No. 835,009. PATENTED NOV. 6, 1906.

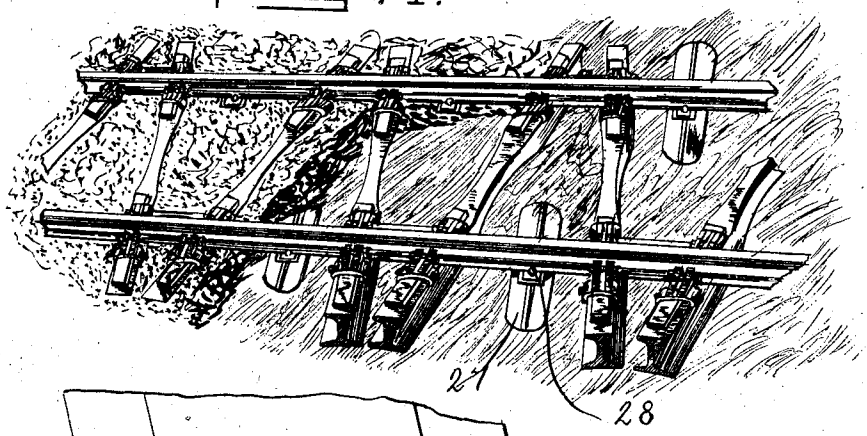
H. W. CASE.

TIE FOR RAILROADS.

APPLICATION FILED JUNE 19, 1905. RENEWED OCT. 1, 1906.

3 SHEETS—SHEET 1.

FIG. 1.



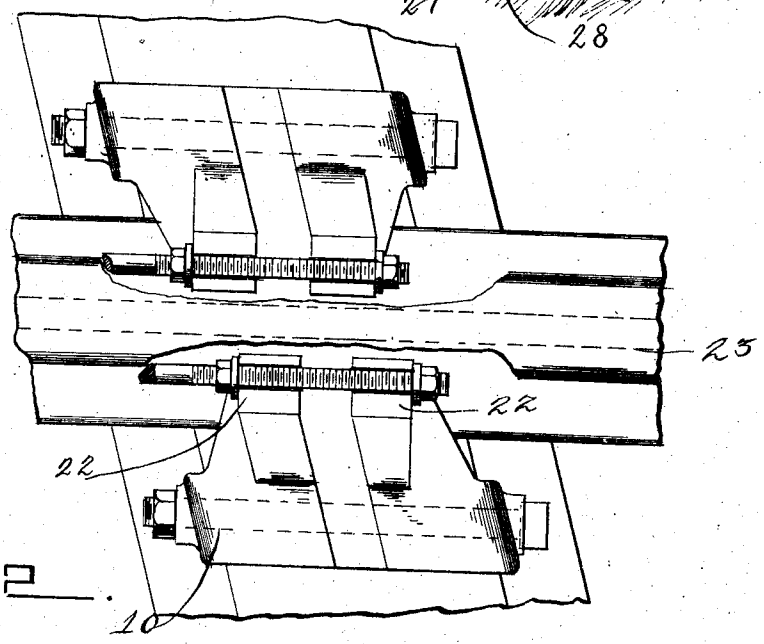




FIG 2.

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3 SHEETS—SHEET 2.

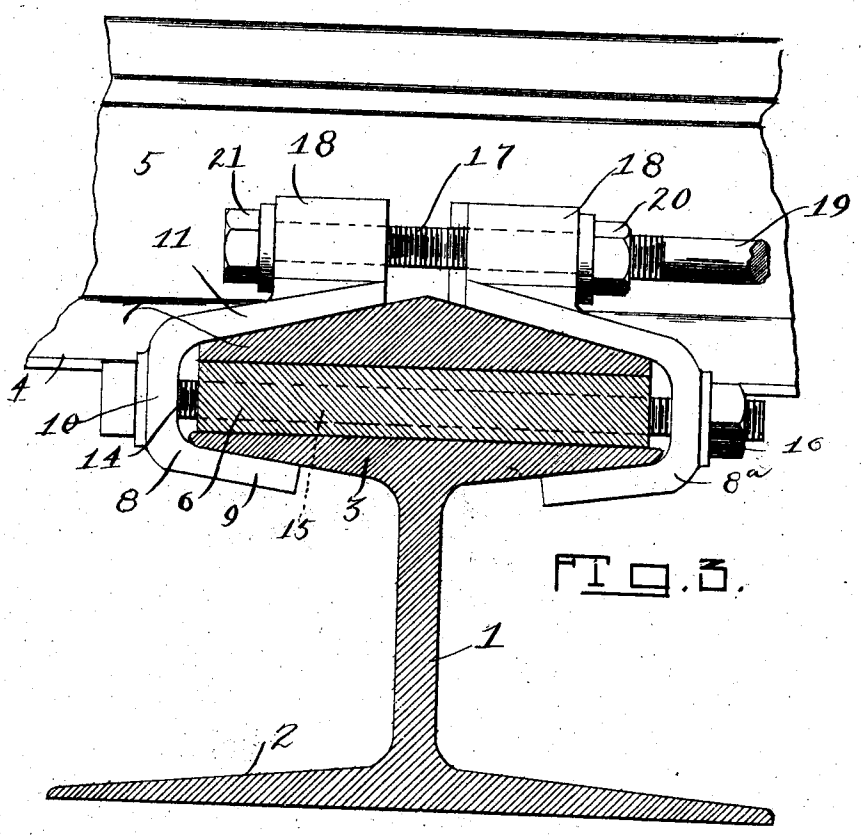


FIG. 3.

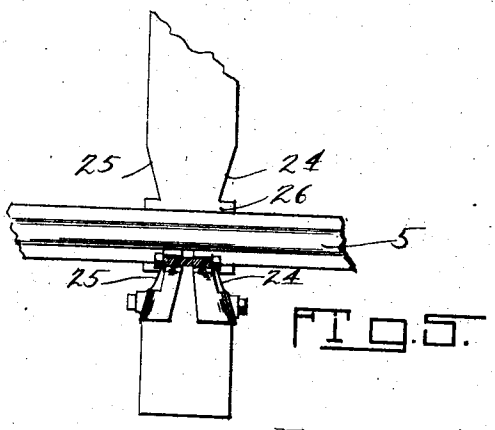


FIG. 5.

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3 SHEETS—SHEET 3.

Fig. 4.

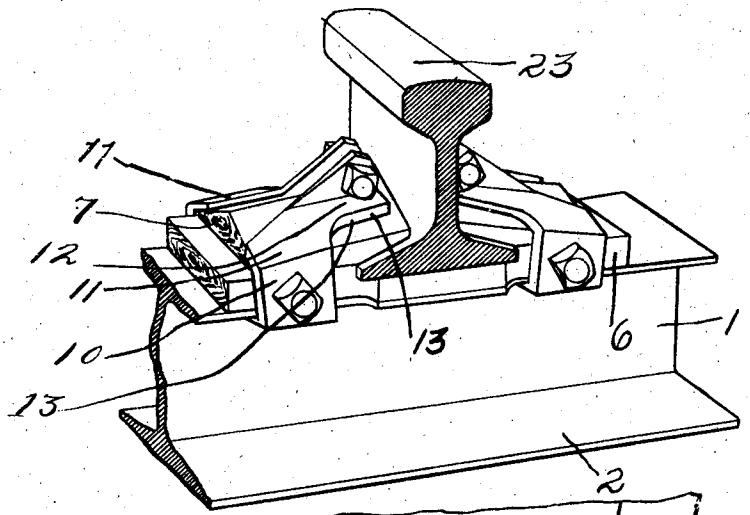
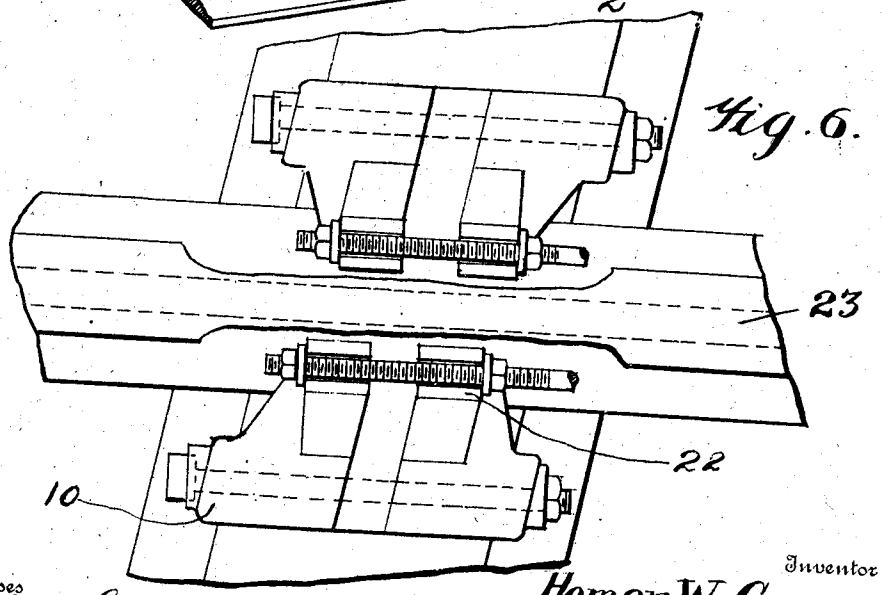



Fig. 6.

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# UNITED STATES PATENT OFFICE.

HOMER W. CASE, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO TRUSS STEEL TIE COMPANY, A CORPORATION OF THE DISTRICT OF COLUMBIA.

## TIE FOR RAILROADS.

No. 835,009. Specification of Letters Patent. Patented Nov. 6, 1906.

Application filed June 19, 1905. Renewed October 1, 1906. Serial No. 336,998.

*To all whom it may concern:*

Be it known that I, HOMER W. CASE, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Ties for Railroads, of which the following is a specification, reference being had therein to the accompanying drawings.

My present invention relates to improvements in ties for railroads, the main object being the provision of a metal truss-tie, preferably made of steel, in which the ties are arranged in zigzag order and are provided with a clamping means to secure the rail and tie together and prevent any objection to the free passage of the rolling-stock upon the rail.

Another object of my invention is the provision of a means whereby the zigzag order of ties may be dispensed with and the single metal tie, in combination with the new and improved clamping means, as hereinafter set forth, is employed.

In the accompanying drawings, Figure 1 is a perspective view of a section of track with my improved truss-tie and clamping mechanism in operable position, a portion of the road not being ballasted. Fig. 2 is a top plan view of one tie, showing it connected to the rail, the tread of the rail being broken away to show more clearly the construction. Fig. 3 is a cross-sectional view through the tie, showing the clamp mechanism in elevation and a portion of the rail. Fig. 4 is a detail perspective view of a tie and rail equipped with my invention. Fig. 5 is a detail view of the clamp and form of tie used where the ties are not arranged in zigzag order. Fig. 6 is a top plan view of one of the ties, the clamping device, and a rail, the tread of the rail being broken away to clearly show the clamping device.

Referring to the drawings, the numeral 1 designates my metal tie, which is provided, as in my former application, with the flanged base 2 and the smaller flange-supporting portion 3. Placed on top of this supporting portion of the tie, below the base 4 of the rail 5, is a rectangular block 6 of insulation, preferably of wood or any other fiber which will properly insulate the tie from the rail, and placed above this block, near the ends thereof, on each side of the rail is another block of insulation 7, which is substantially triangular in cross-section, as clearly shown in Fig. 3.

In order to hold the rail securely in position in connection with the tie and the insulation therebetween, I provide the two clamping members 8 and $8^a$, each one of which is provided with the flange or hooked end 9, adapted to engage the under surface of the supporting-plate 3 of the tie, the short vertical portion 10 being opposed to the end of the plate 3 and the block of insulation 6, while the inclined portion 11 engages one of the upper inclined surfaces of the triangular block of insulation 7, the said inclined portion 11 being further provided with the reduced portion 12, having the lower inclined edge 13, adapted to engage that portion of the insulating-block 7 which bears upon one flange of the base of the rail, as clearly shown in Fig. 4.

In order to clamp the members securely together, so as to engage properly the supporting-plate 3 of the tie, I employ a bolt 14, which passes through the portion 10 of each member of the clamp and through a channel 15, formed through the body of the block 6, the said bolt being secured in position by means of the nut 16. In order to clamp the upper portions of the members together upon the triangular-shaped block 7, I employ the bolt or rod 17, which passes through the opening in the enlarged portion 18 of the members, the entire end 19 of said rod being threaded, so as to receive the nuts 20 and 21, so that the upper portion of the members may be drawn closely together upon the triangular block 7, thus locking the rail securely into close proximity with the tie. These clamps, it will be noticed, are arranged in pairs, one upon each side of the base of the rail, and, as shown in Fig. 1 of the drawings, the ties are arranged in zigzag order, and the rod or bolt 19 is so constructed as to be of sufficient length to engage two pairs of the clamping members, thus securing the nearer ends of the ties together and forming a truss construction by means of which the rails and the complete number of ties are rigidly secured together. It will be noted that each member of the clamp is provided with the outwardly and downwardly inclined portion 22 and with the connecting-rods 19, which are so located below the tread 23 of the rail

as to be protected in case a car or locomotive should become derailed, thus preventing the road-bed from any injury by said derailment, the portions 22 also terminating below the tread of the rail and out of any possible contact with the flange of the wheels, thus allowing the wheels of the locomotive and cars to pass over the same without contact or in case of derailment to slide, and thus not crush the clamping members.

As shown in Fig. 2 of the drawings, the ties are arranged at an angle to the base of the rail, and the bodies of the clamping members are so arranged that the downwardly-projecting portion 10 thereof is parallel to the edge of the supporting-plate 3 of the tie; but, as shown in Fig. 5, where it is desired to dispense with the zigzag arrangement of the ties the supporting-plate of the tie is provided with the pairs of notches 24 and 25 upon the edges near each end of the tie, and the central portion 26 being adapted to receive the base-flange of the rail, while the notched portions 24 and 25 receive the clamping portions of the clamp, and thus provide a means whereby the rail is prevented from spreading, as both clamping members are bolted together toward each other and hold the rails upon the portion 26.

In order to assist the ties, I arrange in the space between the spread ends thereof an auxiliary plate or support 27, which is adapted to be bolted or secured to the rail at 28 and be sunken in the ballast.

I clearly show in Fig. 1 of the drawings the ties covered by the ballast, so that just the plate 3 thereof is observable, thus providing means whereby the noise occasioned by metal ties is dispensed with, thus providing a system of truss steel-tie support for rails which is thoroughly efficient and practical in use and which is especially adapted for electric railways, as the insulating feature interposed in this construction entirely relieves the objection to metal ties in connection with electric railroads.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a railroad construction, rails, ties for supporting the rails, and means common to the rails and the ties, but not passing through either the rails or the ties, for fastening the ends of the ties together in a continuous line.

2. In a railroad construction, rails, zigzag ties for supporting the rails, and means common to both the rails and the ties, but not passing through either the rails or the ties, for fastening the ends of the ties together in a continuous zigzag line.

3. In a railroad construction, rails, ties for supporting the rails, insulating means disposed between the ties and the rails, and means common to the rails and the ties, but not passing through either the rails or the ties, for fastening the ends of the ties together in a continuous line.

4. In a railroad construction, rails, ties for supporting the rails, clamps for securing the rails to the ties, but not passing through either the rails or the ties, and means connected to the clamps, but out of engagement with the ties and the rails, for securing the ties together to form a continuous truss.

5. In a railroad construction, rails, ties for supporting the rails, insulating means disposed between the ties and the rails, clamps for securing the rails to the ties, but not passing through either the rails or the ties, and means connected to the clamps, but out of engagement with the ties and the rails, for securing the ties together to form a continuous truss.

6. In a railroad construction, the rails, metallic ties for supporting the rails, a block of insulation extending a portion of the length of the tie intermediate of the rails, clamps securing the rails and ties, and blocks of insulation, one to each clamp secured upon the first-mentioned block of insulation by means of the clamp.

7. In a railroad construction, rails, ties for supporting the rails, a block of insulation extending a portion of the length of the tie intermediate the rails, and clamps for securing together the rails and the ties, but not passing through either the rails or the ties.

8. In a railroad construction, the rails, metallic ties for supporting the rails arranged in zigzag order, a strip of insulation extending along a portion of the tie between it and the rail, clamps for securing the rails and ties, means connected to the clamps for connecting the same and the nearer ends of the ties together to form a continuous truss, and blocks of insulation, one to each clamp secured upon the strip of insulation by means of the clamp.

9. In a railroad construction, zigzag ties for supporting the rails, insulating means disposed between the rails and the ties, means common to both the rails and the ties for fastening the ends of the ties together in a zigzag line, said means not passing through either the rails or the ties, and auxiliary plates or supports for attachment to the rails between the ties.

10. In a railroad construction, rails, zigzag ties for supporting the rails, clamps for securing the rails to the ties, but not passing through the rails or the ties, means connected to the clamps, but out of engagement with the ties and the rails, for securing the clamps and the nearer ends of the ties together to form a continuous truss, and auxiliary plates or supports for attachment to the rails between the ties.

11. In a railroad construction, rails, ties for supporting the rails, clamping members carried by each tie and bearing upon the rail,

means for holding the clamping members on the ties, said means not passing through the ties, and means for holding the clamping members on the rails, said means not passing through, and being on each side of, the rails and protected by the tread thereof.

12. In a railroad construction, rails, ties for supporting the same, a block of insulating material interposed between the rail and the tie, clamping members, in pairs, adapted to engage, but not pass through, the ties and the base of the rail, and means for clamping the members tightly to the rails and to the tie, said means not passing through the rails or the ties.

13. In a railroad construction, the rails, ties for supporting the rails, a strip of insulation between the ties and rails, clamps carried by each tie to secure the rails thereto, and means secured upon each side of the rail below and within the tread and to said clamp.

14. In a railroad construction, ties for supporting the rails, arranged in zigzag order, means carried by each tie and secured to the rail for securing the rail thereto, and means secured upon each side of the rail and to said rail and tie securing means for forming a continuous truss and holding the relatively nearer ends of the ties to each other.

15. In a railroad construction, ties for supporting the rails, arranged in zigzag order, clamps carried by each tie and secured to the rail for securing the rail thereto, and means secured upon each side of the rail and to said clamp for forming a continuous truss and holding the relatively nearer ends of the ties to each other.

16. In a railroad construction, ties for supporting the rails, two clamps carried by each tie near the ends thereof for securing each rail to the proper portion of the tie, and means securing each alternate pair of clamps together for the purpose set forth.

17. In a railroad construction, ties for supporting the rails having an upper flange concaved toward the center, clamps for securing said rails to the ties, means for fastening said ties together whereby a continuous truss is formed, and an auxiliary plate or support for attachment to the rail between the ties.

18. In a railroad construction, ties for supporting the rails arranged in zigzag order or oppositely-inclined order, clamps common to both for securing the rails to the ties, means for connecting said clamps whereby said ties are fastened together and a continuous truss formed, and auxiliary plates or supports for attachment to the rail between the ties.

19. In a railroad construction, ties for supporting the rails, clamps common to both the rails and ties for fastening them together, rods adapted to unite said clamps whereby a continuous truss is formed, means for maintaining said rods in fixed position, and auxiliary plates or supports for attachment to the rail between the ties.

20. In a railroad construction, metallic ties for supporting the rails arranged in zigzag order, means common to both the rail and the ties for fastening the ends of ties together in a continuous zigzag line, the said ends that are secured together being the ends that are nearer to each other, and an auxiliary plate or support for attachment to the rail between the ties.

21. In a railroad construction, metallic ties for supporting the rails arranged in zigzag order, clamps for securing the rails to the ties, means connected to the clamps for connecting the clamps and the nearer ends of the ties together to form a continuous truss, and auxiliary plates or supports for attachment to the rail between the ties.

22. In a railroad construction, ties for supporting the rails arranged in zigzag order, means carried by each tie and secured to the rail for securing the rail thereto, means secured upon each side of the rail and to said rail and tie securing means for forming a continuous truss and holding the relatively nearer ends of the ties to each other, and an auxiliary plate or support for attachment to the rail between the ties.

23. In a railroad construction, ties for supporting the rails arranged in zigzag order, clamps carried by each tie and secured to the rail for securing the rail thereto, means secured upon each side of the rail and the said clamp for forming a continuous truss and holding the relatively nearer ends of the ties to each other, and auxiliary plates or supports for attachment to the rail between the ties.

24. In a railroad construction, ties for supporting the rails, means common to both the tie and the rail for fastening the rail and ties together, means connected to each end of said securing means for securing opposed ends of each tie together, and auxiliary plates or supports for attachment to the rail between the ties.

25. In a railroad construction, ties for supporting the rails, means for securing the rail to the ties carried by the ties near each end thereof, means for securing said rail-securing means together in alternate arrangement to form a continuous truss of the ties, and an auxiliary plate or support for attachment to the rail between the ties.

26. In a railroad construction, ties for supporting the rails, two clamps carried by each tie near the ends thereof for securing each rail to the proper portion of the tie, means securing each alternate pair of clamps together for the purpose set forth, and an auxiliary plate or support for attachment to the rail between the ties.

27. In a railroad construction, ties for sup-

porting the rails having an upper flange, clamps for securing said rails to the ties, means for fastening said ties together whereby a continuous truss is formed, and an auxiliary plate or support for attachment to the rail between the ties.

28. In a railroad construction, ties for supporting the rails, arranged in zigzag or oppositely-inclined order, clamps common to both the rails and ties for securing them together, and means for uniting said clamps whereby a continuous truss is formed, an auxiliary plate or support for adjustment to the rail between the ties.

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

HOMER W. CASE.

Witnesses:
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FRANK C. HALL.