J. G. SNYDER.

RAILWAY TIE AND FASTENER.

APPLICATION FILED JULY 22, 1916.

1,227,083.

Patented May 22, 1917.

3 SHEETS—SHEET 1.

Fig. 1.

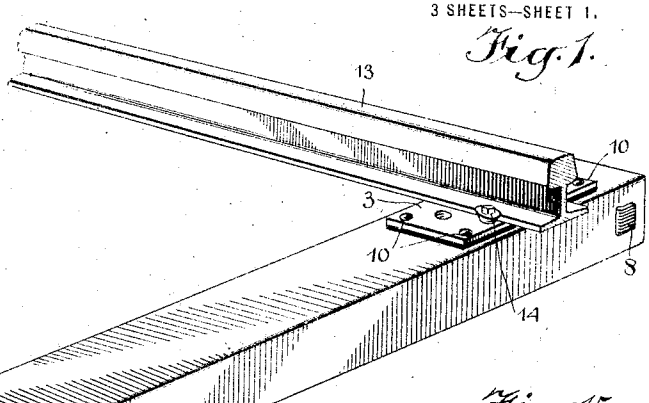


Fig. 1a.

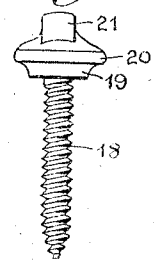


Fig. 15.

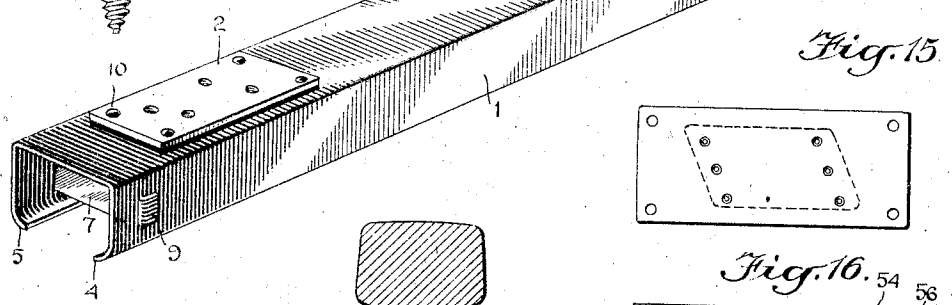


Fig. 16.

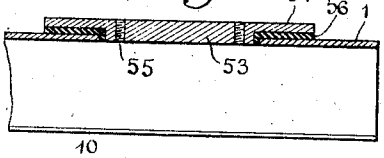


Fig. 2.

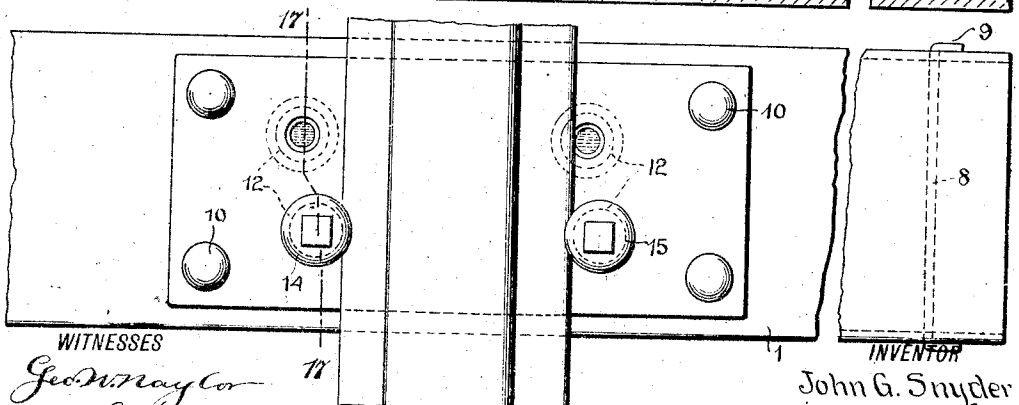


Fig. 3.

WITNESSES

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3 SHEETS—SHEET 2.

Fig. 4.

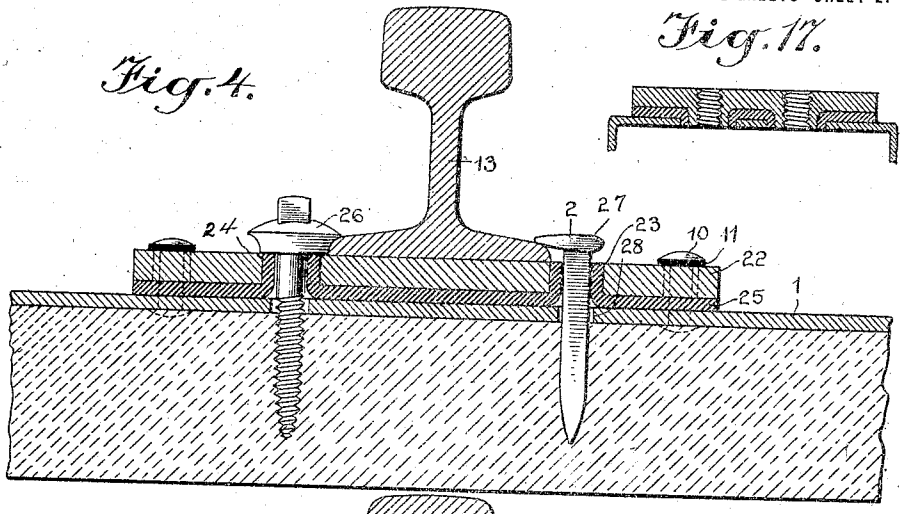


Fig. 17.

Fig. 5.

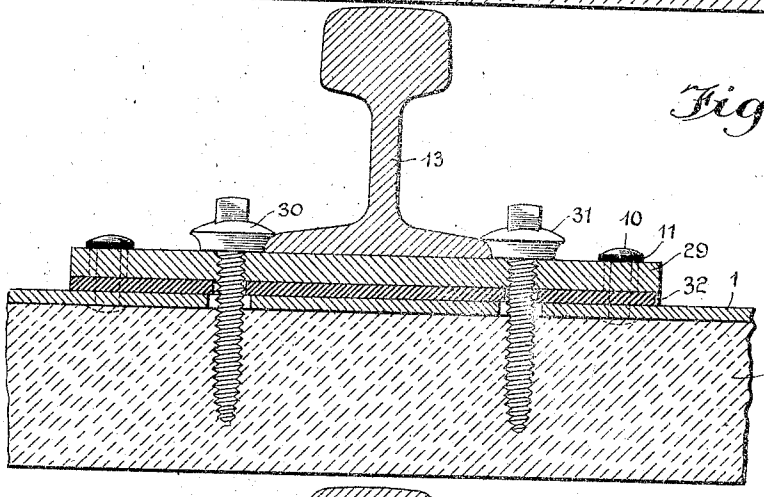
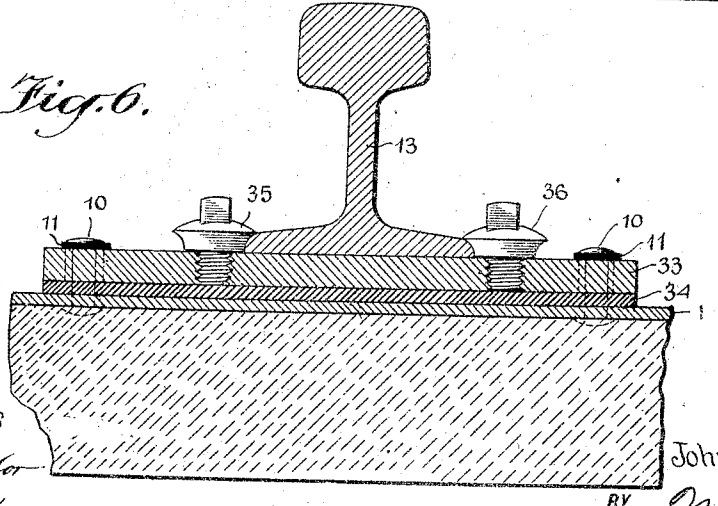


Fig. 6.



WITNESSES

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3 SHEETS—SHEET 3.

Fig. 7.

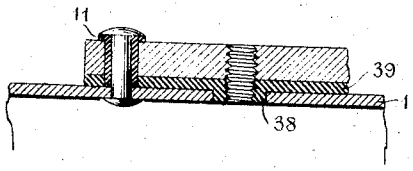


Fig. 8.

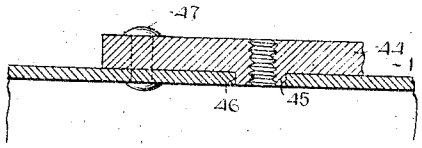


Fig. 9.

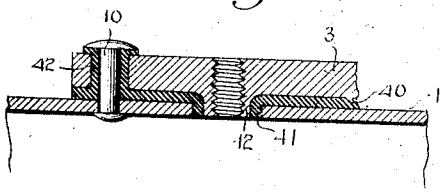


Fig. 10.

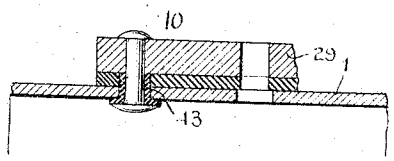


Fig. 11.

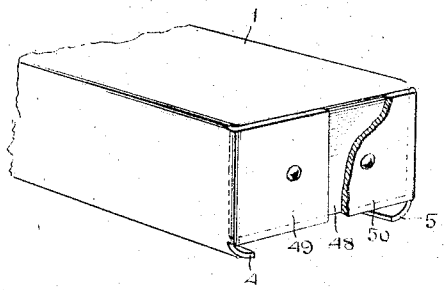


Fig. 12.

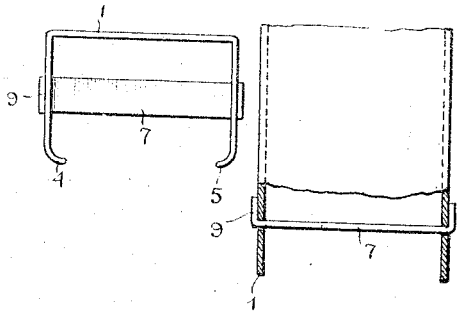


Fig. 13.

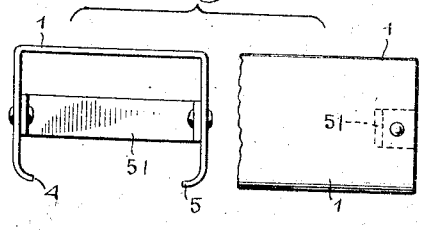
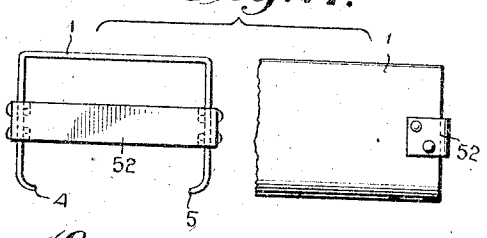


Fig. 14.

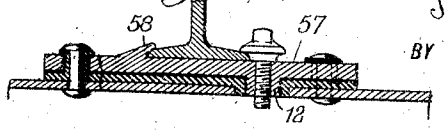


WITNESSES

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Fig. 18.



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RAILWAY-TIE AND FASTENER.

Specification of Letters Patent. Patented May 22, 1917.

1,227,083.

Application filed July 22, 1916. Serial No. 110,645.

To all whom it may concern:

Be it known that I, JOHN G. SNYDER, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Railway-Tie and Fastener, of which the following is a full, clear, and exact description.

This invention relates to railway ties and fastening means therefor, and has for an object the provision of an improved simplified structure whereby a strong tie is produced and simple strong fastening means are associated therewith for holding rails in place on the ties.

Another object in view is to provide an improved fastener which is rigidly connected with and practically forms part of the tie, the arrangement being such that securing members may pass through the fastener and bind the rail to the fastener and to the tie.

A still further object in view is to provide a tie and fastener, together with insulating means arranged between the tie and fastener which will receive a specially prepared securing member or an ordinary railway spike.

A further object is to provide a metal tie which is formed on its edges so as to conform to the usual tamping operation necessary in properly setting a tie in place on a roadbed.

In the accompanying drawings:—

Figure 1 is a perspective view of a tie and associated parts including a rail, the arrangement disclosing an embodiment of the invention.

Fig. 2 is a fragmentary longitudinal sectional view through part of the tie embodying the invention and part of the fastener and rail held in place thereby.

Fig. 3 is a top plan view of the structure shown in Fig. 2.

Fig. 4 is a view similar to Fig. 2 except that the same shows a slightly modified arrangement of insulating means and fastener plate.

Fig. 5 is a sectional view similar to Fig. 2 but disclosing a further modified form of the invention to that disclosed in Fig. 4.

Fig. 6 is a view similar to Fig. 5 but disclosing a slightly modified arrangement of rail securing members and associated parts.

Fig. 7 is a detail fragmentary sectional view of a modified form of insulation.

Fig. 8 is a view similar to Fig. 7 but showing the arrangement of a lug on the fastening plate which interlocks with the tie.

Fig. 9 is a detail fragmentary sectional view through a tie and fastener, the same disclosing a slightly modified form of the invention to that disclosed in Fig. 7.

Fig. 10 is a view similar to Fig. 7 but disclosing a slightly modified arrangement of insulation.

Fig. 11 is a detail perspective view of one end of the metal casing or shell of the tie, certain parts being broken away for better illustrating the structure.

Fig. 12 is an end view of the tie shown in Fig. 1 and also a fragmentary top plan view with certain parts broken away.

Fig. 13 is a fragmentary side view and also an end view of a slightly modified form of end brace.

Fig. 14 is a view similar to Fig. 13 but showing a further modified form of brace.

Fig. 15 is a top plan view of a slightly modified form of fastening plate.

Fig. 16 is a longitudinal vertical section through the plate shown in Fig. 15, the same being shown in connection with a tie.

Fig. 17 is a transverse sectional view through Fig. 3 on line 17—17.

Fig. 17ª is a side view showing the detail construction of the lag screw embodying certain features of the invention.

Fig. 18 is a fragmentary longitudinal sectional view through a tie and a slightly modified form of fastening plate.

Referring to the accompanying drawings by numerals, 1 indicates a metallic casing or shell to which the fastening plates 2 and 3 are secured by any suitable means, as for instance, bolts or rivets 10. The shell 1 is provided with specially constructed edges 4 and 5 bent so as to be substantially arc-shaped in order to provide rounded tamping edges necessary in properly placing and arranging the tie in position on a roadbed. These rounded sections accommodate the tamping tool or pick when the ballast of the roadbed is tamped in position and forced somewhat under the tie so that the tie will be properly supported and held in the desired location. In forming the complete tie the casing 1 is provided with a filler 6 which may be of concrete, asphalt or any other desired filling, which may be placed in the casing at any desired time and preferably extends from one end to the other so that the end braces 7 and 8 are embedded

as shown at the right in Fig. 2. Each of the end plates 7 and 8 is provided with turned-over ends 9 for preventing spreading or any outward movement of the casing 1.

The clamping plates 2 and 3 are rigidly fastened in position by the rivets 10, the detail structure of which is shown more particularly in Fig. 7, wherein it will be seen that the rivet passes through the fastening plate, the insulation and the casing 1. An insulating sleeve 11 is provided for preventing contact between the rivet and the fastening plate. The fastening plates are identical in construction, therefore the description of plate 3 will equally apply to plate 2. As shown in Figs. 2, 3 and 8, the plate 3 is provided with a plurality of depending lugs 12 on each side of the rail 13, these lugs being arranged in a line set at an angle to the direction of the rail 13, as clearly shown in Fig. 3. This is in order to shift the rail in case of wear or for any other desired reason. The lag screws 14 and 15 pass through the respective lugs 12, as shown in Fig. 2, and into the filling 6, these lag screws being preferably threaded in the plate 3 and lugs 12, said plate being of metal, while an insulating plate 16 is arranged between plate 3 and the casing 1. This insulating plate is provided with annular bosses or lugs 17 surrounding the lugs 12 so that the plate 3 is completely insulated from the tie. It will be observed that there are a pair of lugs 12 on each side of the rail and corresponding insulating sleeves or bosses 17, but a greater number or even a lesser number could be used without departing from the spirit of the invention. In using the lag screws 14 and 15 any suitable screw might be used, but preferably the particular form shown in Fig. 17 is utilized, said lag screws having the usual screw body 18 and a curved lower surface 19 merging into a bead 20 which in turn merges into the squared head 21 for receiving a wrench. It will be noted that the fastening plates 2 and 3 are permanently secured to the shell or casing 1 and that the lag screws may be inserted at any time or removed at any time in case it is desired to replace the rail.

In Fig. 4 will be seen a slightly modified form of the invention in which the fastening plate 22 is riveted to the shell 1 as heretofore described, but there is no depending lug provided on plate 22 though an opening 23 of an extra size is provided in order to accommodate the sleeve 24 of the insulating plate 25. The insulation 25 may be fiber or any other suitable material and is intended to insulate the plate 22 from the casing 1 and also insulate the fastening means 26 and 27 from the casing 1. It will be observed that by this construction an ordinary lag screw or special lag screw may be used or an ordinary spike 27 may be used for holding the rail 13 in place. The casing 1 is provided with apertures 28 sufficiently large to allow the fastening means to pass without contact so that there will be no danger of any short circuiting of the rail.

In Fig. 5 will be seen another modified form of the invention in which the plate 29 is provided with threaded apertures for receiving the lag screws 30 and 31 which pass through the insulating strip 32, through suitable apertures in the casing 1 and into the filling 6. This is a strong simple construction and the short circuiting of the rail is prevented by the insulating strip 32 and by the fact that the apertures through which the lag screws pass are an appreciable size larger than the screws though not large enough to weaken or in any way injure the screw.

In Fig. 6 a further modified form of the invention is shown in which the fastening plate 33 is riveted to the shell 1 in the manner above described and the sheet or plate 34 of insulating material interposed, while the lag screws 35 and 36 are threaded into the plate 32 but do not pass through said plate.

In Figs. 7, 9 and 10 will be seen slightly modified forms of insulating means, that in Fig. 7 utilizing a depending sleeve 38 of insulation preferably formed integral with the body 39 of insulation. In Fig. 9 the plate 40 of insulation is provided with integral projecting sleeves 41 and 42, said sleeves extending in opposite directions, one sleeve surrounding the lug 12 of plate 3 while the opposite sleeve extends through the aperture in plate 3 and insulates the rivet 10. In Fig. 10 the modification is in connection with the sleeve 43 for insulating the rivet 10 from the shell 1 rather than from the fastening plate 29.

Fig. 8 shows a further modified form of means for fastening a rail to the tie, the same comprising a plate 44 having a lug 45 snugly fitting an aperture 46 in the casing 1, the fastener plate 44 being held in place by suitable rivets 47.

In Fig. 11 will be seen a slightly modified form of tie or, rather, of the shell 1 of the tie. Instead of being held together by a member similar to the members 7 and 8 the top of the tie is bent down for forming an end 48 and the sides are bent over for forming bracing flaps 49 and 50, said flaps being preferably secured by rivets or otherwise to the end 48.

In Figs. 13 and 14, respectively, modified forms of end braces are shown in which brace 51 is arranged interiorly of the casing while brace 52 is arranged exteriorly, said braces being riveted or bolted in place.

In Figs. 15 and 16 a further modified form of plate is shown in which a comparatively large depending lug 53 is provided extending from the body 54 of the plate. The body 54 and projection 53 are provided with a plurality of apertures 55 for receiving securing members of any kind. The fastener plate or body 54 may be secured to the shell 1 by rivets or any other desired way, the shell 1 being formed with an aperture corresponding to the size of the projection 53. A suitable insulating plate 56 is interposed between the shell 1 and the fastener plate 54, said insulating plate being formed with a flange surrounding the projection 53.

Fig. 18 discloses a further modified form of the invention in which a tie plate or fastener plate 57 is used for holding the rail in position. The plate is provided with a flat body or a body of any suitable form and is especially characterized by having an overhanging fastener or retaining lug 58 which hooks over the rail when in use and one or more depending lugs 12 on the opposite side of the overhanging fastener 58. It will be observed that when the rail is placed in position the same is merely forced laterally against the fastener 58 which overhangs or overlaps the rail, and then the fastening screw, spike or other securing means is placed in position. This arrangement is such that the lug or lugs 12 take most of the strain from the rivets 10 which hold the plate in position and utilizes securing screws, spikes or the like only on one side. The fastener plate may be used on any suitable kind of tie without departing from the spirit of the invention.

In using the tie the casing may be filled, as heretofore stated, with any suitable material, or if preferred may be left empty and filled with the roadbed during the tamping operation. This construction is very desirable and utilizes the end members 7 which prevent any longitudinal movement of the ties as well as spreading of the shell or casing. The tamping edge sections are formed so as to direct the tamped roadbed into the casing so that the roadbed will act as a filling.

What I claim is:—

1. A rail tie and fastener comprising a metallic shell having apertures therein adjacent the end, a fastener plate adjacent each end of the tie, said fastener plates being formed with depending members extending into the openings of said shell, and securing means engaging a rail on said fastener, said securing means passing through the fastener plate and the extensions thereon.

2. In a rail tie, and fastener, a metallic shell provided with apertures therein, a fastener plate having projections extending into said apertures, an insulating plate having sleeves surrounding said projections, said insulating plate being arranged between the fastener plate and the shell, said fastener plate having apertures which extend through said projections, and rail fastening means passing through said apertures.

3. A rail tie and fastener, comprising a metallic shell having openings therein, a metallic plate provided with projections extending into said openings, an insulating plate arranged between said metallic plate and said shell, said insulating plate having sleeves surrounding said projections, fastening means extending through said plate and projections for securing a rail on said plate, rivets for rigidly securing said plate to said shell, and insulating means for insulating said rivets from said plate.

4. A rail tie and fastener, comprising a metallic shell, a filling therefor, said shell having a plurality of apertures arranged adjacent each end, a fastener plate arranged adjacent each end, each of said fastener plates being formed with a depending lug extending into said apertures, threaded openings extending through said plates and said lugs, and lag screws fitting into said threaded openings and extending into the filling of said shell.

5. A rail tie and fastener, comprising a metallic shell having apertures adjacent each end, a fastener plate at each end of the shell formed with projections fitting in said apertures, said fastener plates having a passageway extending through the plates and through the projections, rail securing means extending through said passageways, an insulating plate having sleeves surrounding said projections so as to insulate the projections from the shell, and means for rigidly securing said fastener plate to said shell.

6. A rail tie and fastener, comprising a shell, a filling therefor, a fastener plate having means extending therefrom and interlocking with said shell, an insulating means for insulating the plate and interlocking means, and fastening screws extending through said plate and shell into said filling.

7. A rail tie and fastener, comprising a shell, a fastener plate, rivets extending through said fastener plate and through part of the shell for clamping the plate to the shell, insulating means for insulating the plate from the shell, an insulating spool for each of the rivets for insulating the rivets from the fastener plate, and securing means extending through the fastener plate and the insulation therefor for securing a rail on said fastener plate.

8. A rail tie and fastener, comprising a metallic shell, a filling therefor, a fastener plate rigidly secured to said shell, means for insulating said fastener plate from said shell, and lag screws extending through said fastener plate and shell into said filling, said

lag screws comprising a threaded body, a rounded cam surface for clamping a rail on said fastener plate, and a head for operating the cam surface and the body.

9. A rail tie and fastener, comprising a metallic casing, a filling therefor, said casing having a pair of series of apertures adjacent each end, each series being at an angle to a line drawn transversely of the tie, a fastener plate for each end of the tie, said fastener plate being formed with projections fitting into said apertures, insulating means for insulating said fastener plate from said tie, and rail securing means adapted to be inserted into any of said apertures according to the position of the rail.

10. A rail tie and fastener, comprising a metallic shell having an aperture therein, a fastener plate having a depending projection substantially fitting said aperture, an insulating member surrounding said projection and insulating said fastener plate from said metallic shell, said fastener plate having a series of apertures extending through said projection, each series of apertures being at an angle, said apertures being designed to receive securing means for connecting a rail with said fastener plate.

11. A rail tie and fastener, comprising a metallic casing, a filling therefor, said casing having apertures therein, a fastener plate riveted to said casing, said fastener plate having apertures mating with the apertures in the shell, an insulating member arranged between said fastener plate and said casing, and rail securing means extending through said apertures.

12. A rail tie and fastener, comprising a metallic shell, a filling therefor, said shell having apertures therein, a fastener plate rigidly secured to said shell, means for insulating said fastener plate, and lag screws threaded into said fastener plate for securing a rail in said fastener plate, said lag screws being of smaller size than the apertures in said shell whereby the lag screws may enter said filling without contacting with said shell.

13. A rail tie and fastener, comprising a metallic shell, a metallic fastener plate, rivets for rigidly securing said fastener plate with said shell, means for insulating said rivets and said fastener plate, an insulating plate for insulating the fastener plate from the shell, said fastener plate being provided with a plurality of threaded apertures, and screws threaded into said apertures for securing a rail on said fastener plate.

14. A rail tie and fastener, comprising a metallic shell, a metallic plate having a plurality of apertures, means for securing said plate to said shell, means for insulating said plate from said shell, and threaded screws fitting into some of said apertures for clamping a rail on said fastener plate.

15. A rail tie and fastener, comprising a shell having an aperture therein, a fastener plate having an aperture therein, securing means threaded into said last mentioned aperture, the aperture in the shell being larger than the aperture in the fastener plate, an insulating plate having a projecting sleeve lining the aperture of the shell so as to prevent said securing means threaded into the aperture in said plate from engaging said shell, a rivet for clamping said fastener plate to said shell, and an insulating sleeve surrounding said rivet, said sleeve extending through said fastener plate and said insulating plate.

16. A rail tie and fastener, comprising a metallic casing having an aperture therein, a fastener plate having a projection fitting said aperture, said projection and fastener plate having a threaded passageway therethrough, a rivet for rigidly securing said fastener plate to said casing, and a threaded fastening member fitting in said aperture.

17. A rail tie and fastener, comprising a metallic shell having a plurality of apertures therein, a metallic fastener plate having a projection for each of said apertures, said projections extending into said apertures, said fastener plate having a passageway therethrough for each of said projections, said passageway extending through the projection, a clamping member for clamping said fastener plate to said shell, and an insulating member having a body arranged between the fastener plate and the shell, a depending sleeve for each of said projections arranged to surround the respective projections, and an up-standing sleeve surrounding the means which secure the fastener plate to the shell.

18. A rail tie and fastener plate, comprising a metallic casing having an aperture therein adjacent the end, a fastener plate arranged on said tie over said aperture, said fastener plate being formed with a depending member extending into said aperture, said depending member having an aperture therein, and securing means engaging a rail on said fastener, said securing means passing through the aperture in said fastener plate.

19. A rail fastener comprising a plate or body formed with a depending lug on one face, and an overhanging fastening member on the opposite face and spaced from said lug a sufficient distance to receive the base of a rail.

20. A rail fastener comprising a plate, rivets for holding the same in position, a hollow projection extending from one face of said plate into a tie for taking the strain off the rivets, and means extending through said projection for clamping a rail on said plate.

21. A fastener for rails comprising a plate

having an overhanging lug or bead overlapping part of the base of a rail when in use, an aperture spaced from said lug, and a depending lug having an aperture mating with the aperture in the plate, said apertures being designed to receive a retaining or fastening member.

22. A fastener plate comprising a flat body having an overhanging structure on one face designed to overlap one edge of the base of a rail, an aperture spaced from said overhanging member, said aperture extending through the plate, and an annular lug extending from said plate, the center of said lug coinciding with the center of said aperture.

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