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RAILROAD PLATE WITH SPIKE

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Fig. 1.

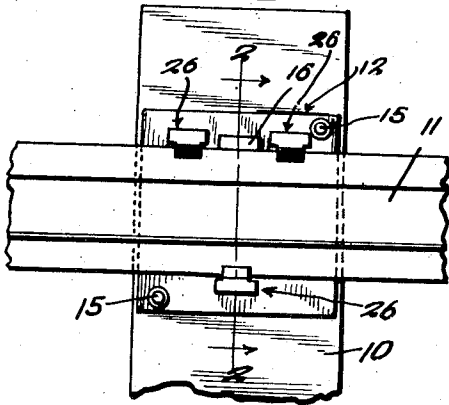


Fig. 4.

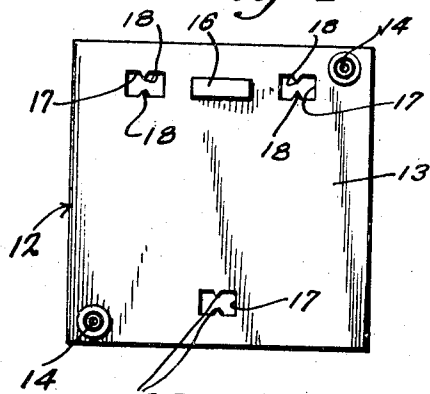


Fig. 2.

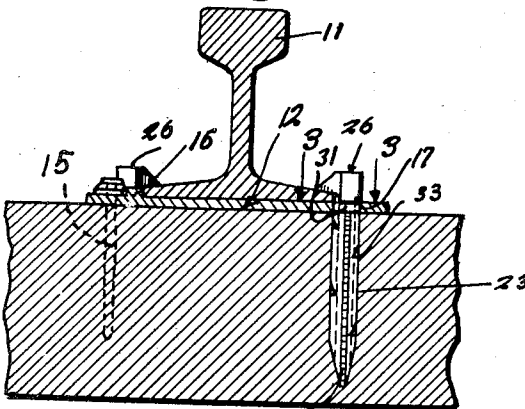


Fig. 3.

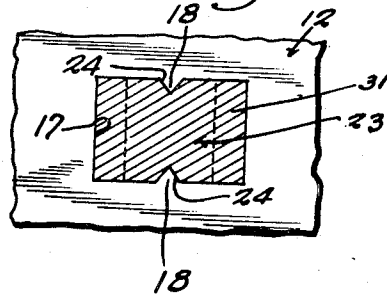
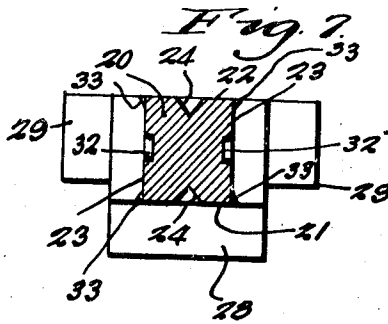
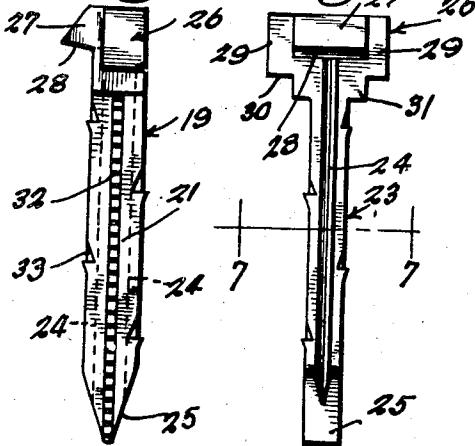


Fig. 5. Fig. 6.



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RAILROAD PLATE WITH SPIKES

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5 Claims. (Cl. 238—294)

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This invention relates to improvements in a railway tie plate and spike and has for its primary object firmly to anchor a railroad rail to a cross tie and hold it against accidental displacement.

Another object of the invention is accurately to locate a railroad rail at the time of its installation and to insure that it remains in the initial position throughout the entire life thereof.

The above and other objects may be attained by employing this invention which embodies among its features a railway tie plate and a spike which are adapted to cooperate so that when the spike is driven home a substantially unitary structural effect results, and the shifting of one element with the other in any direction is precluded.

Other features embody a tie plate having apertures therein for the reception of large nails by which the tie plate may be secured in place preliminary to the setting of the rail and the final driving of the spikes which anchor the railroad rail in place, an upstanding guide lug on the tie plate for engaging the rail flange to insure its accurate location on the tie plate, the tie plate also being provided with openings for the reception of the rail spikes, which openings are of a size and shape to cooperate with a shoulder on each spike when the latter is driven home to insure accurate location of the spike with relation to the tie plate, cross tie and rail, means for guiding the spike during its insertion into the tie, and spurs on the spikes so arranged as not to interfere with the insertion of the spike through the openings and yet so arranged as to retard the withdrawal of the spike from its place in the tie.

In the drawings:

Figure 1 is a top plan view of a fragment of a railroad tie and rail showing my improved tie plate and spikes employed therewith,

Figure 2 is a transverse sectional view taken on the line 2—2 of Figure 1,

Figure 3 is a horizontal sectional view taken on the line 3—3 of Figure 2 on a somewhat enlarged scale,

Figure 4 is a plan view of the tie plate,

Figure 5 is a side view of a spike embodying the features of this invention,

Figure 6 is a front end view thereof,

Figure 7 is an enlarged sectional view taken on the line 7—7 of Figure 6 on the same scale as Figure 3.

Referring to the drawing in detail, a tie 10 extends cross ways of a rail 11 as in the ordinary construction and the rail is seated on my improved tie plate designated generally 12. The plate 12 comprises a body portion 13 having in opposite corners openings 14 for the insertion of positioning and locating nails 15 (Figure 2) which are driven into the railway tie 10 through the openings 14 as a preliminary step to insure proper location of the plate 13 on the tie. Carried by

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the plate 13 on its upper face is a stop 16 against which the flange of the rail 11 is adapted to abut when in proper position as shown in Figure 1. This stop 16 may be formed integrally with the plate 13 or may constitute a separate strip of metal welded in place in the proper position. Formed in the plate 13 are rectangular openings 17, two of which are arranged so that their inner walls are aligned with the inner edge of the stop 16 while the third opening 17 is arranged near the opposite side of the tie plate in alignment with the transverse axis of the stop 16. The difference between the inner edge of the stop 16 and the inner edge of the last mentioned opening 17 is substantially equal to the width of the flange of the rail 11 as will be readily understood upon reference to Figure 2. Each of the openings 17 is formed on opposite sides with inwardly projecting lugs 18 arranged in alignment with one another to serve as guides for the spikes during their insertion into the tie 10.

Each of the spikes referred to designated generally 19, each comprises a shank 20 of rectangular cross section having a front face 21, a rear face 22 and side faces 23. The front face 21 and the rear face 22 are each provided with longitudinally extending grooves 24, and the shank is of such dimension that the distance between the front and rear walls 21 and 22 fills the space between the walls of the slots 17 carrying the lugs 18 while the side walls 23 of the shank never come in contact with the opposite walls of its respective slot 17. Formed at one end of the shank is a flattened point or edge 25 and formed at the opposite end of the shank is a head 26. The head 26 above referred to comprises a forwardly extending rail flange engaging lip 27, the under edge 28 of which is formed to conform to the shape of the flange of the rail and extending laterally from opposite sides of the lip 27 are ears 29, the under edges 30 of which are adapted to engage the upper face of the plate 13 on opposite ends of the opening 17. Formed at the junction of the shank and the head are shoulders 31 which are of a size and shape snugly to fit in the openings 17 of the tie plate so that when the spike is driven home the shoulders, together with the shank and head of the spike form a tight junction with the tie plate to in effect produce a unitary structure.

In order to securely lock the spikes in the tie 10, I provide on opposite sides 23 a plurality of longitudinally spaced serrations 32 and on opposite corners of the shank 20 I provide outwardly extending spurs 33. These spurs 33 are so formed as to project outwardly for a short distance from the shank for binding engagement with the tie 10, though not sufficient to interfere with the entrance of the shank, into the opening 17 in the tie plate. By so disposing the spurs, no interference will be encountered when entering the shank in the opening 17 and yet the spurs will

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serve to project outwardly and resist withdrawal of the spike from the tie.

In operation the tie plate 12 is first positioned on the tie 10 at the desired location and fastened securely thereto by driving nails 15 to the openings 14. In this position the stop 16 will be in position to engage the outer edge of the rail flange of the rail 11 whereupon the spikes may be inserted in their respective openings 17. The points of the spikes are entered in the openings in such a manner that the grooves 24 aligned with the lugs 18 and upon driving the spike into the tie 10, it will be properly guided so as to lie in a plane perpendicular to the upper face of the plate 12. As the spike is driven home the head 27 engages the flange of the rail 11 and the shoulders 31 enter the openings 17 which they are designed to fit snugly and tightly so as to effectively lock the tie plate and spikes together through frictional contact. Due to the fact that the spurs 33 are turned in such a position as to avoid interference with the side walls of the openings 17 it is obvious that they will not be bent or otherwise damaged during the insertion of the spikes and hence will be free to serve their function in resisting withdrawal of the spikes from the tie. Obviously due to the fact that the serrations 32 are on opposite sides of the shank 20 and are held out of contact with the end walls of the slots 17 no interference of these serrations with the insertion of the spikes will be encountered.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination, and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

I claim:

1. In combination a railway tie plate having at least one substantially rectangular opening therein, at least one tongue on the tie plate projecting into the opening, a spike adapted to enter the opening and be driven into a railway tie, said spike comprising a shank having a groove therein to receive the tongue, a head on the shank, and a shoulder at the junction of the shank and head, said shoulder being adapted snugly to fit into the opening in the tie plate when the spike is driven home.

2. In combination a railway tie plate having at least one substantially rectangular opening therein, at least one tongue on the tie plate projecting into the opening, a spike adapted to enter the opening and be driven into a railway tie, said spike comprising a shank having a groove therein to receive the tongue, a head on the shank, and a shoulder at the junction of the shank and head, said shoulder being adapted snugly to fit into the opening in the tie plate when the spike is driven home, and spurs on the shank for biting into the tie when the spike is driven home whereby the spike will resist withdrawal from the tie.

3. In combination a railway tie plate having a pair of spaced substantially rectangular openings adjacent one side edge, a stop on the upper side of the tie plate between said openings, said tie plate having a similar substantially rectangular opening near its opposite edge, said last-named opening aligning with the stop, a tongue on the tie plate projecting into opposite sides of each opening, spikes adapted to pass through the openings and to be driven into a tie beneath the plate, each spike comprising a rectangular shank

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having sides of a width equal to the width of the respective openings in the tie plate but having ends of a length less than the length of the openings in the tie plate, a head at one end of the shank adapted to engage the flange of a railroad rail resting on the tie plate and shoulders at the junction of the head and shank, said shoulders filling the spaces between the ends of the shank and the ends of the openings in the tie plate when the spike is driven home.

4. In combination a railway tie plate having a pair of spaced substantially rectangular openings adjacent one side edge, a stop on the upper side of the tie plate between said openings, said tie plate having a similar substantially rectangular opening near its opposite edge, said last-named opening aligning with the stop, a tongue on the tie plate projecting into opposite sides of each opening, spikes adapted to pass through the openings and to be driven into a tie beneath the plate, each spike comprising a rectangular shank having sides of a width equal to the width of the respective openings in the tie plate but having ends of length less than the length of the openings in the tie plate, a head at one end of the shank adapted to engage the flange of a railroad rail resting on the tie plate and shoulders at the junction of the head and shank, said shoulders filling the spaces between the sides of the shank and the ends of the openings in the tie plate when the spike is driven home, and spurs at the corners of the shank for resisting withdrawal of the spike from the tie.

5. In combination a railway tie plate having a pair of spaced substantially rectangular openings adjacent one side edge, a stop on the upper side of the tie plate between said openings, said tie plate having a similar substantially rectangular opening near its opposite edge, said last-named opening aligning with the stop, a tongue on the tie plate projecting into opposite sides of each opening, spikes adapted to pass through the openings and to be driven into a tie beneath the plate, each spike comprising a rectangular shank having sides of a width equal to the width of the respective openings in the tie plate but having ends of a length less than the length of the openings in the tie plate, a head at one end of the shank adapted to engage the flange of a railroad rail resting on the tie plate and shoulders at the junction of the head and shank, said shoulders filling the spaces between the sides of the shank and the ends of the openings in the tie plate when the spike is driven home, and serrations on the sides of the shank to offer resistance to withdrawal of the spike from the tie.

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