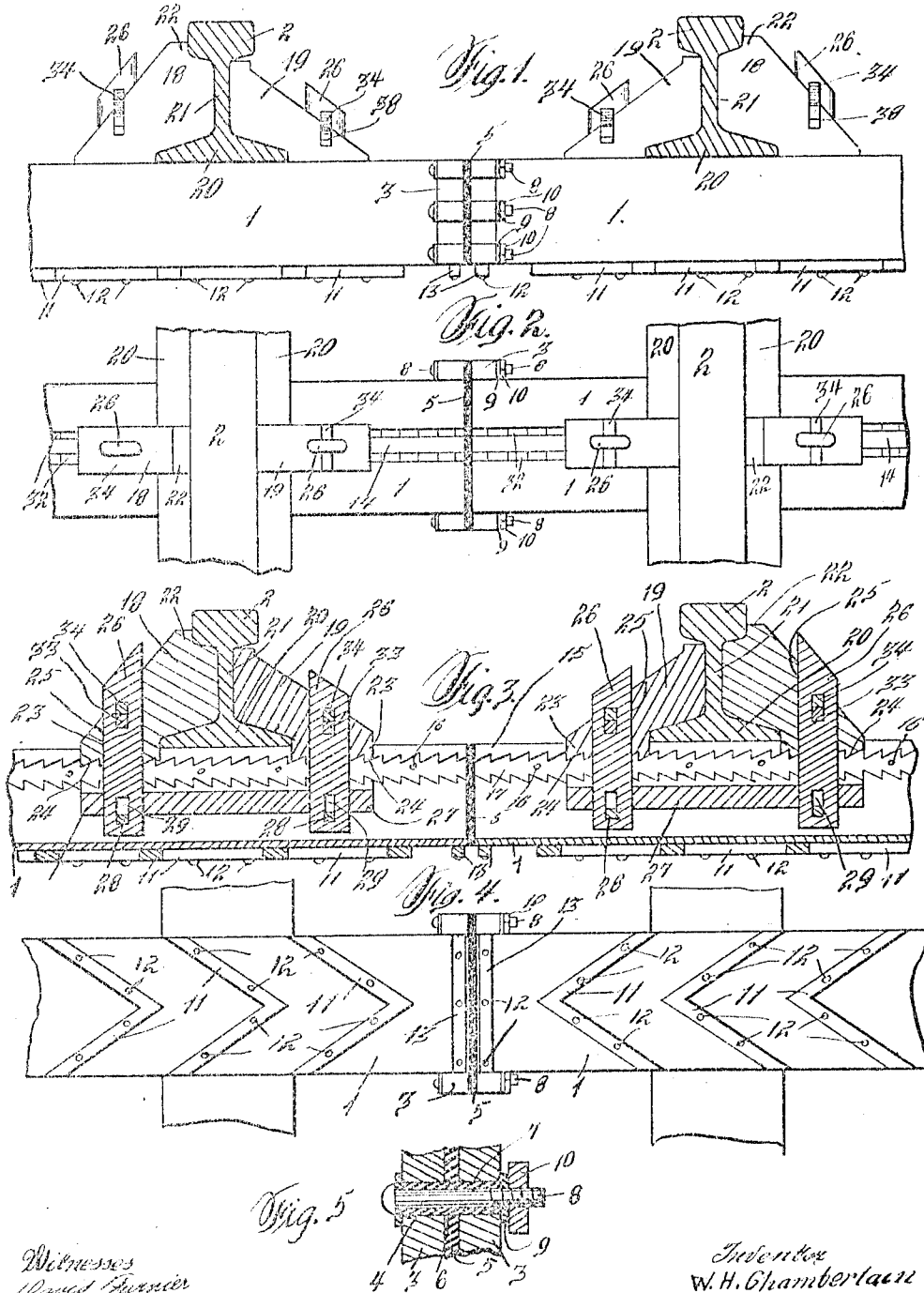


W. H. CHAMBERLAIN.
METALLIC TIE AND RAIL FASTENER.
APPLICATION FILED OCT. 7, 1909.

954,254.

Patented Apr. 5, 1910.

2 SHEETS—SHEET 1.



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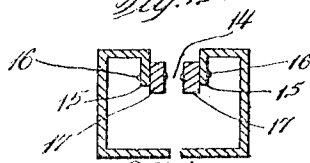
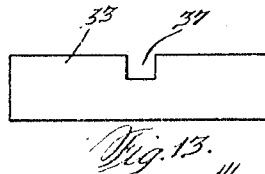
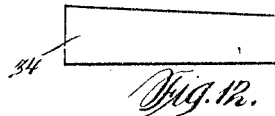
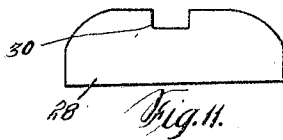
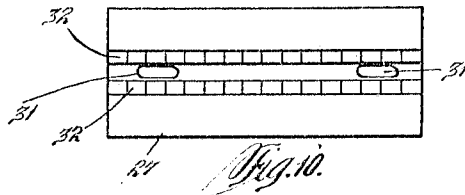
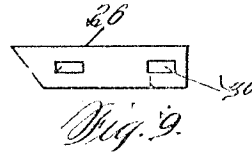
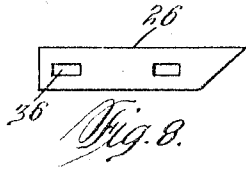
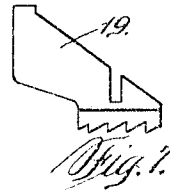
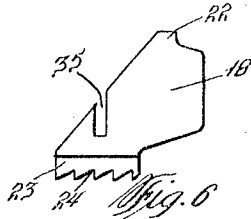
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2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE.

WILLIAM HENRY CHAMBERLAIN, OF YOUNGWOOD, PENNSYLVANIA.

METALLIC TIE AND RAIL-FASTENER.

954,254.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed October 7, 1909. Serial No. 521,618.

To all whom it may concern:

Be it known that I, WILLIAM HENRY CHAMBERLAIN, a citizen of the United States of America, residing at Youngwood, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Ties and Rail-Fasteners, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to metallic ties and rail fasteners, and the primary object of my invention is to provide a metallic structure for firmly supporting the rails of a track.

Another object of this invention is to provide a metallic tie composed of insulated sections that will permit of the tie being used in connection with railroads having electrically equipped signal track sections.

A further object of this invention is the provision of positive and reliable means in connection with a metallic tie for preventing accidental displacement of the tie upon a roadbed, thereby eliminating all danger of wrecks incurred by the shifting of ties.

A still further object of this invention is to furnish a metallic tie with simple and durable fasteners for retaining rails thereon, the fasteners being constructed to prevent vertical and lateral displacement of the rails.

These and such other objects as may hereinafter appear are attained by the novel construction, combination and arrangement of parts to be hereinafter described in connection with the drawings forming a part of this specification, wherein like numerals of reference designate corresponding parts throughout the several views, and in which:—

Figure 1 is a side elevation of a metallic tie and rail fastener constructed in accordance with my invention, Fig. 2 is a plan of the same, Fig. 3 is a vertical longitudinal sectional view of the tie and rail fastener, Fig. 4 is a bottom plan of the same, Fig. 5 is an enlarged sectional view of one of the connections of the sectional tie, Figs. 6 and 7 are side elevations of detached rail fasteners, Figs. 8 and 9 are similar views of locking members adapted to form part of the tie, Fig. 10 is a plan of a locking plate adapted to form part of the tie, Fig. 11 is an elevation of a detached cross head or key, Fig. 12 is a similar view of a detached key, Fig. 13 is a similar view of a detached

cross head or key, and Fig. 14 is a cross sectional view of a portion of the metallic tie.

In the accompanying drawings, the reference numeral 1 denotes longitudinally alining tie sections, said sections being hollow, rectangular in cross section, and of a combined length sufficient to support the rails 2 of a track. The sides of the sections 1 at the confronting ends thereof are provided with connecting cleats 3 having longitudinally alining openings 4. Interposed between the confronting ends of the tie sections is a plate 5 of insulation, and this plate is provided with openings 6 which longitudinally aline with the openings 4. Arranged in the openings 4 and 6 are sleeves 7 of insulation, said sleeves receiving the connecting bolts 8 upon which are mounted insulation washers. The bolts 8 are retained in position by nuts 10.

The reference numeral 11 denotes V-shaped cleats or strips secured to the bottom of the tie sections 1 by rivets 12 or other fastening means. These cleats in conjunction with transverse cleats 13 serve to anchor the tie sections in the ballast of a roadbed. The cleats 13 are secured to the bottom of the tie sections 1 adjacent to the confronting ends thereof.

The top of the tie sections 1 are provided with longitudinally alining slots 14 and the material bordering upon the longitudinal edges of said slots is bent downwardly to form vertical oppositely disposed flanges 15. Secured to these flanges by rivets 16 or other fastening means are double racks 17, which as will hereinafter appear serve to hold the rail fasteners relative to the tie sections 1.

The rail fasteners are designated 18 and 19 and comprise blocks adapted to brace the base flanges 20 and webs 21 of the rails 2, said rail fasteners being almost identical in construction with these exceptions. The fastener 18 is used upon the outer sides of the rails 2 and is provided with vertical portions 22 adapted to brace the outer sides of the head of said rails, these portions being dispensed with in connection with the fastener 19 upon the inner side of the rails in order to provide clearance for the wheel flanges of rolling stock. The rail fasteners are provided with depending portions 23 having teeth 24 adapted to engage the teeth of the racks 17.

To secure the rail fasteners in position,

locking members, bars, cross heads and keys are used. The fasteners are provided with vertical openings 25 to receive vertical locking members 26 which extend downwardly through the longitudinally alining slots 14 of the tie. The lower ends of the locking members 26 pass through openings 31 in the locking bars 27 and these bars are retained in position by cross heads or keys 28 extending through openings 29 provided therefor in the members 26 near the lower ends of the latter. The cross heads or keys 28 pass through the openings 29 beneath the bars 27 and are provided with seats 30 to receive the lower walls of the openings 29, said seats preventing the cross heads or keys from becoming accidentally displaced. The locking bars 27 are provided with longitudinal parallel rows of teeth 32 adapted to engage the lower edge of the racks 17 and prevent the locking bars from shifting relative to said racks. The locking members 26 are retained in engagement with the fasteners 18 and 19 by cross heads 33 and keys 34. These cross heads and keys are mounted in transverse grooves 35 provided therefor in the fasteners and in transverse openings 36 provided therefor in the members 26. The cross heads 33 are somewhat similar to the cross heads 28 inasmuch they are provided with seats 37, which receive the lower walls of the openings 36, and after the cross heads have been properly positioned, the keys 34 are driven in place and the small ends split, as at 38 to retain the keys in position. The rail fasteners 18 and 19 are of greater width than the longitudinal alining slots 14 while the depending portions 23 of said fasteners correspond in width to the slots 14 whereby they can engage the racks 17.

To assemble the parts, it is preferable to place those members 26 which pass through the rail fasteners 19 in position in the bars 27 and slide said bars and members in from the open ends of the ties; then the members 19 are placed in position and secured, and the rails 2 are placed in position against the members 19. The fasteners 18 are then placed in position, their members 26 passed down through them and through the bars 27, and as the keys 28 are comparatively short in length, sufficient room is afforded to reach in from the ends of the ties to place these keys (for the outside members 26) in position, and these latter members are then thus tightened and secured by the cross-heads 23 and keys 34. To adjust the rail clamps and rails, the removal of cross-heads 33 and keys 34 will allow members 26 and bars 27 to drop sufficiently to disengage the teeth of the parts, so that the adjustment can be made, and the parts again tightened up to hold them in adjusted position.

The tie and rail fasteners are made of strong and durable metal, and it is through

the medium of the rail fasteners, locking braces and plates, cross heads and keys that the rails 2 can be shifted upon the ties and locked into position according to the gage of the track desired in connection with which they are used.

Having now described my invention what I claim as new, is:—

1. In a metallic tie and rail fastener, the combination of tie sections, said sections having the confronting ends thereof connected together, insulation interposed between the confronting ends of said sections, said sections having longitudinally alining slots formed therein, racks secured to said sections within said slots, rail fasteners mounted upon said sections and provided with toothed portions adapted to extend into said slots and engage said racks, locking bars arranged in said sections and adapted to engage said racks, locking members adapted to extend upwardly through said bars and said rail fasteners, and means adapted to retain said locking members in engagement with said rail fasteners and said locking bars.

2. In a metallic tie and rail fastener, the combination of two sections, said sections having the confronting ends thereof connected together, insulation interposed between the confronting ends of said sections, said sections having longitudinally alining slots formed therein, racks secured to said sections within said slots, rail fasteners mounted upon said sections and provided with toothed portions adapted to extend into said slots and engage said racks, locking bars arranged in said sections and adapted to engage said racks, locking members adapted to extend upwardly through said bars and said rail fasteners, means adapted to retain said locking members in engagement with said rail fasteners and said locking bars, said means including cross heads and keys adapted to extend transversely of said locking members.

3. In a metallic tie and rail fastener, the combination with rails, of tie sections adapted to support said rails, means adapted to connect said sections together, cleats carried by the bottom of each section, said sections having longitudinally alining slots formed therein, double racks arranged within said slots and connecting with said sections, rail fasteners adapted to engage said rails and said racks, locking bars arranged within said sections and adapted to engage said racks, and means vertically disposed in said fasteners and said locking bars for retaining said fasteners and said locking bars in engagement with said racks.

4. In a metallic tie and rail fastener, the combination with rails, of tie sections adapted to support said rails, means adapted to connect said sections together, cleats carried by the bottom of each section, said sections

having longitudinally alining slots formed therein, double racks arranged within said slots and connecting with said sections, rail fasteners adapted to engage said rails and
5 said racks, locking bars arranged within said sections and adapted to engage said racks, means vertically disposed in said fasteners and said locking bars for retaining said fasteners and said locking bars in engagement
10 with said racks, said means including lock-

ing members, cross heads arranged transversely of said members, and keys adapted to hold said cross heads in engagement with said fasteners and locking bars.

In testimony whereof I affix my signature 15
in the presence of two witnesses.

WILLIAM HENRY CHAMBERLAIN.

Witnesses:

P. H. HUGHES,
B. F. MILLER.