Oct. 9, 1951 A. R. SCHULZE 2,570,871

RAIL FASTENING DEVICE

Filed June 5, 1947

FIG. 1.

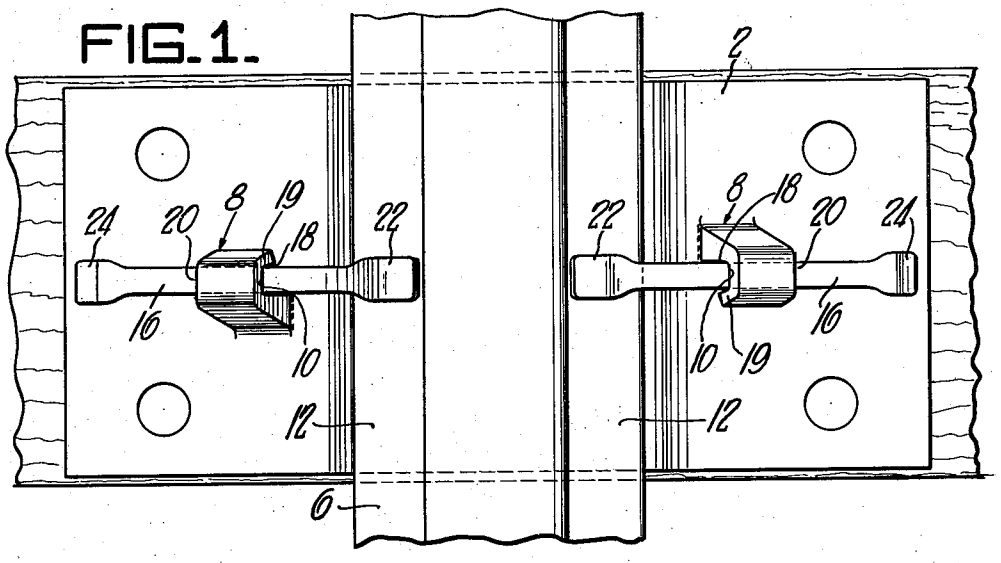


FIG. 2.

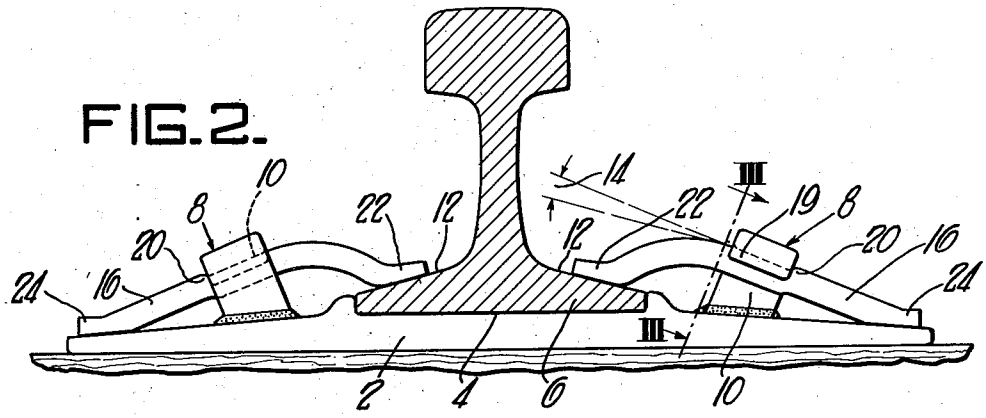


FIG. 3.

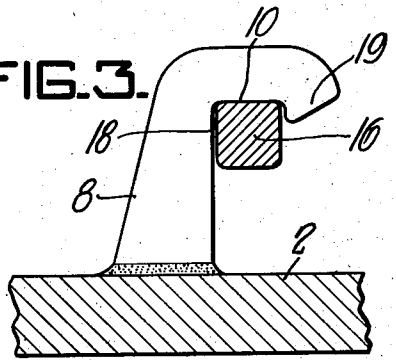
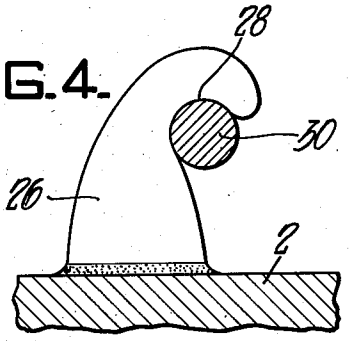


FIG. 4.



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RAIL FASTENING DEVICE

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1 Claim. (Cl. 238—349)

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This invention relates to a rail fastening device and more particularly to such a device for fastening a rail to a tie plate. The railroad tracks are subjected to extreme vibrations, noticeable deflections and a resulting wave motion due to the rapid change from no load to full load as the train travels over the track. It is desirable that the fastening means remain in position in spite of this vibration, but when simple conventional devices, such as bolts or cap screws are used in fastening the rail to the tie plates, the extreme and rapid vibration of the track structure under traffic causes wear on the small contact surfaces with resultant rapid loosening of the assembled parts. Special devices have been resorted to with considerable success, but ordinarily they are relatively expensive and many of them are so constructed that the strength and bearing area of the tie plates are reduced.

It is an object of my invention to provide a rail fastening device which is inexpensive and rugged in construction.

Another object is to provide such a device which utilizes a standard tie plate without reducing its strength.

Still another object is to provide such a device which remains in place under extreme vibration of the track.

These and other objects will be more apparent after referring to the following specification and attached drawings, in which:

Figure 1 is a top plan view of my device;

Figure 2 is an elevation;

Figure 3 is a sectional view on the line III—III of Figure 2; and

Figure 4 is a view similar to Figure 3, but showing a slightly different modification.

Referring more particularly to the drawings, the reference numeral 2 indicates a standard tie plate which is mounted on a tie in the usual manner and which is provided with the usual rail seating portion 4 for receiving the flange 6 of the rail. Welded to the base plate 2 on each side of the rail between the seat portion 4 and the edge of the plate is an inverted J-member 8. The position of the member 8 is such that its top inner surface 10 is arranged at a slightly steeper angle than the top surface 12 of the rail base. The difference between the two angles may be termed a differential angle which is indicated as 14 in the drawings. This differential angle 14 is preferably greater than the frictional angle between the spring clip 16 and the inverted member 8. The elongated spring clip 16 has a square cross-section and passes through an opening 18

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in the member 8 with one end bearing on the tie plate 2 and the other end bearing on the rail surface 12. The outer end of the inverted J member 8 is bent slightly downwardly at 19 to hold the clip 16 in position. The clip 16 is provided with a shoulder 20 which limits inward movement of the clip 16 by contacting the outer surface of member 8. The ends 22 and 24 of the clip 16 are flattened where they bear on top of the rail flange and on top of the tie plate 2 to provide greater contact areas. In assembly, the spring clips 16 are snapped under the member 8, in which position shoulder 20 prevents any inward movement of the clip toward the rail and the differential angle 14 prevents the clip 16 from backing out.

Figure 4 shows a slight modification of my invention in which an inverted substantially J-shaped member 26 is provided with a semicircular groove 28 for receiving a spring clip 30 which has a round cross section. Otherwise the two embodiments of the invention are the same.

While two embodiments of my invention have been shown and described, it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claim.

I claim:

A rail fastening device comprising a tie plate having a seat portion for the base of the rail, a single inverted substantially J-shaped member having a long leg secured to said tie plate at a point intermediate the seat portion and the edge of the plate and a short leg spaced from said long leg, said J-shaped member being arranged at an angle to the vertical with the underside thereof being arranged at a steeper angle than the top surface of the flange of the rail, the angle of the underside of the J-shaped member being inclined in the same general direction as the top surface of the flange of the rail adjacent thereto, an elongated longitudinally bowed spring clip extending through said inverted J-shaped member and bearing against the underside thereof, the width of said clip being slightly less than the distance between said legs, the upper surface of said clip being longitudinally convex, the distance between the underside of the J-shaped member and the tie plate being greater than the thickness of the clip, one end of said clip bearing against the top of the rail flange and the other end bearing against the top of the tie plate, the portion of said spring clip bearing against the underside of said inverted J-shaped member

being under compression and being arranged at an angle at least as great as the angle of the underside of the J-shaped member, the said convex portion of the spring clip being in contact with the J-shaped member in a manner to urge said clip toward the rail under vibration, and a shoulder on the top part of said clip bearing against the outer part of the inverted J-shaped member to limit inward movement of the clip.

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