

No. 895,601.

PATENTED AUG. 11, 1908.

D. W. TRAINOR & J. R. SMITH.

RAILWAY TIE.

APPLICATION FILED SEPT. 25, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

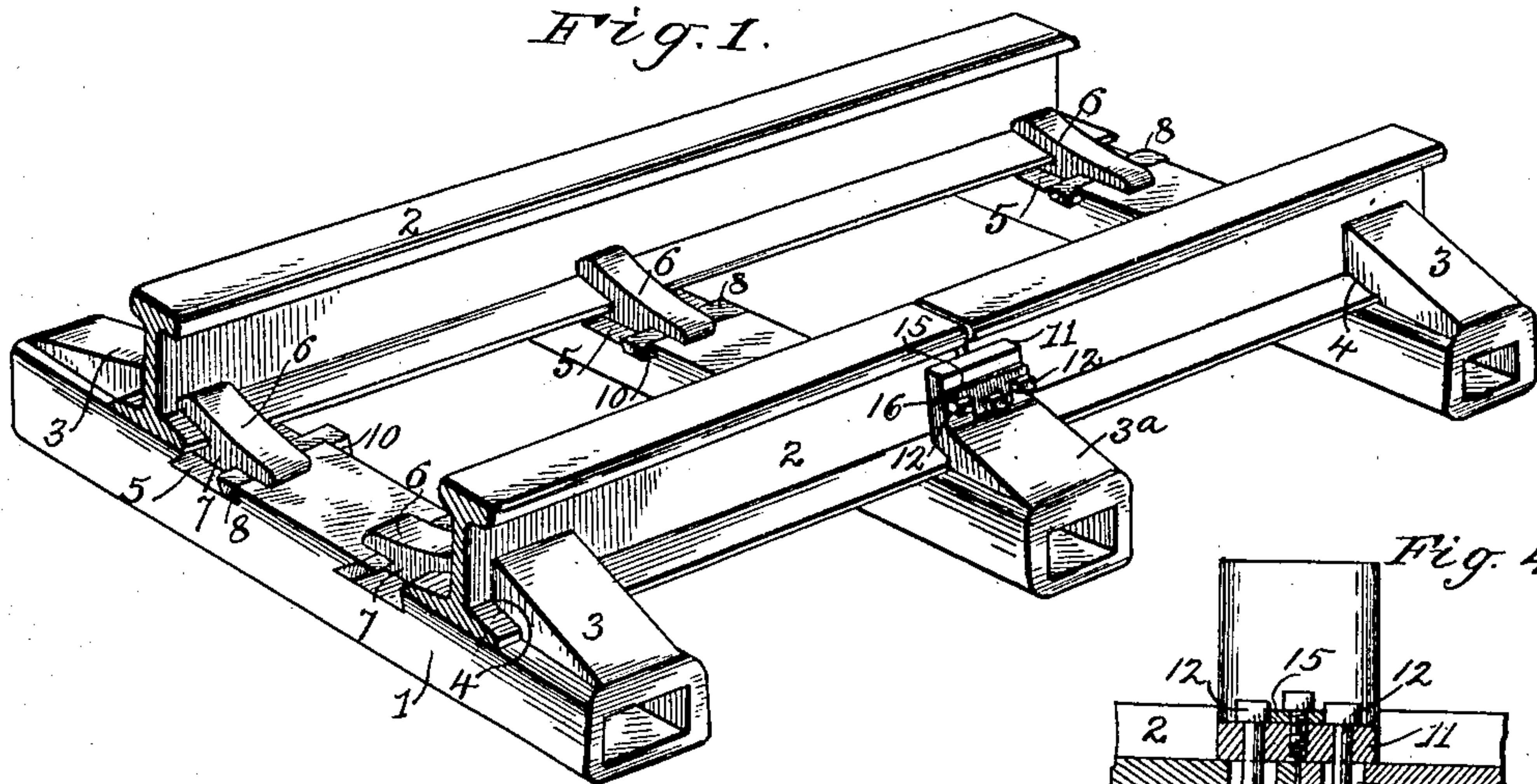


Fig. 4.

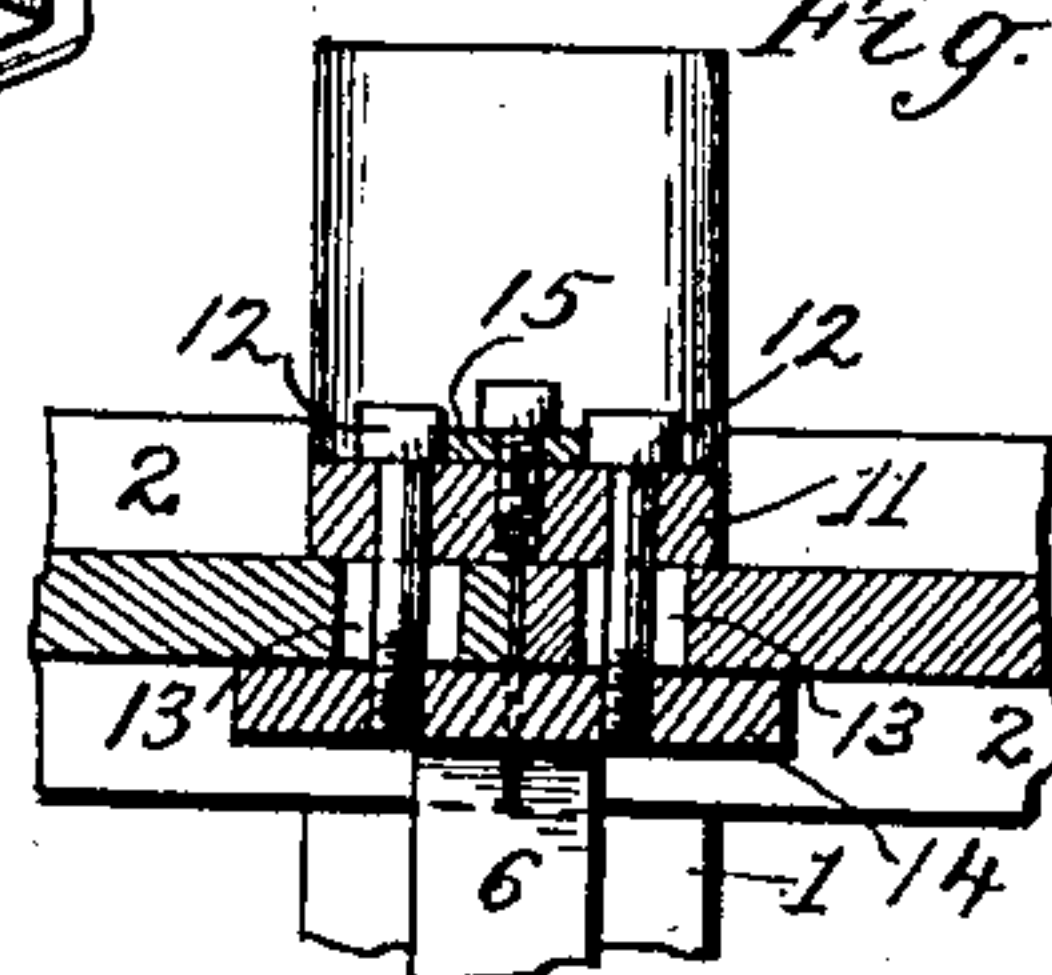


Fig. 2.

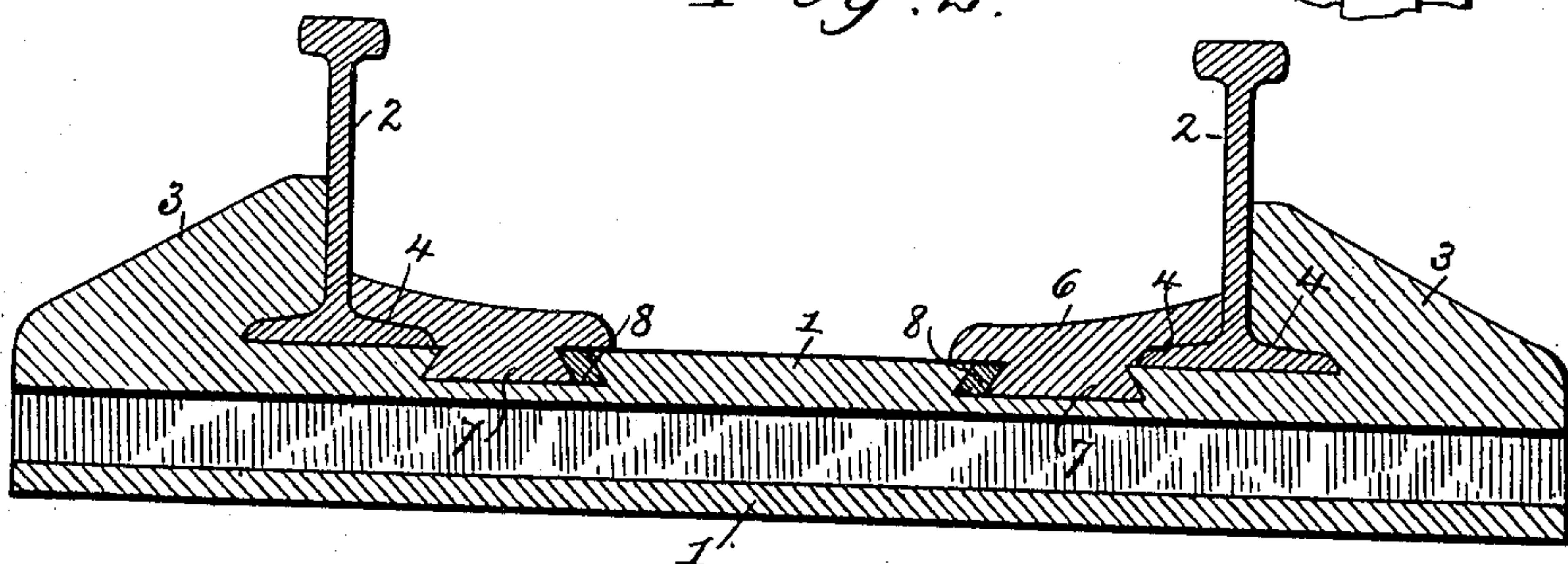


Fig. 5.

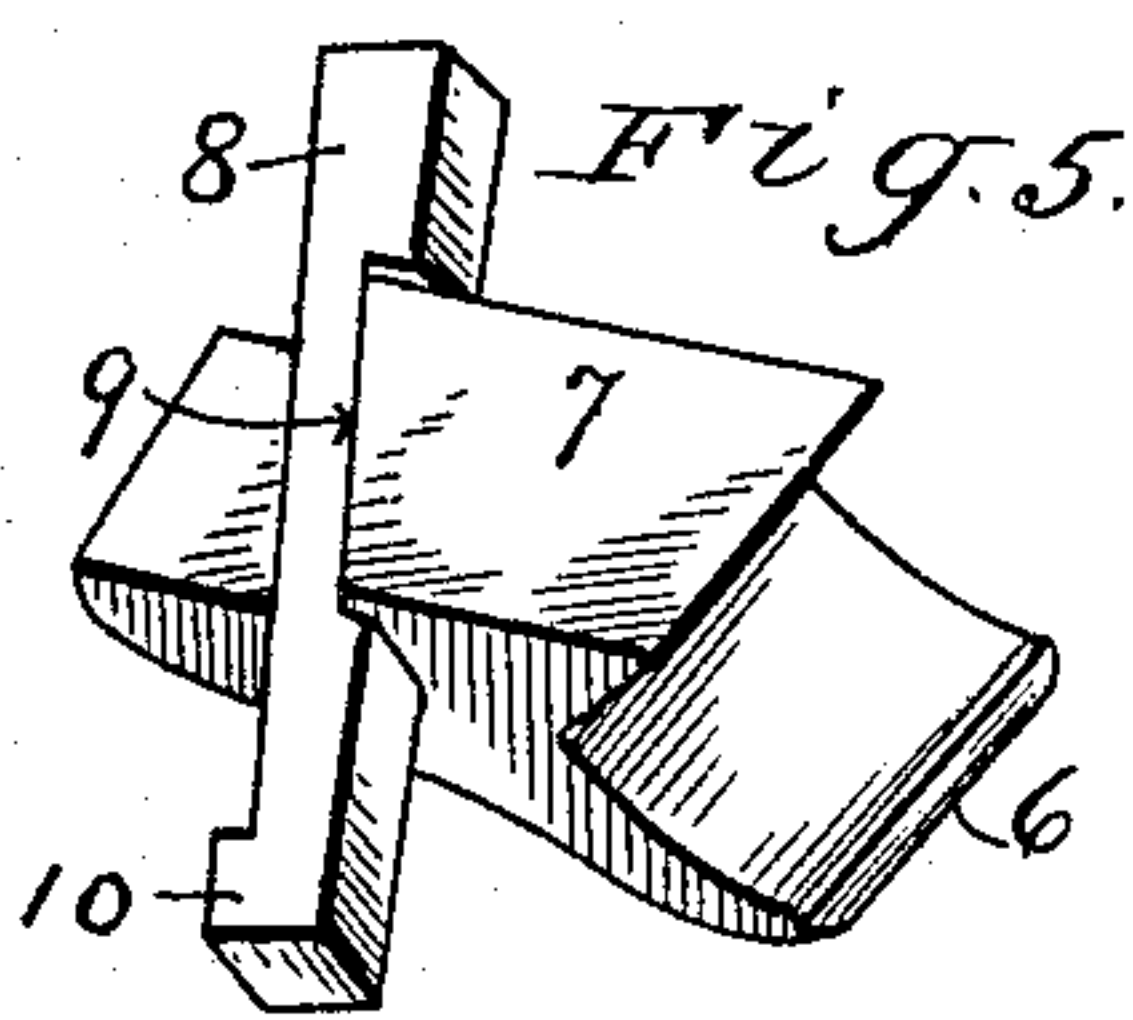


Fig. 6.

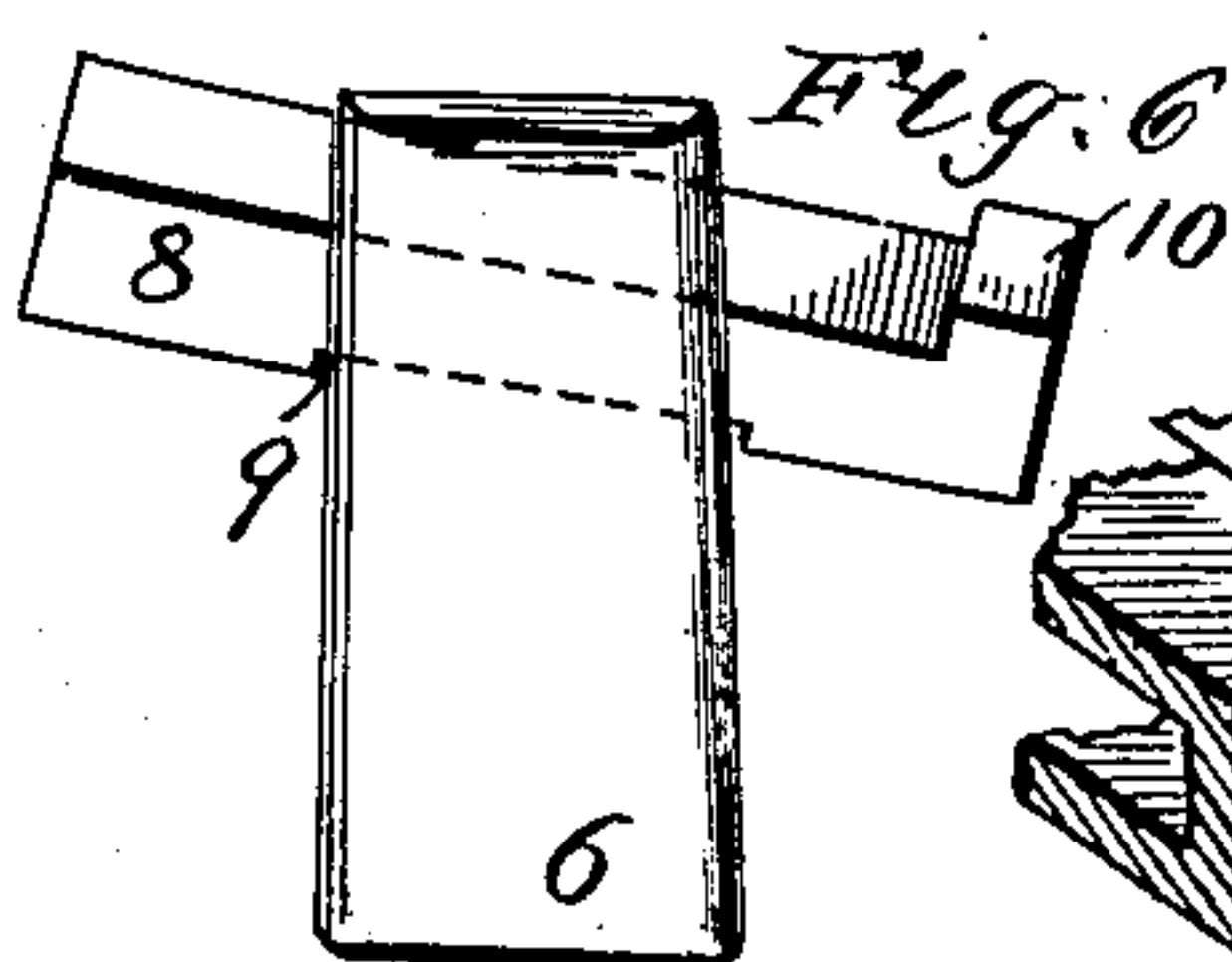


Fig. 8.

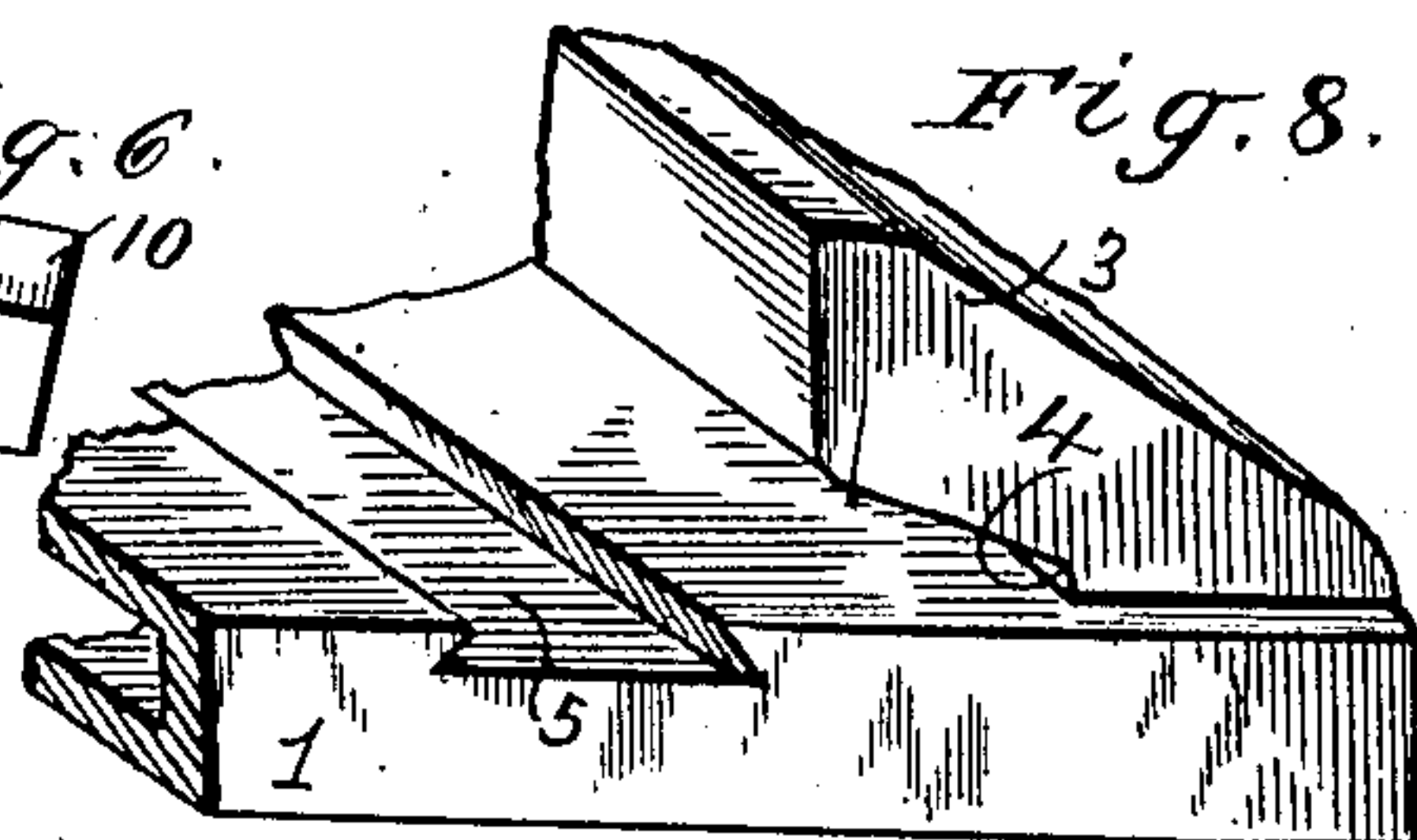
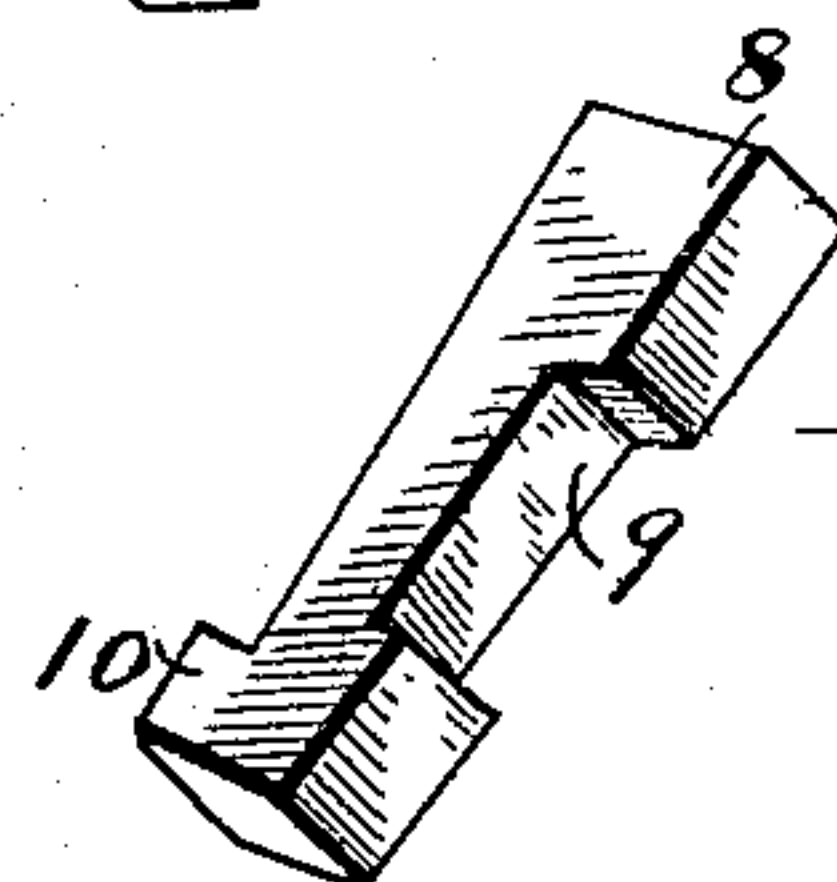


Fig. 7.



Witnesses

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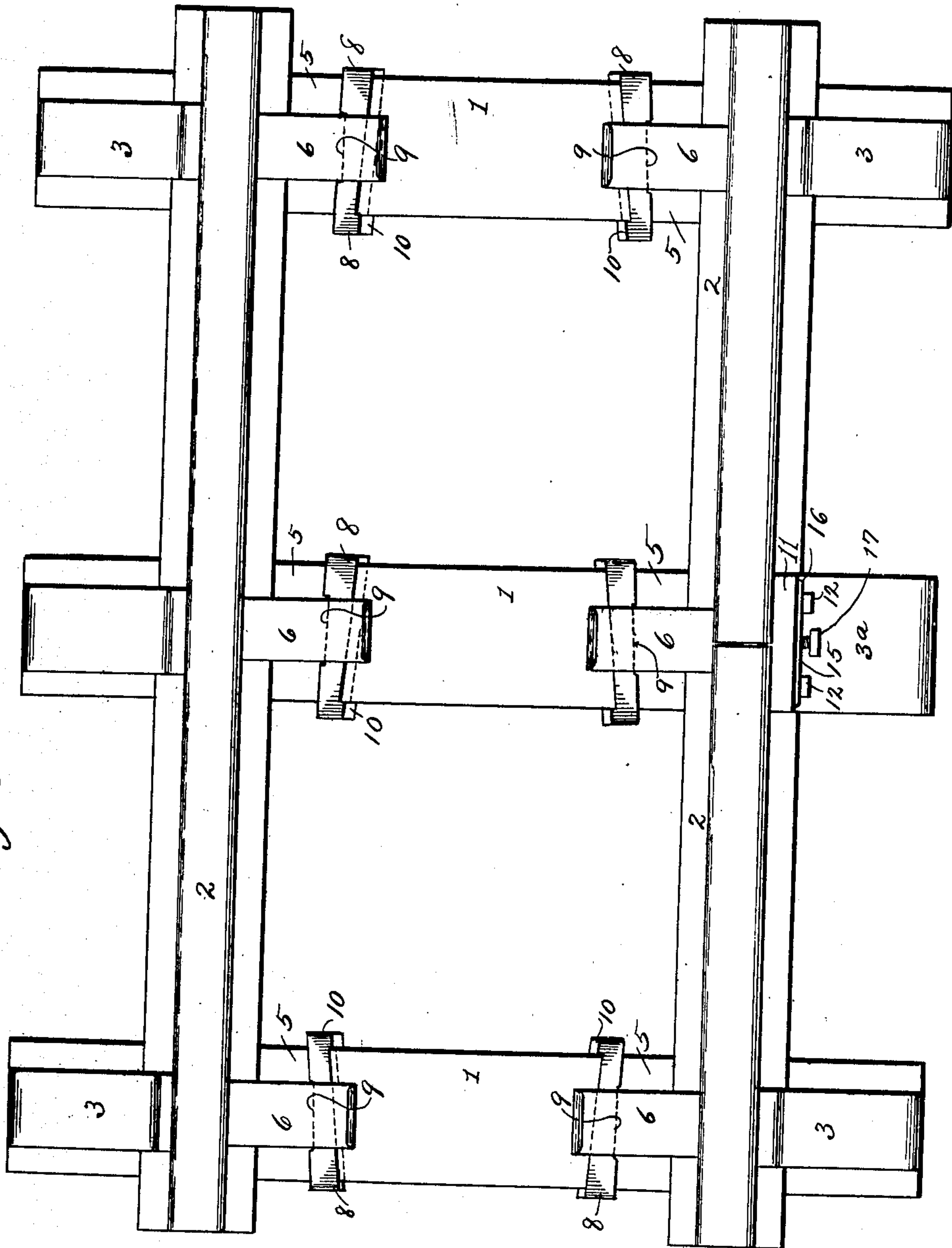
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2 SHEETS—SHEET 2.

Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## RAILWAY-TIE.

No. 895,601.

Specification of Letters Patent.

Patented Aug. 11, 1908.

Application filed September 25, 1907. Serial No. 394,538.

*To all whom it may concern:*

Be it known that we, DAVID W. TRAINOR and JAMES R. SMITH, citizens of the United States, residing at Allegheny city and Smithfield, respectively, in the counties of Allegheny and Fayette, respectively, and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Ties, of which the following is a specification.

10 The object of this invention is an improved construction of railroad tie which is characterized by the elements of strength and lightness to a marked degree, and which is so formed as to securely hold the rails as against  
15 any spreading or other lateral movement, at the intermediate points of the rails, as well as at the joints thereof, the tie which is located at the joints of the rails in the track being peculiarly formed so as to subserve the  
20 function of a rail joint in connection with the concomitant parts hereinafter specified.

With these objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions,  
25 arrangements and combinations of the parts that we will hereinafter fully describe and then point out the novel features in the appended claims.

For a full understanding of the invention,  
30 reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view of a portion of railroad track embodying the improvements of our invention; Fig. 2 is a transverse sectional view, the section being taken  
35 through one of the ties; Fig. 3 is a top plan view; Fig. 4 is a horizontal sectional view through the joint of the rails; Fig. 5 is a detail inverted perspective view of one of the  
40 clips employed and its locking bar; Fig. 6 is a top plan view of one of the clips with the key held therein; Fig. 7 is a detail perspective view of one of the keys and Fig. 8 is a detail perspective view of a portion of a tie.

45 Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, the numeral 1  
50 designates our improved ties which are preferably constructed of metal and which are made hollow, as shown, either with or without reinforcing webs.

2 designates the rails. Each of the ties 1  
55 is provided at its ends with inwardly facing

blocks 3 that may be either formed integral therewith or secured thereto in any desired manner. The blocks 3 are formed with under-cut inner ends 4 by which they are designed to extend over the outer flanges of the  
60 rail base, the inner ends of the blocks extending up to and abutting against the outer faces of the webs of the rails, as clearly illustrated in the drawings. Each tie is provided between the inner ends of the blocks 3  
65 with tapered recesses 5, said recesses being located so as to extend with one wall along the inner base flanges of the rails, the said walls of said tapered recesses being under-cut.

70 6 designates clips, each of which is formed with a wedge-shaped dove-tailed tongue 7 designed to be slipped endwise into a recess 5, the outer end of each clip being curved upwardly so as to extend over the base flange of  
75 the rail to serve as a member complementary to the adjacent block 3 and the rear end of each clip resting upon the tie at the inner side of the recess. In order to secure these  
80 clips 6 in place within the recesses, we provide a key 8 for each clip. The key 8, as will be seen, is so shaped in cross section as to correspond to one undercut wall of the recess 5  
85 and each of said keys is formed intermediate of its ends and in its outer side with a recess 9 in which one end of the tongue 7 is accommodated. Each key 8 is formed at one end  
90 with a hook or shoulder 10. In order to secure the clips in place, the clips and keys are driven into the recesses together, with the  
95 tongue of the clip fitting in the recess 9 of the key. When the key has been driven in far enough, its hook will emerge from the recess and take around the adjacent side of the tie, so as to securely lock the clip in place.

Each tie that is located in the track at the joint between the rails is provided at such joint with a block 3<sup>a</sup> corresponding substantially to the blocks 3, except that the block at the joint is preferably wider and that it is  
100 formed with an upward extension 11 extending along and abutting against the outer sides of the rail webs at the joint and overlapping said joint. The bolts 12 extend through the  
105 upper extension 11 of the block 3<sup>a</sup> and extend through longitudinally elongated slots 13 in the rails. The said bolts 12 are, respectively, a right and left hand threaded bolt and work through correspondingly threaded openings  
110 in the fish plate 14 which overlaps the rails



at the joints on the inner sides thereof. A locking bar 15 is designed to fit between the heads of the two bolts 12, said bar being provided with recessed ends 16 which extend  
 5 over the said heads so as to prevent the bolts from turning. Preferably the inner ends of the two bolts are devoid of nuts (see Fig. 4), so that there will be no danger at all of any interference of the car wheels, it being noted  
 10 that by our arrangement of parts, such nuts are unnecessary, because the bolts are oppositely threaded as are also the openings in the fish plates, and the locking bar securely prevents any accidental movement of the bolts.  
 15 The bar is provided preferably with a pin or screw 17 arranged to extend therethrough and into an opening formed in the upward extension 11 of the block 3<sup>a</sup>.

From the foregoing description in connection with the accompanying drawings, it will be seen that we have provided a very simple, durable and efficient construction of railroad tie which may be formed of metal and be strong and light, and which embodies  
 20 means for securely holding the track rails at the joint, and throughout their extent so as to prevent separation of the rails at the joint, and any spreading of the rails which is the cause of so many disastrous wrecks. The  
 25 slots 13 in the rails provide for a proper expansion and contraction of the latter at the joint, without weakening the joint.

Having thus described the invention, what is claimed as new is:

35 1. A railroad tie provided with blocks designed to hold the rails as against lateral movement in one direction, the tie being

formed with recesses spaced from the blocks and formed with undercut walls, rail clips formed with dove-tailed tongues adapted to  
 40 be slipped into said recesses to hold the rails as against lateral movement in the opposite direction, and keys arranged to be slipped into said recesses with the tongues, said keys  
 45 respectively being formed in one side with recesses into which the tongues of the clips fit, the keys also being formed at one end with shoulders adapted to take around one  
 50 side of the tie whereby to hold the clips in position.

2. A railroad tie for the joint of track rails, provided with a block adapted to project over one side of the rail at the joint and formed with an upward extension, right and  
 55 left hand threaded bolts extending through said extension and adapted to extend through the adjacent rails of the joint, a fish plate adapted to be located against the rails  
 60 of the joint and formed with right and left hand threaded openings through which the respective bolts are designed to work, and means for holding said bolts from turning in said openings.

In testimony whereof we affix our signatures in presence of witnesses.

DAVID W. TRAINOR. [L. S.]  
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