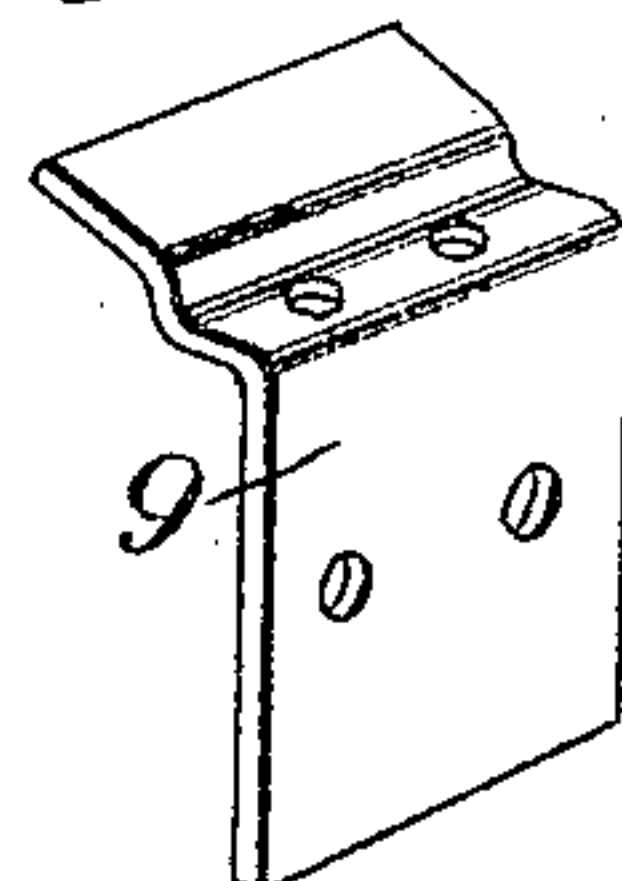


Fig. 8.



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# UNITED STATES PATENT OFFICE.

HENRY GRASS, OF ALVIN, TEXAS.

## RAIL CONNECTION.

945,519.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed August 6, 1909. Serial No. 511,661.

*To all whom it may concern:*

Be it known that I, HENRY GRASS, a citizen of the United States, residing at Alvin, county of Brazoria, State of Texas, have  
5 invented an Improvement in Rail Connections, of which the following is a specification.

It is the usual practice to connect the meeting ends of railroad rails by means of  
10 heavy fish-plates and screw bolts, leaving such ends otherwise entirely unsupported between adjacent cross-ties. In consequence, when a train passes over the track, the end of one rail is depressed before the other, so  
15 that the locomotive and cars have more or less vertical motion and also a rocking lateral motion, while an unpleasant noise is produced by the hammer action of the wheels. In passing around curves the wheels  
20 also tend to crowd laterally and hence rail displacement is more or less liable to occur.

My invention has for its object to prevent these results and others due to the present imperfect and objectionable connection between rail ends and the lack of due support therefor.

The details of my invention will be understood by reference to the following description, and to the accompanying drawing in  
30 which—

Figure 1 is a side view of a portion of a railway track to which my invention is applied. Fig. 2 is a plan view of the same. Fig. 3 is a cross section on the line 3—3 of  
35 Fig. 2. Fig. 4 is a cross section on the line 4—4 of Fig. 2. Fig. 5 is a side view similar to Fig. 1, save that it is more extended. Figs. 6, 7, and 8 are perspective views of three different forms of metal fastenings  
40 whose construction and application will be hereinafter described.

In Figs. 1, 2, and 5, the numeral 1 indicates the meeting ends of railroad rails, and 2 indicates cross-ties which are bedded in the  
45 usual way. Between these ties 2, I arrange other ties 3 at a lower level, and on opposite sides of the joint between the rails 1. In practice, the top of these sunken ties 3 are in the same plane with the bottom of the ordinary ties 2. Upon the sunken ties 3, I  
50 lay a timber, or heavy wooden bar, 4, upon which the rails 1 lie, and to which they are firmly secured. It is obviously necessary that the timber 4 which supports the rail joint shall be securely fastened to the sunken  
55 ties 3, and for this purpose I employ an-

gular metal fastenings 5, see Fig. 6, the same being for convenience of distinction and in consequence of their form termed "saddle-pieces." These are preferably formed of  
60 heavy strap iron and so bent as to form a socket that receives the timber or rail support 4 and is mortised into the same to the depth of its thickness. They may be thickened at their lower angles for the purpose  
65 of increasing their strength. Nails or spikes are driven through the horizontal flanges of this fastening 5 and into the sunken ties 3, and also through the sides and top of the same into the timber 4. By this means, the  
70 latter is prevented moving vertically or laterally. Each saddle-piece 5 is provided with a cut-out portion 5<sup>a</sup>, which is turned over to form a hook or lip that engages the outer side of the adjacent rail base, as indicated  
75 in Figs. 2 and 3. This hook 5<sup>a</sup> is on the outer side of the rail and thus prevents outward movement or spreading of the rails. As indicated in several figures, the sunken  
80 ties 3 and the fastenings 5 secured thereto are arranged on opposite sides of the point where the rails 1 meet, but only a few inches therefrom. The rails are connected by light fish-plates 7, but, as a further means of bracing  
85 them laterally and also securing them to the timber 4, I employ the devices or fastenings shown in Figs. 2, 4, 7, 8.

In Fig. 7, the numeral 8 indicates a plate which is bifurcated or cut out on one side, thus forming parallel arms 8<sup>a</sup> which extend  
90 down so as to lie against the side of the timber 4, and the same is provided with a hooked flange 8<sup>b</sup> which embraces the outer side of the bases of the meeting rails. In addition to this fastening 8, I employ the  
95 supplemental plate 9, see Fig. 8, which is applied to the side of the timber 4 between the arms 8<sup>a</sup> of the fastening 8, and its upper edge projects over the base flanges of the meeting rails and abuts the sides or webs  
100 of the same. Spikes or nails secure this fastening 9 to the timber 4. As indicated by dotted lines at 8<sup>c</sup>, Fig. 7, a similar piece may be applied on the opposite side of the fastening 8, and in such case it will extend up  
105 over the hooked flange 8<sup>b</sup>.

What I claim is:

1. The combination, with alined railroad rails and cross-ties whereon they are supported and secured, of a support for the  
110 meeting ends of the rails which comprises other cross-ties placed below the level of the



first-named ties, and a bar secured thereon lengthwise of the meeting rails and beneath the same, and to which the rails are secured, as shown and described.

5 2. The combination, with alined railroad rails and ordinary cross-ties whereon they are supported and secured, of a support for the meeting ends of said rail, which comprises cross-ties sunk below the level of the  
10 first-named ties, a bar secured on the sunken ties lengthwise of the rails and immediately beneath the same, and metal saddle-pieces straddling the said bar and secured thereto and to the sunken ties, substantially as de-  
15 scribed.

3. The combination, with the meeting ends of railroad rails and cross-ties arranged beneath them and at a lower level on each side of the joint, a bar supported on  
20 such sunken ties and arranged lengthwise beneath the rails for supporting the same, and metal fastenings applied over the bar and secured thereto and to the sunken ties and provided with a hooked flange which  
25 embraces the outer flange of a rail, substantially as described.

4. The combination, with the meeting ends of rails and a bar directly supporting the same, of a brace and fastenings consisting of a bifurcated metal plate secured to  
30 said bar beneath the rail ends, and a supplemental plate 9 also secured to the bar on the top and side thereof, and its inner and upper end abutting the webs of the meeting rails, as shown and described. 35

5. The combination, with the meeting ends of railroad rails, a supporting bar arranged lengthwise beneath them, metal saddle-pieces applied and secured to such bar and provided with hooked flanges embracing  
40 the outer base flanges of the rails on each side of the joint, and connections and braces arranged intermediately and comprising a bifurcated plate 8 secured to the top and side of said bar and having a  
45 hooked flange embracing the outer flanges of the rails, substantially as described.

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Attest:

G. W. SHEFFIELD,  
W. E. DAVIS.