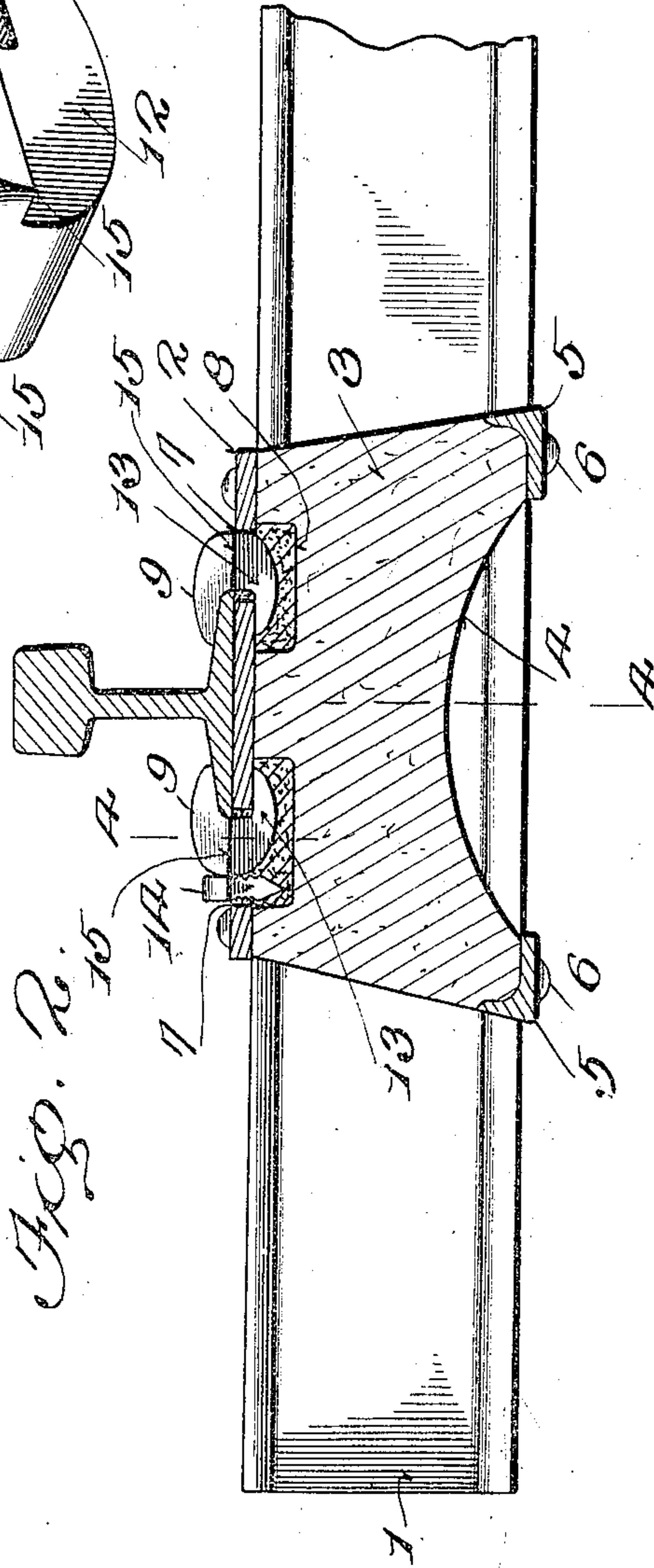
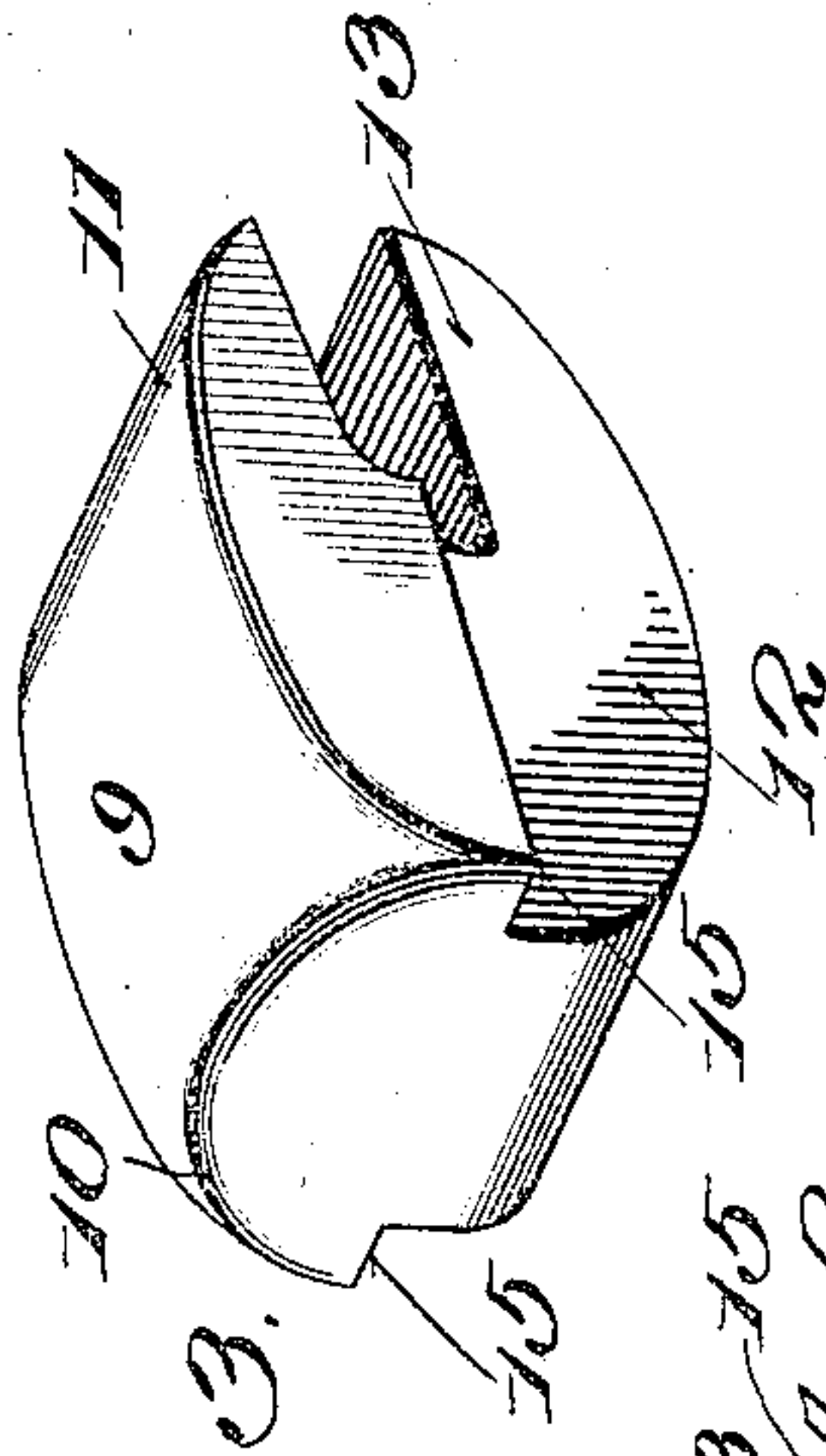
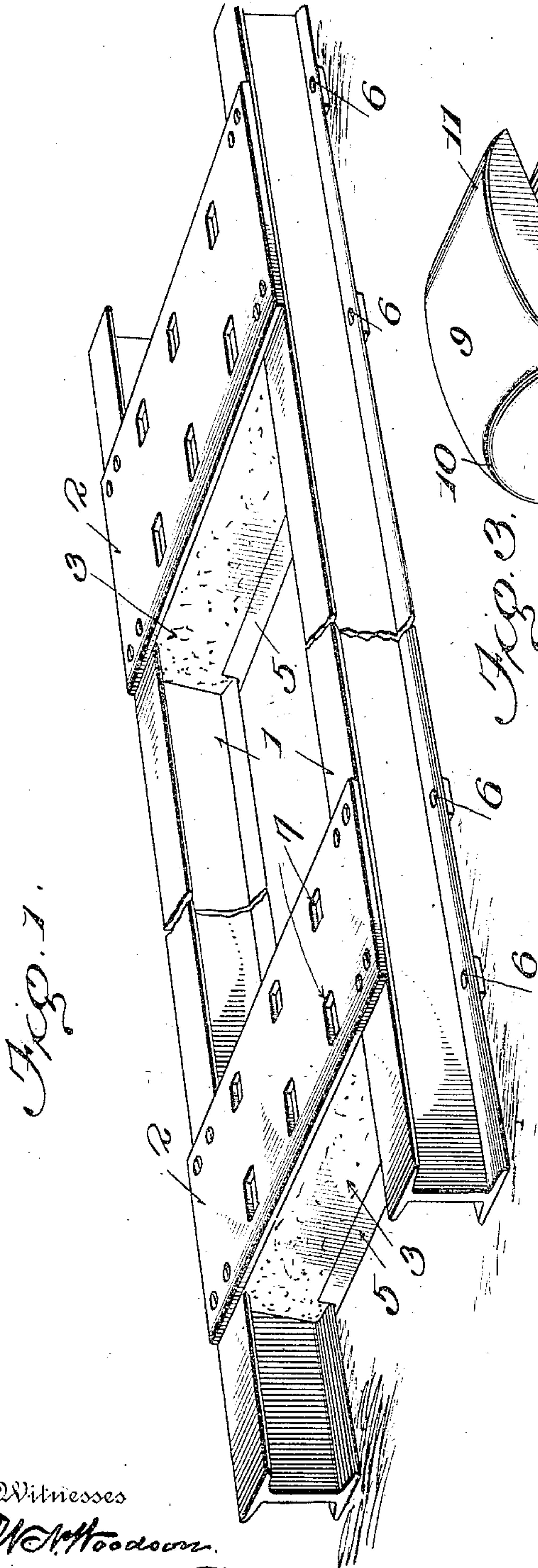


W. P. DAY.
RAILWAY TIE AND RAIL FASTENING.
APPLICATION FILED OCT. 7, 1909.

969,611.

Patented Sept. 6, 1910.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. A.

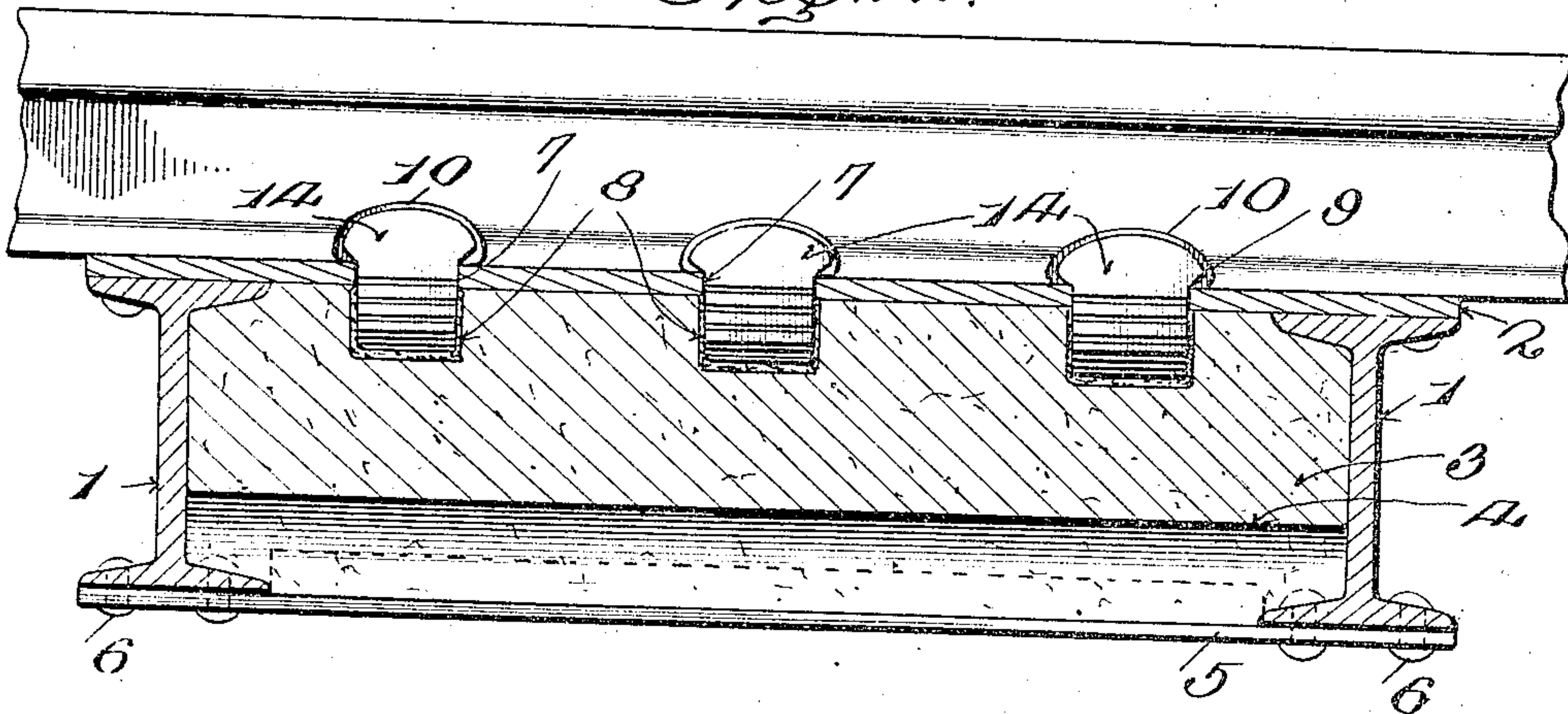


Fig. 5.

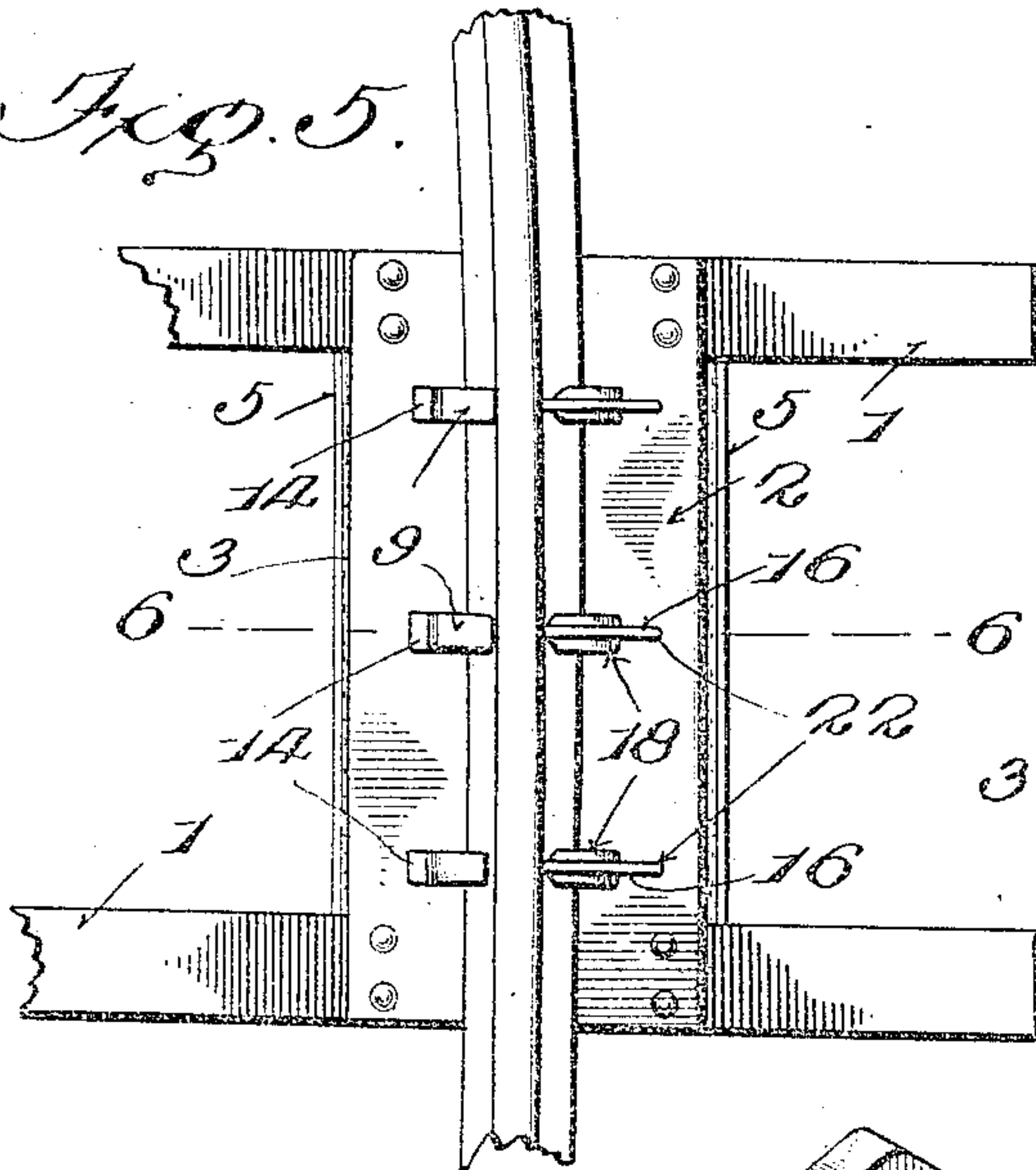


Fig. 6.

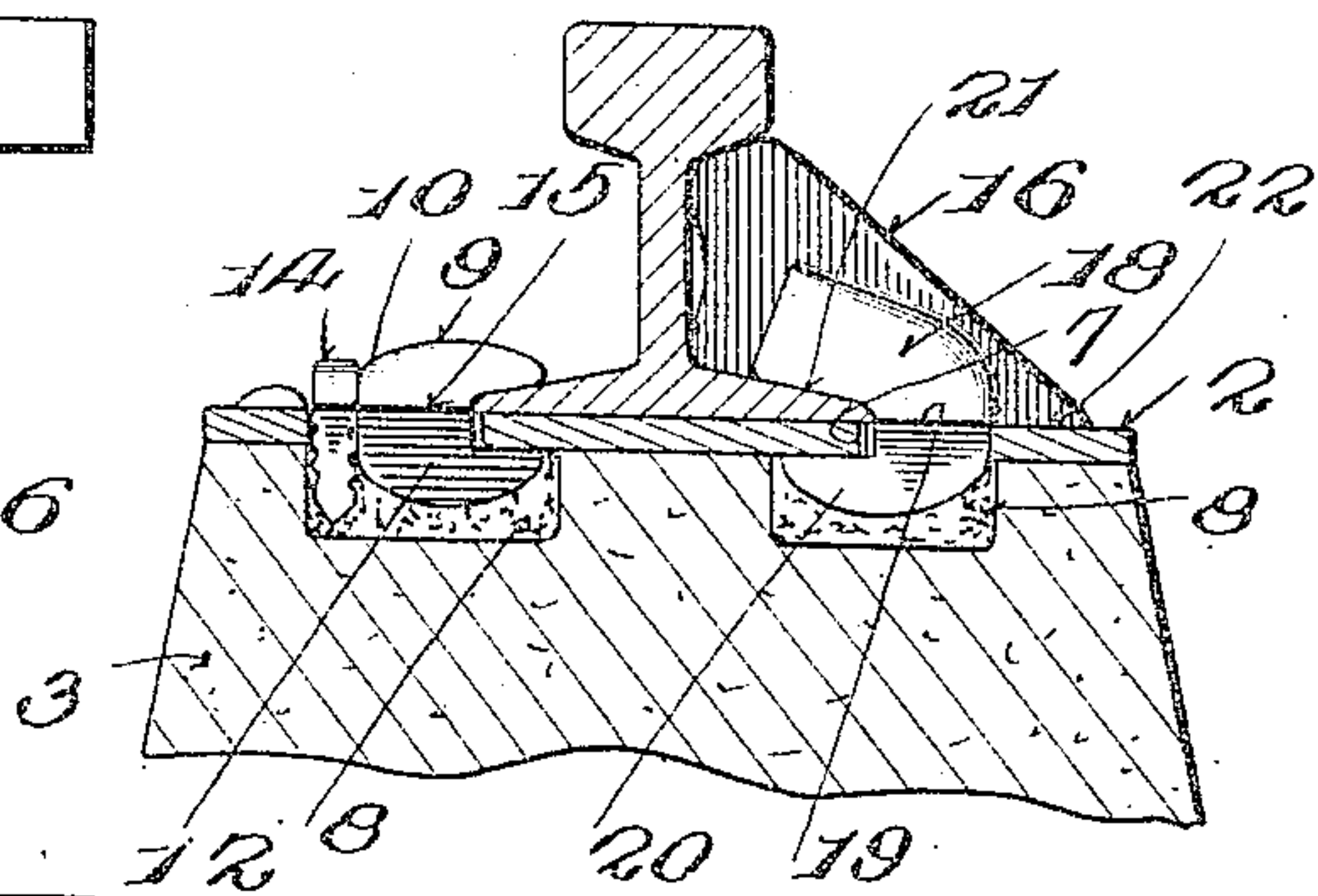
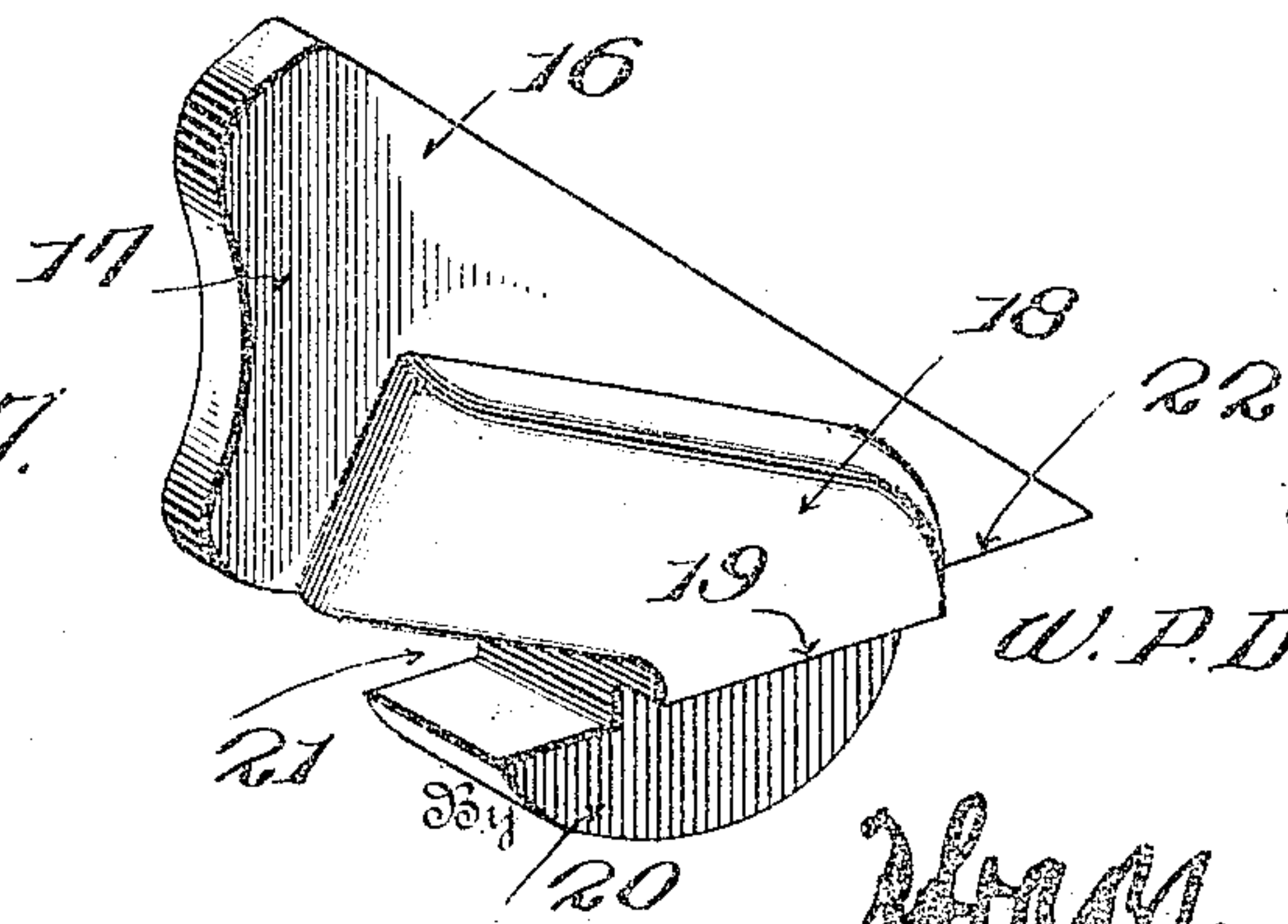


Fig. 7.



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UNITED STATES PATENT OFFICE.

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RAILWAY-TIE AND RAIL-FASTENING.

969,611.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed October 7, 1909. Serial No. 521,489.

To all whom it may concern:

Be it known that I, WILLIAM P. DAY, citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Ties and Rail-Fastenings, of which the following is a specification.

This invention comprehends certain new and useful improvements in combined metal and concrete railway ties and rail fasteners therefor, and the invention has for its primary object a simple, durable and efficient construction of tie and rail clamp which will promote the easy and smooth running of the cars or trains; which will do away to a considerable extent, with the necessity of adjustments, replacements and repairs; and which will possess the characteristics of strength and lightness to a marked degree.

With this and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions and arrangements of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction, reference is to be had to the following description and accompanying drawing, in which:

Figure 1 is a perspective view of a railway tie constructed in accordance with my invention; Fig. 2 is a sectional view through a portion of the tie, showing one embodiment of rail fastenings with a rail in place; Fig. 3 is a perspective view, on an enlarged scale, of one of said rail fastenings; Fig. 4 is a sectional view, the section being taken approximately on the line 4-4 of Fig. 2; Fig. 5 is a top plan view of a portion of a rail secured in place by my improvements, illustrating particularly the devices that are preferably employed on a curve; Fig. 6 is a transverse sectional view through a rail secured in place by fastenings such as are illustrated in Fig. 5; and, Fig. 7 is a detail perspective view of one of the fastenings or clamps that are illustrated in Figs. 5 and 6.

My improved railway tie comprises a pair of steel I-beams 1 which may be of standard or special type, arranged in predetermined spaced relation to each other and supporting rail chairs that are in the form of metallic plates 2 extending lengthwise of the track,

as indicated, and riveted or otherwise secured at their ends to the upper flanges of the I-beams 1. In addition to these parts, each tie embodies concrete base blocks 3 that fill in the spaces between the beams 1 underneath and in contact with the plates 2. Preferably, these concrete base blocks 3 have their side walls downwardly flared or sloping, as best illustrated in Fig. 2, and their lowermost faces are hollowed out or concave, as indicated at 4, principally for the purpose of accommodating a portion of the ballast, so as to insure a stable foundation for the tie and prevent the same from displacement or creeping in service. Preferably, although I do not regard this feature as essential, the base blocks 3 are reinforced in any desired way, as by brace strips 5 which extend along the lower corner edges of the blocks to and beyond the ends thereof, said strips being extended underneath the bases of the beams and riveted or otherwise secured to either the inner or outer base flanges, as indicated at 6 in Fig. 1.

The rail chair plates 2 are formed with any desired number of openings 7 extending therethrough, said openings being rectangular in the present instance and being arranged in transversely disposed pairs, as shown, one slot or opening 7 of each pair being somewhat longer than its complementary opening. The base blocks 3 are initially formed with sockets 8 underneath of and registering with the slots or openings 7, as best indicated in Fig. 2, such openings receiving soft concrete or the like, as best indicated in this view, just preparatory to applying the rail clamps or fastenings, which latter are thereby embedded in the concrete which, after becoming set or hardened assists in holding the clamps in place and in preventing any loosening and consequent rattling thereof. The rails are set in between the corresponding openings of the respective pairs, as clearly illustrated in the drawing, the said openings being preferably relatively placed, so that the base flanges of the rails will project beyond the adjacent walls of the openings, as illustrated in Fig. 2, so as to allow for adjustment and gaging. On straight lines of track, I propose to use, on both sides of the rails, clamps or fastenings such as are illustrated in Figs. 2 and 3, the same being interchangeable, no rights or lefts being required. Each of these clamps, designated

9, comprises a head 10 formed at one end with an upper jaw 11 designed to take over the base flange of the rail. The clamp is further formed with a neck or shank 12 which is adapted to extend down through one of the openings 7, said neck terminating in a lower jaw 13 which lies underneath and which is spaced from the upper jaw 11. The lower jaw 13 engages the lower face of the chair 2, the said jaws together clamping the base flange of the rail to the chair. It is to be particularly noted that the clamp at one side of the rail fits snugly in the opening 7 which is formed for it, while its companion clamp which is in the larger of the two openings is so related to such opening that a key 14 may be inserted back of such clamp down into the opening, the one key thereby serving to secure both of said clamps in place. This key 14 may be of any desired construction or design and is preferably roughened or toothed on opposing faces of its shank. Another important feature to be noted is the fact that each of the clamps 9 is formed at the opposite sides of its head 10 with downwardly facing shoulders 15, the same bearing firmly upon the upper face of the plate or rail chair 2 and insuring a firm connection of the parts.

At any desired point and preferably at or on curves, I employ in connection with one of the clamps 9, a brace clamp, such as that illustrated in Figs. 5, 6 and 7; designated 16, such brace clamps being disposed on the outer side of the outermost rail at the curve. Each of these clamps 16 embodies a vertically disposed fin or rib 17 which is designed to fit underneath the ball or head of the rail and bear against the same and the web of the rail, cheek pieces 18 which are formed on opposite sides of the fin 17 and which terminate at their lower edges in downwardly facing shoulders 19 that are designed to bear upon the upper face of the plate or chair 2, and a tongue 20 which is adapted to be slipped downwardly through one of the openings 7 and into engagement with the lower face of the chair, so as to co-act with the inclined lower edges 21 of the cheek pieces 18 in clamping the base flange of the rail to the chair. It is to be particularly noted in this connection, that the fin 17 extends outwardly beyond the cheek pieces 18, as indicated at 22, this lower and outer extension bearing upon the upper face of the chair and materially increasing the bracing effect. Preferably the clamps 16 and their complemental clamps 9, are secured in place in the same manner as hereinbefore described in connection with the straight lines of track, this being evident from an inspection of Fig. 6.

From the foregoing description in connection with the accompanying drawing, it is obvious that I have produced a very

strong and durable railway tie and rail fastener, which may be easily manufactured and which will be efficient in operation, the ties after being once laid requiring practically no attention, repair or replacement, at least not until the lapse of considerable time, and the clamps after being once applied also practically obviating the necessity for adjustment, repair or replacement and holding the rails securely in place without any tightening of bolts or the like.

It is of course to be understood that at the joints or any other places where angle bars or fish plates are employed, the same will be formed with notches to receive the clamps 9 and 16, so as to prevent creeping; but as these features form no part of my invention by themselves, I have omitted to show or specifically describe this arrangement.

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

1. A railway tie, comprising beams spaced from each other, chair plates extending from one beam to the other and connected thereto, concrete blocks filling the spaces between said beams underneath the said chair plates, the plates being formed with openings extending therethrough and the blocks being initially formed with sockets registering with said openings, rail clamps embodying upper and lower jaws, the upper jaws being designed to extend over and above the base flanges of a rail and the lower jaws extending down through the openings in the chair plates into the said sockets and engaging the lower faces of the chair plates, and concrete filling the portions of the sockets that are not occupied by the clamps.

2. A railway tie, comprising beams spaced from each other, chair plates extending from one beam to the other and connected thereto, concrete blocks filling the spaces between said beams underneath said chair plates, the plates being formed with openings extending therethrough and the blocks being initially formed with sockets registering with said openings, one of said openings at one side of a rail being larger than the other, clamps embodying upper and lower jaws, the upper jaws being designed to extend over the base flanges of a rail, and the lower jaws extending down through the openings and engaging the lower faces of the chair plates, concrete filling the portions of the sockets that are not occupied by the clamps, and keys inserted in the relatively large openings back of the adjacent rail clamp and engaging the same, the keys being embedded in the last named concrete.

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

WILLIAM P. DAY. [L. s.]

Witnesses:

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FREDERICK S. STITT.