

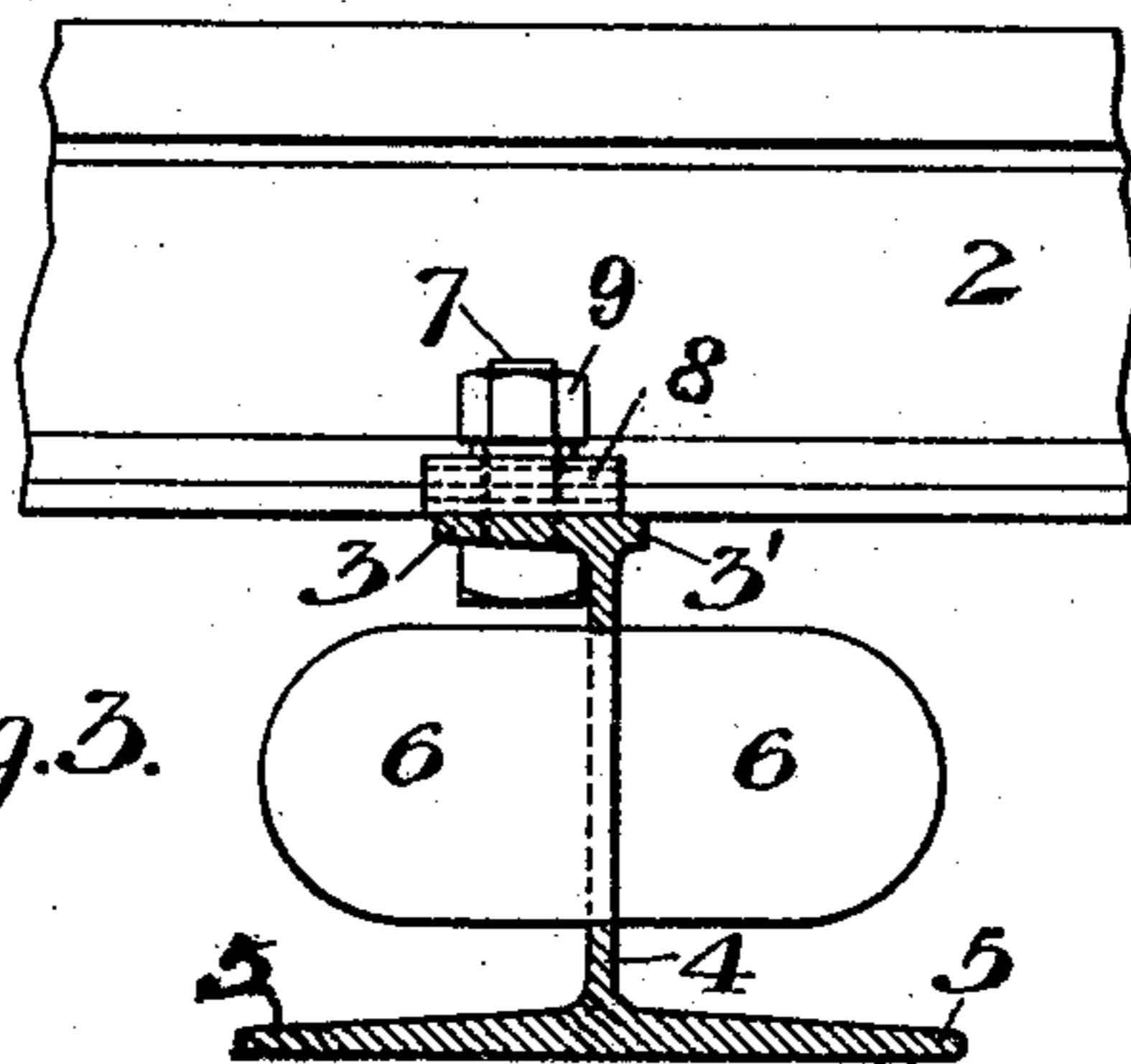
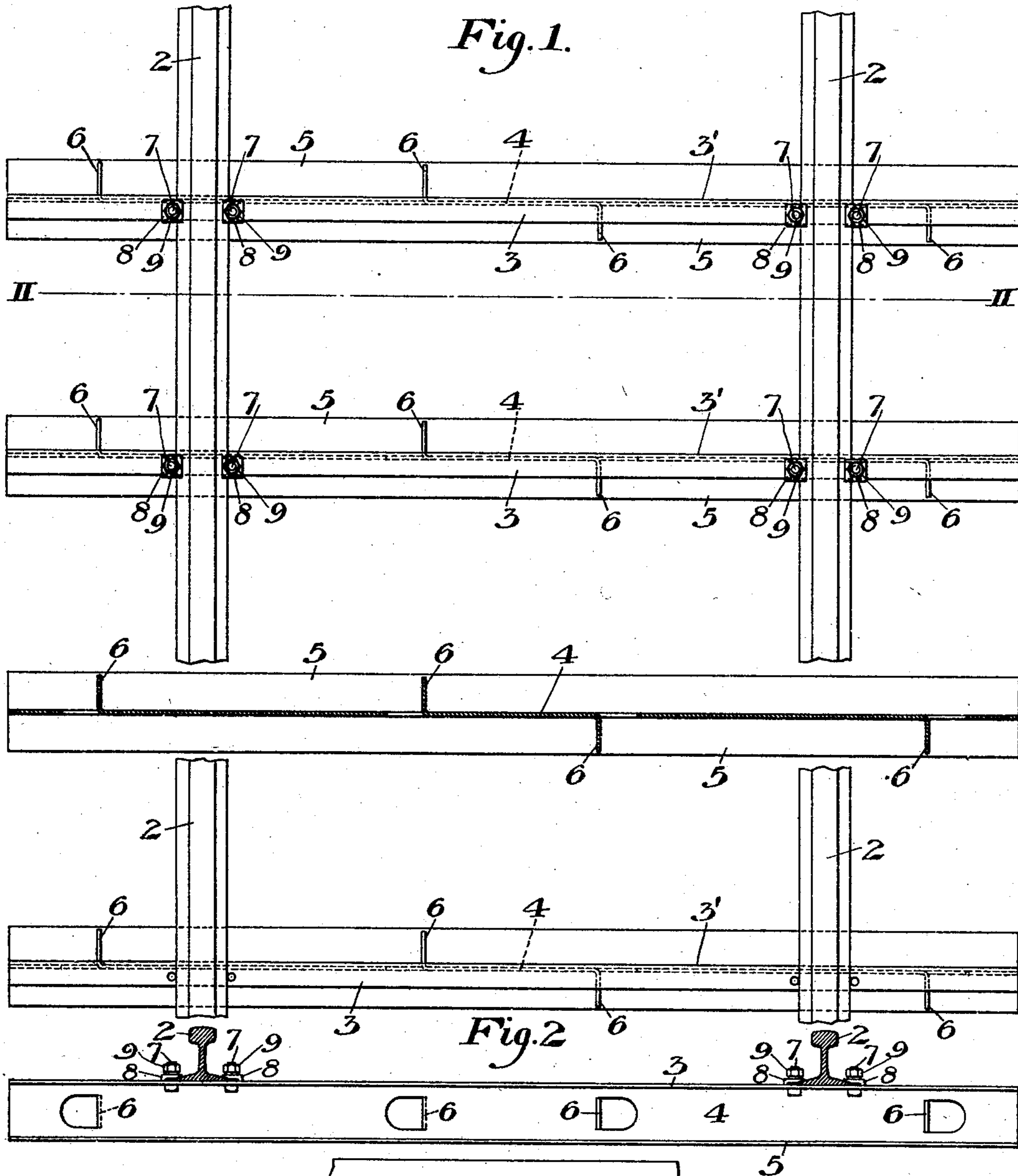
No. 765,603.

PATENTED JULY 19, 1904.

R. H. STEVENS.  
METAL RAILWAY TIE.  
APPLICATION FILED JAN. 11, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES

Warren W. Swartz  
St. M. Corbin

INVENTOR

R. H. Stevens  
by Raden & Rymer  
his attys

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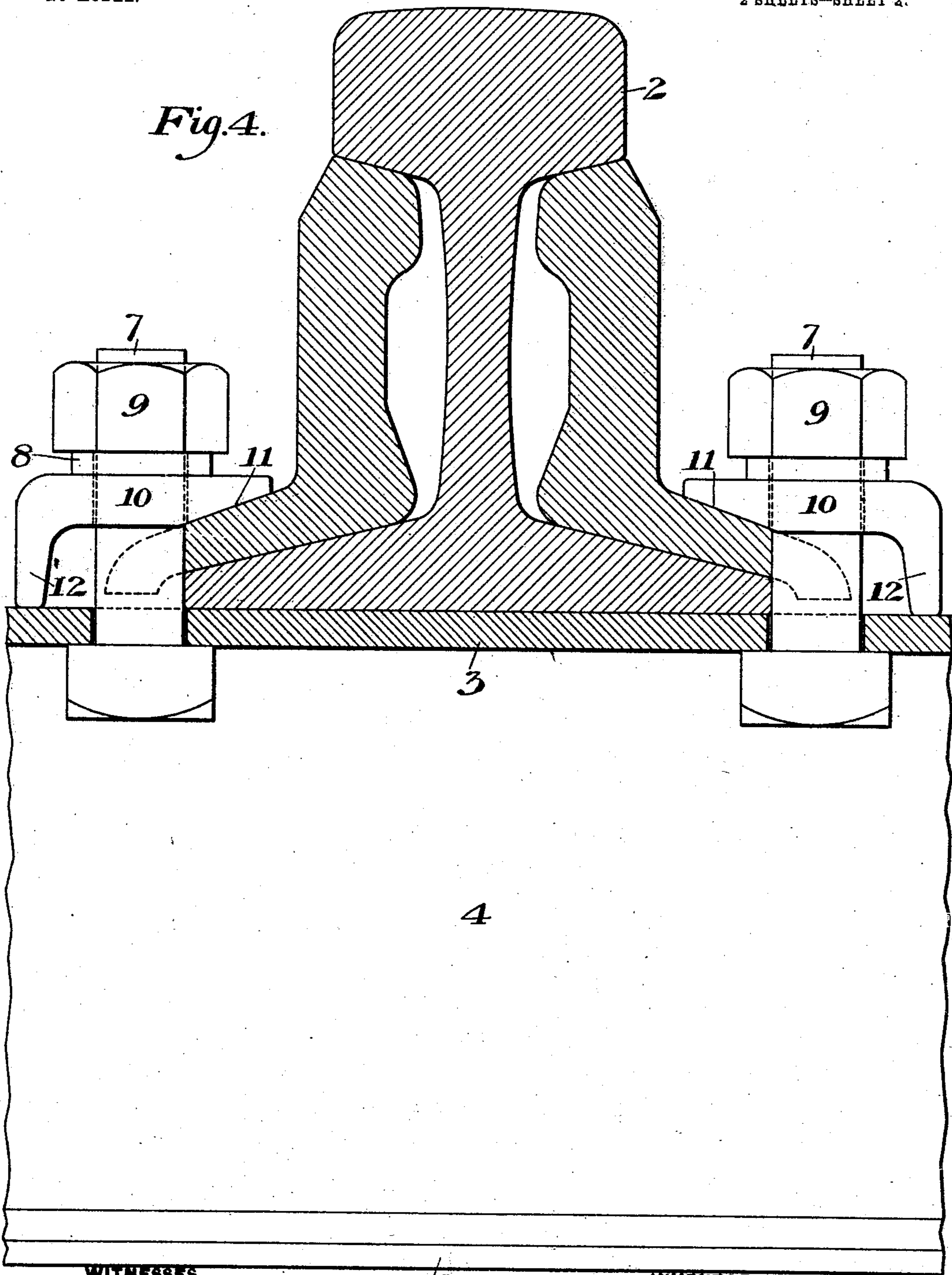
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*Fig. 4.*



WITNESSES

*Warren W. Swartz*  
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# UNITED STATES PATENT OFFICE.

RICHARD H. STEVENS, OF MUNHALL, PENNSYLVANIA.

## METAL RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 765,603, dated July 19, 1904.

Application filed January 11, 1904. Serial No. 188,471. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD H. STEVENS, of Munhall, Allegheny county, Pennsylvania, have invented a new and useful Metal Railway-Tie, 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—

Figure 1 is a plan view showing a portion of track provided with my improved metal ties. Fig. 2 is a cross-section on the line II II of Fig. 1. Fig. 3 is an end view on a larger scale, and Fig. 4 is a detail view showing the one form of rail-fastener I may employ.

My invention relates to the class of metal railway-ties, and is designed to provide a tie having a single vertical web with base-flanges which shall be strong and at the same time sufficiently light to enable it to compete in price with ties of other material.

A further object is to give the necessary stability to such a tie by providing wide base-flanges.

In the drawings, 2 2 represent the rails of a track, these rails resting upon and being secured to the top flanges 3 of my improved ties. Each tie consists of a rolled shape having a vertical web 4, with a top flange 3 projecting to one side thereof and of sufficient width to receive the bolt-holes, and base-flanges 5 5, projecting in opposite directions and each of greater width than the top flange. I preferably make the total width of the base at least as great as and usually greater than the height of the web, thus giving a stable structure. At the same time the weight is reduced by the use of a single top flange, which is preferably narrow and only of sufficient width to allow for receiving the attaching means for the rails.

In order to prevent eccentric distribution of the load and centralize it in the vertical plane of the web, I preferably provide a rib 3' along the top of the web on the side opposite to the flange 3, and to prevent endwise creeping of the tie I preferably strike up oppositely-projecting lugs 6 from the metal of the web.

In laying the ties I may lay them either with their top flanges projecting in the same

direction or alternately in opposite directions, though I prefer the first arrangement, as shown in Fig. 1.

Any suitable form of bolts, clips, or other securing means may be employed for holding the rails in place. I have shown for this purpose the bolt 7, which fits in a hole punched in the top flange of the tie, the upper part of the bolt passing through the clip 8 and being screw-threaded to receive the nut 9.

In order to provide a clip which can be used for different weights of rails and angle splice-bars, I provide the clip 10. (Shown in Fig. 4.) This clip consists of a horizontal portion with its under face beveled off at 11 to fit on the inclined upper face of the splice-bar flange. At the outer end of the horizontal portion of the clip is a depending leg or flange portion 12, which is adapted to rest upon the top of the tie and which forms a fulcrum-point or heel for the lever connections of the clip. The horizontal portion of the clip extends outwardly beyond the edge of the splice-bar and does not fit thereon, the inclined or beveled face of the clip being the only part which fits against the splice-bar. In consequence of this form of the clip the same clip may be used for rails and splice-bars of different sections, the holes punched in the tie being spaced according to the section of the rail and splice-bar. In case of a rail with a wide base and a heavier splice-bar the clip will be moved to a greater distance from the center of the rail and the hole in the clip moved to a greater distance from the back or heel of the clip, and with a narrower rail-base it will be placed nearer the rail-center and the hole in the clip moved nearer to the back or heel of the clip, in each case the hole through the clip registering with the hole in the tie. In all cases the inner edge of the hole in the clip is substantially flush with the edge of the rail-base, and the splice-bars are preferably notched to receive the bolt, the same as they are now notched to receive the spikes. In the present case, however, the notches in the splice-bars will be opposite to each other on the opposite sides of the rail, whereas in present practice with wooden ties the notches are staggered on op-

posite sides. This opposite position of the notches results, of course, from the narrow flange of the tie, which is only wide enough to receive one line of bolt-holes.

5 By arranging the lugs so that they project to opposite sides of the tie the lug on one side of the tie will coact with the lug on the adjacent side of the next tie to assist each other in preventing endwise movement of  
10 either tie. The body of ballast between these adjacent lugs in two ties will serve to lock the ties in place, since tendency to endwise movement of the one tie will tend to push the next tie in the same direction.

15 The advantages of my invention result from the lightness, stiffness, and stability of the section. The wide base-flanges give the stability and may be of approximately the same width as an ordinary wooden tie. The single  
20 top flange is made narrow, thus decreasing the weight, while the web will be made of sufficient thickness to carry the load and of any desirable height. The tamping of the ballast is easily carried out.

25 Many variations may be made in the shape and dimensions of the tie without departing from my invention.

I claim—

30 1. A metal railway-tie comprising a vertical web having a narrow top flange and a top rib and provided with opposite projecting wider base-flanges; substantially as described.

2. A metal railway-tie having a vertical web with a narrow top flange of sufficient width to  
35 receive a single line of bolt-holes, the top of the web having a rib opposite the flange, said web having oppositely-projecting base-flanges whose combined width is greater than the height of the web; substantially as described.

40 3. A metal railway-tie having a vertically-

extending web, and a lateral lug cut and bent sidewise from the web, said lug projecting from the tie-body and arranged to be embedded within the loose ballast; substantially as described.

45 4. A metal railway-tie having a vertically-extending web with top and bottom flanges, and lugs cut and bent sidewise in opposite directions from the web, said lugs projecting laterally from the tie-body and arranged to be  
50 embedded in the loose ballast; substantially as described.

5. A metal railway-tie having a vertical web and integral laterally-projecting lugs in the end portions of the tie beyond the rail-seats,  
55 said lugs being arranged to lie in the loose ballast; substantially as described.

6. A metal railway-tie comprising a vertical web having oppositely-projecting base-flanges, and a single top flange of narrower  
60 width than the base-flange; substantially as described.

7. A railway-track having rails resting upon and secured to the upper flanges of steel ties, each tie comprising a vertical web having a  
65 single narrow top flange of sufficient width to receive the rail-fastenings, and wider oppositely-projecting base-flanges; substantially as described.

8. A steel railway-tie having a vertical web,  
70 a single top flange, and oppositely-projecting base-flanges, the combined width of which is at least as great as the height of the web; substantially as described.

In testimony whereof I have hereunto set  
75 my hand.

R. H. STEVENS.

Witnesses:

G. B. BLEMING,  
H. M. CORWIN.