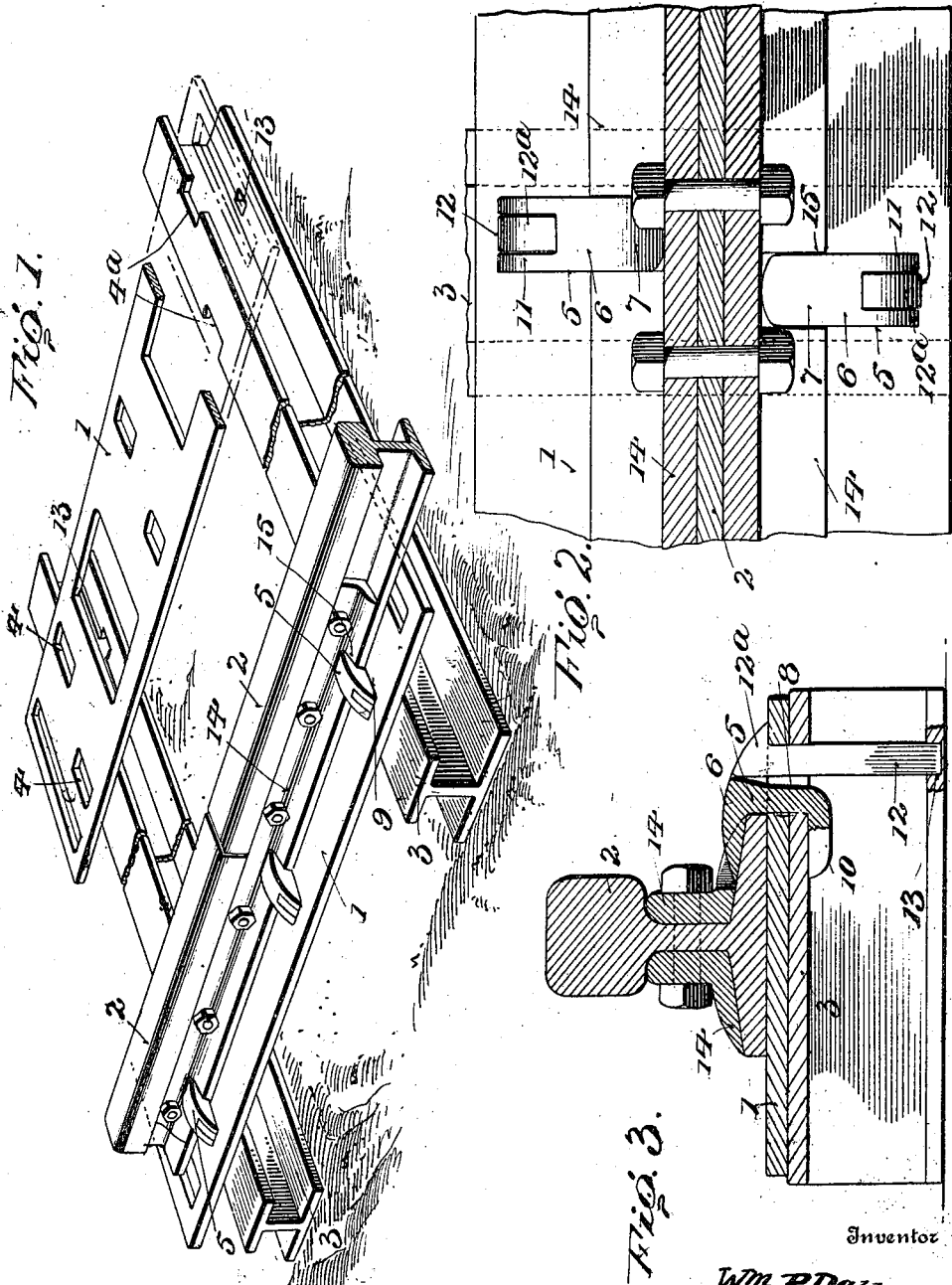


W. P. DAY.
 RAIL TIE AND FASTENING.
 APPLICATION FILED FEB. 16, 1909.

949,926.

Patented Feb. 22, 1910.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2

Fig. 4.

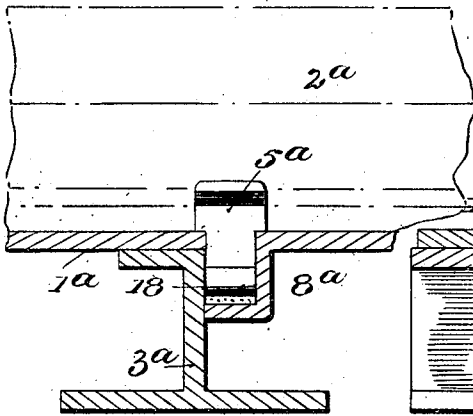


Fig. 5.

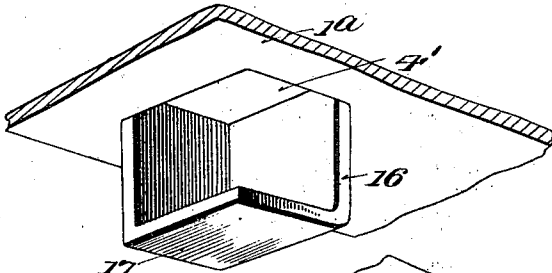
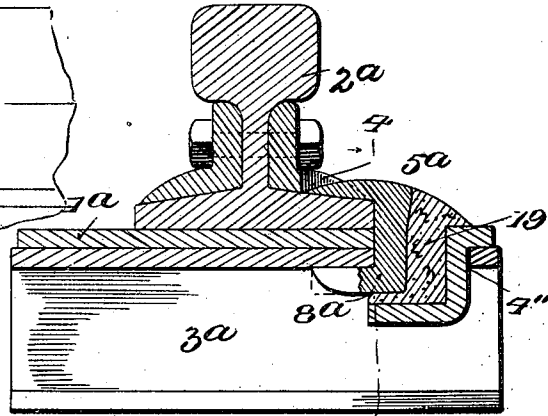


Fig. 6

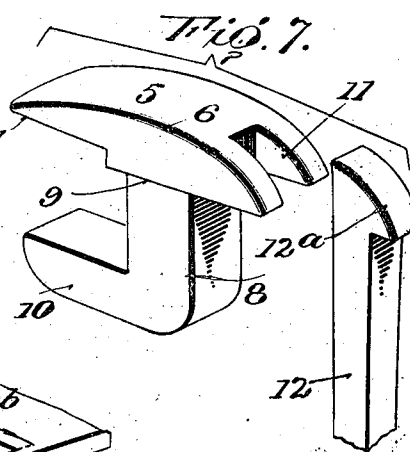


Fig. 7.

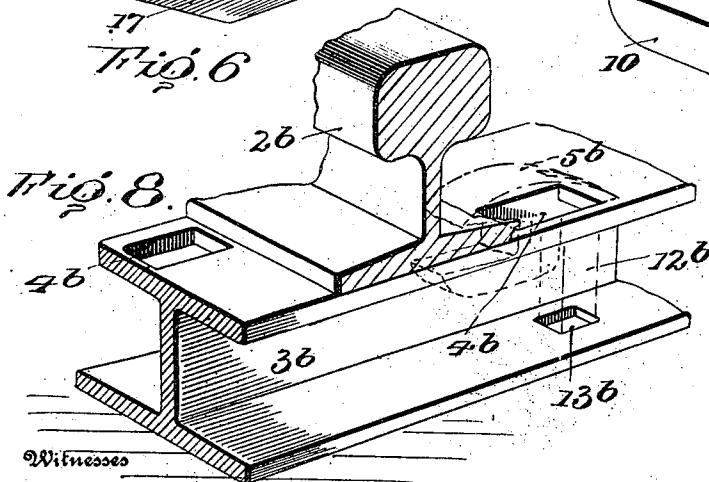


Fig. 8.

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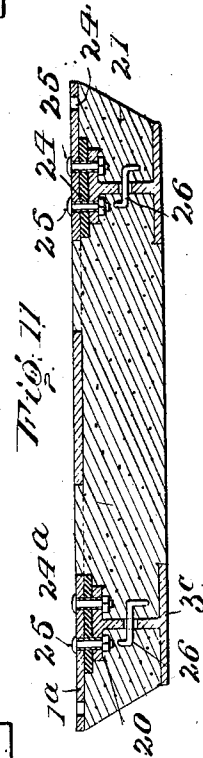
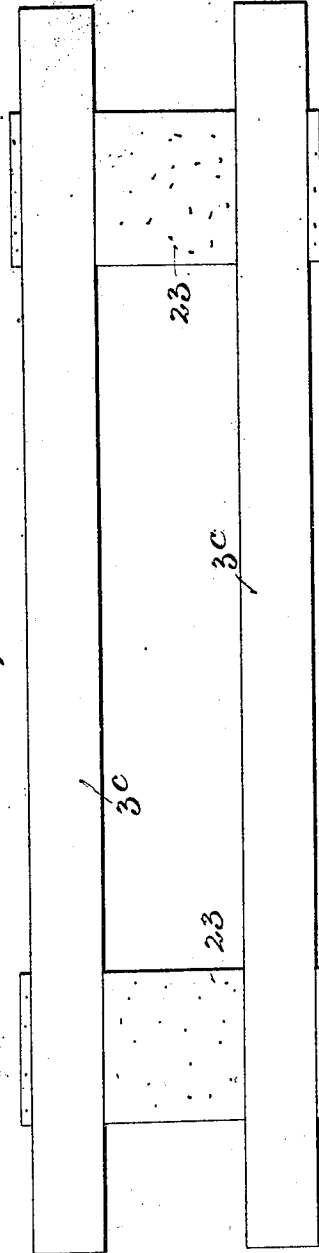
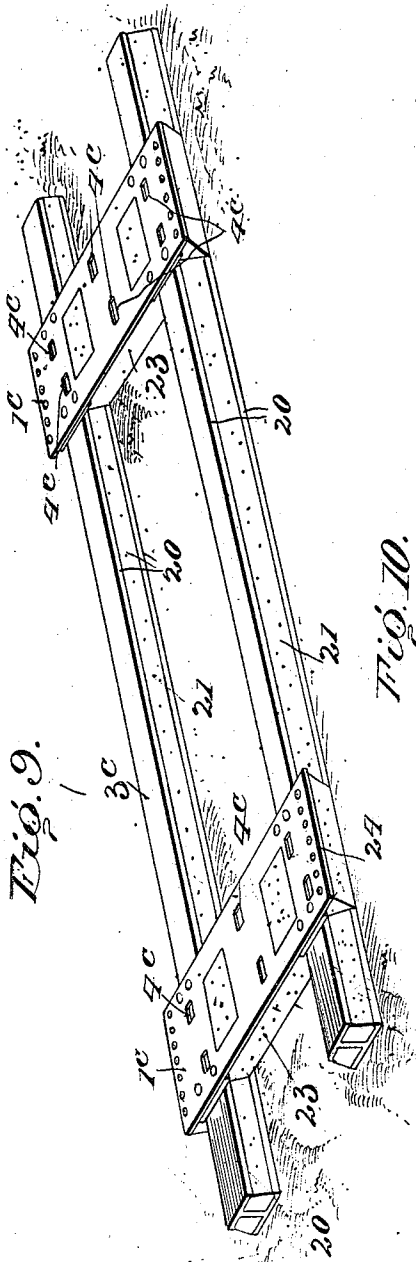
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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RAIL TIE AND FASTENING.

949,926.

Specification of Letters Patent.

Patented Feb. 22, 1910.

Application filed February 16, 1909. Serial No. 478,234.

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 Rail Ties and Fastenings, of which the following is a specification.

This invention has for its object improved ties and rail fastenings therefor which will embody the characteristics of strength, lightness and durability, and which will be composed of comparatively few parts that may be easily manufactured and readily adjusted in simple relation to rigidly hold the rails in place, and the invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

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

Figure 1 is a perspective view of one embodiment of my invention; Fig. 2 is an enlarged horizontal sectional view of a portion of the device, the section being taken through one rail; Fig. 3 is a transverse sectional view through one of the rails; Fig. 4 is a transverse sectional view illustrating a modification, the section being taken on the line 4-4 of Fig. 5. Fig. 5 is a longitudinal sectional view of such modification; Fig. 6 is a fragmentary perspective view of a portion of a rail chair; Fig. 7 illustrates in perspective one form of rail clamping device which may be employed; Fig. 8 is a sectional perspective view illustrating another modification hereinafter specifically referred to. Fig. 9 is a perspective view of a modified form of tie embodying the improvements of the invention; Fig. 10 is a bottom plan view thereof; and, Fig. 11 is a transverse sectional view thereof, the section being taken through one of the chairs.

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

In that embodiment of my invention illustrated in Figs. 1, 2 and 3, my improved rail holding devices include plate-like chairs 1 which are designed to directly support the rails 2 and which are in turn supported by and upon transversely extending sleepers 3

which are constructed of sheet or wrought steel and which may be in the form of I beams, as clearly illustrated in Fig. 1, and the chairs 1 and upper horizontally disposed flanges of the sleepers 3 are formed with openings 4, 4^a, the openings being adapted to receive the rail clamps 5, one of which is shown in detail Fig. 7. Each clamp 5 is formed with a head 6 the inner end of which constitutes a tongue 7 designed to extend over the adjacent base flange of a rail, the head being formed in the rear of said tongue and on opposite sides of a depending shank 8 with downwardly facing shoulders 9 that are designed to engage the upper face of the chair 1 when the clamp is in applied position. These shoulders 9 serve to distribute the strain of the clamp, that is to say, the tongue 7, when the clamp is tightened in place, bears downwardly upon the base flange of the rail and binds the rail to the sleeper and, of course, indirectly binds the chair 1 to the sleeper; but by the provision of the shoulders 9 the chair is directly clamped to the sleeper. The shank 8 of each clamp 5 is formed with a hooked or curved extremity 10 designed to take under the subjacent flange of the sleeper to hold the clamp securely in place. The rear end of the head 6 is bifurcated as indicated at 11 in Fig. 7, and a fastening device 12 which may be in the form of a spike, as shown, is designed to be inserted down into the openings 4, 4^a and be received in the forked ends 11 of the head, the head 12^a of the spike being preferably beveled to conform to the beveled rear end of the head 6 and being adapted to lie flush with said rear end. Preferably the spike 12 is of sufficient length to extend down through an opening 13 in the subjacent base flange of the sleeper, thereby securely holding the clamp in position. As the spike 12 may be easily removed when desired, it is clear that the rails may be easily lined up whenever necessary, or removed and replaced when ever required, although they are held rigidly so long as the fastening devices remain in position. Preferably the angle bars or fish plates 14 are so arranged that their recesses 15, designed for the reception of spikes to hold the rails to the ordinary wooden ties or sleepers, receive the heads of the clamps.

In that embodiment of the invention illustrated in Figs. 4, 5 and 6, 3^a designates the

sleepers, 1^a the chairs, 2^a the rails, and 5^a the clamps that extend downwardly through the openings 4' formed in the chairs, and corresponding openings 4'' in the upper 5 horizontally disposed flanges of the I beam sleepers 3^a. In this modified arrangement of parts, the chairs 1^a are provided with pockets 16 located underneath and registering with the openings 4', said pockets 10 being closed on two sides, and open on two sides and being closed at the bottom as indicated at 17 in Fig. 6. One of the opening sides of each pocket is intended to be partially closed by the shank 8^a of the clamp 5^a, 15 while the remaining open side is closed by the vertically extending web of the sleeper as indicated at 18 in Fig. 4. In order to hold the clamp in place Babbitt metal or cementitious binding material may be 20 poured into the pocket back of the clamp as indicated at 19 in Fig. 5.

As another modification of my invention, reference is to be had to Fig. 8, which shows that the chairs 1 may be done away with if 25 desired, the rails, one of which is shown designated 2^b being directly supported upon the sleepers one of which is shown, designated 3^b. The same form of clamp, (here designated 5^b) may be employed in this 30 arrangement of parts the clamp extending down through an opening 4^b in the upper flange of the tie, two of these openings being employed at each end of the sleeper and arranged out of alinement with each other 35 on opposite sides of the rail and the openings 4^b being in the nature of slots, and lying entirely within the margin of the flange. Spikes (here designated 12^b) may be employed for holding the clamps 5^b in 40 position, said spikes extending down through the openings 4^b back of the clamps and through corresponding openings 13^b in the base flange of the sleeper.

It is to be understood that my invention is 45 not limited to the exact construction of tie illustrated in Figs. 1 to 5 and Fig. 8, but my invention also comprehends the use of specially formed reinforced concrete ties such as illustrated in Fig. 9 complete. Re- 50 ferring to this view and to Figs. 10 and 11, it will be understood that the I beams 3^c are formed along the side edges of their lower and upper flanges with oppositely disposed ribs 20 to assist in retaining the concrete 21 in place. In this embodiment of 55 the invention 1^c designates the chairs which extend from one sleeper to the other and which preferably project beyond the sleepers, the spaces between these sleepers underneath the chairs being filled with concrete, 60 as indicated at 23, and the chairs being formed with bonding openings 24. This form of tie is provided with openings 4^c corresponding to the openings 4, 4' above 65 mentioned. Preferably insulating strips

24^a are interposed between the chairs and the sleepers, being secured in place by the insulated bolts 25. If desired, the webs of the sleepers may be formed with openings, and keys 26 may be mounted in said openings to assist in binding the concrete in place. 70

It will be noted that in each instance, as described in the foregoing specification and illustrated in the accompanying drawings, 75 that the rails are supported upon transversely extending metallic sleepers and secured thereto by improved fastening devices, and either with or without the chairs interposed between the base of the rails and the sleepers, and that in the embodiment of 80 the invention in which chairs are employed, a complete tie is comprised by two sleepers and two chairs extending across the sleepers near the ends of the latter.

Having thus described the invention, what is claimed as new is: 85

1. Means for supporting and holding rails, comprising sleepers formed with oppositely 90 disposed top and bottom flanges formed with openings extending therethrough, clamps provided with heads, said heads being provided at one end with tongues designed to extend over the base flanges of the rails, and being formed at their opposite 95 ends with bifurcations, the clamps also embodying shanks extending downwardly through said openings and fastening devices extending into the bifurcations of the heads and downwardly into the openings of 100 both top and bottom flanges.

2. Means for supporting and holding rails, comprising sleepers provided with oppositely disposed top flanges formed with 105 openings extending therethrough, clamps provided with heads, the heads being provided at one end with tongues designed to extend over the base flanges of the rails, and being formed at their opposite ends with 110 bifurcations, the clamps embodying shanks extending downwardly and through the said openings, and fastening devices designed to extend into the bifurcations of the heads of the clamps, and downwardly through said 115 openings.

3. Means for supporting and holding rails comprising sleepers provided with oppositely disposed top flanges formed with 120 openings extending therethrough, supporting chairs extending from one sleeper to the next and formed with openings registering with the openings in the top flanges of the sleepers, clamps provided with heads arranged to extend over the flanges of the rails and with shanks extending downwardly 125 through the openings in the chair and flanges of the sleepers and engaging the lower faces of such flanges, and means in the openings back of the clamps for holding 130 said clamps in place.

4: A reinforced concrete tie, comprising
two sleepers, each of which consists of an
I beam with concrete filling the spaces be-
tween the upper and lower flanges on oppo-
5 site sides of the middle web, chairs extend-
ing from one sleeper to the next, and con-
crete filling the spaces between the sleepers
underneath the chairs, the chairs being

formed with openings through which said
concrete extends.

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

WILLIAM P. DAY. [L. s.]

Witnesses:

EDNA H. COLE,
CHARLES BERTRAM.