Sept. 4, 1934. W. H. FUNSTON 1,972,825

RESILIENT RAIL SUPPORT

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Fig. 1

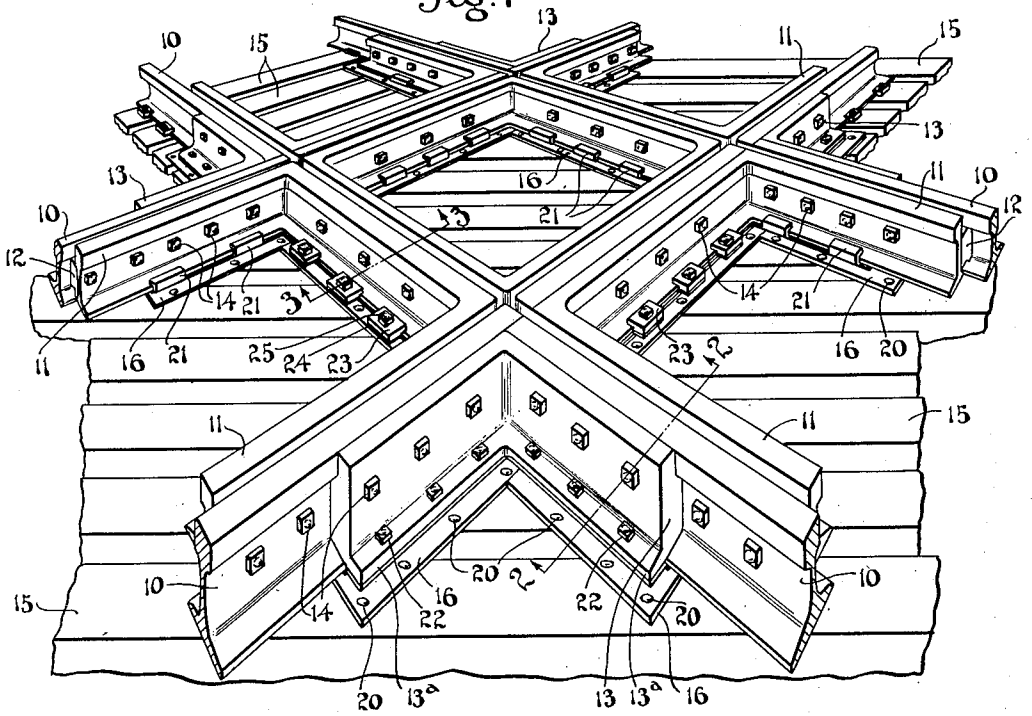
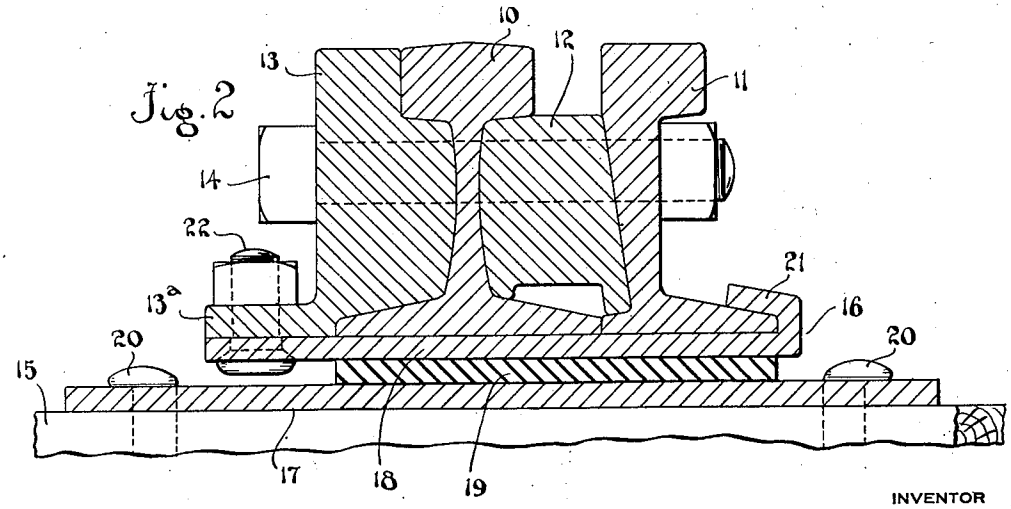


Fig. 2



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Fig. 3

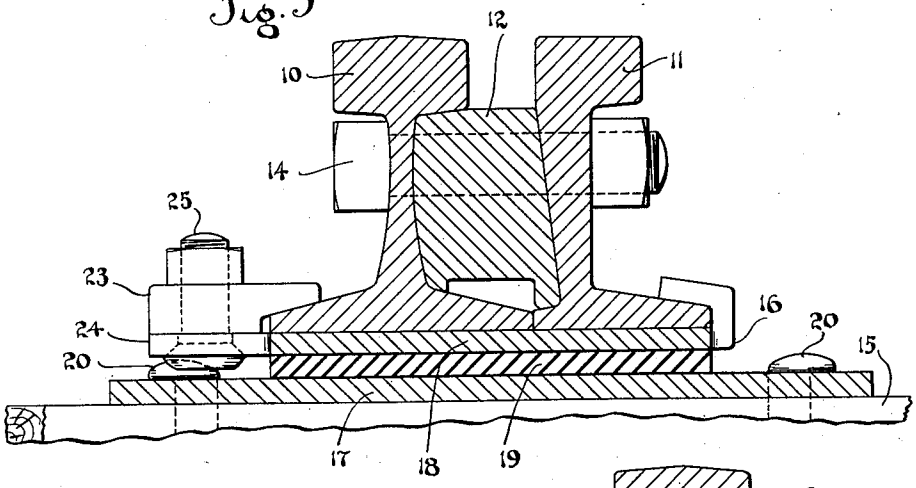


Fig. 7

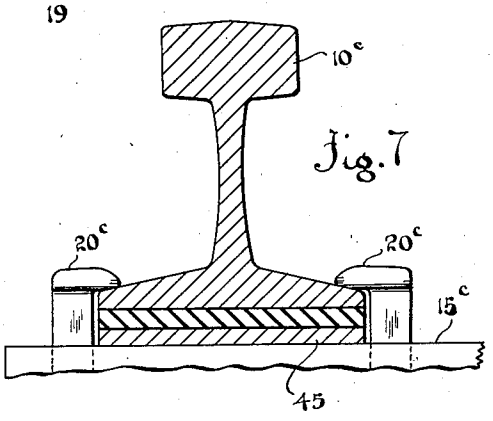
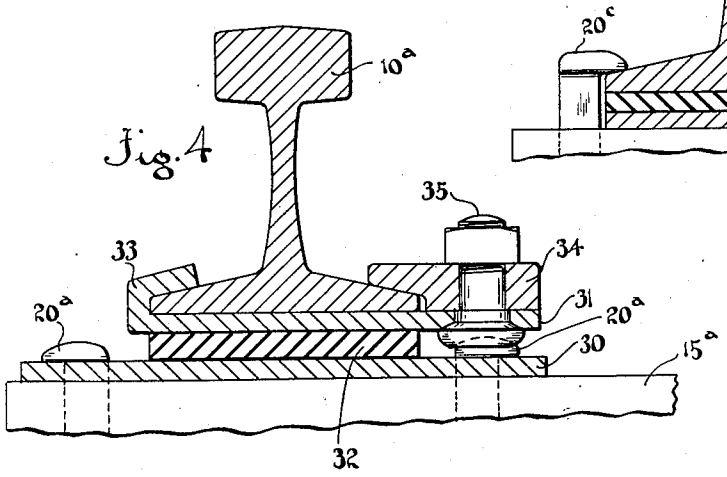


Fig. 4



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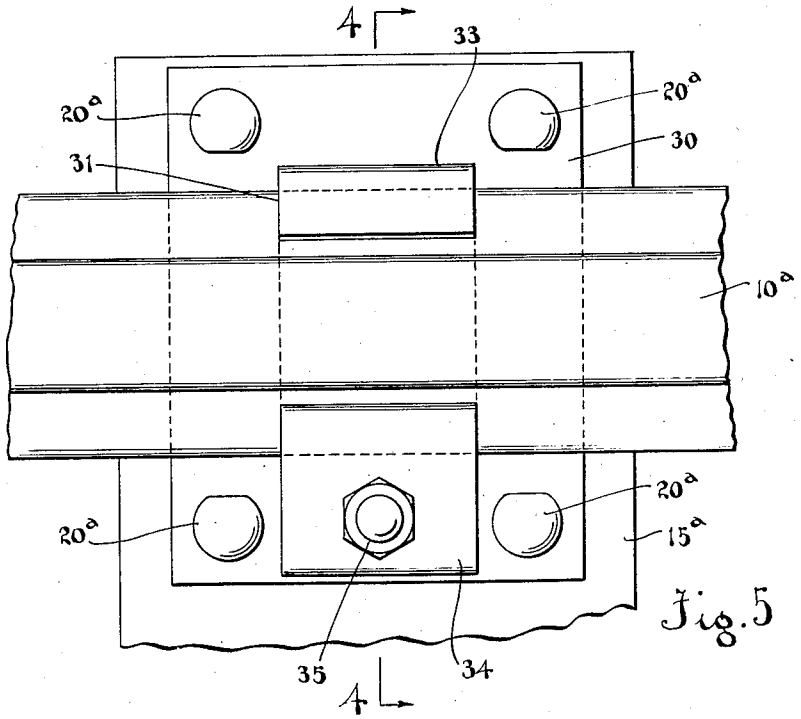


Fig. 5

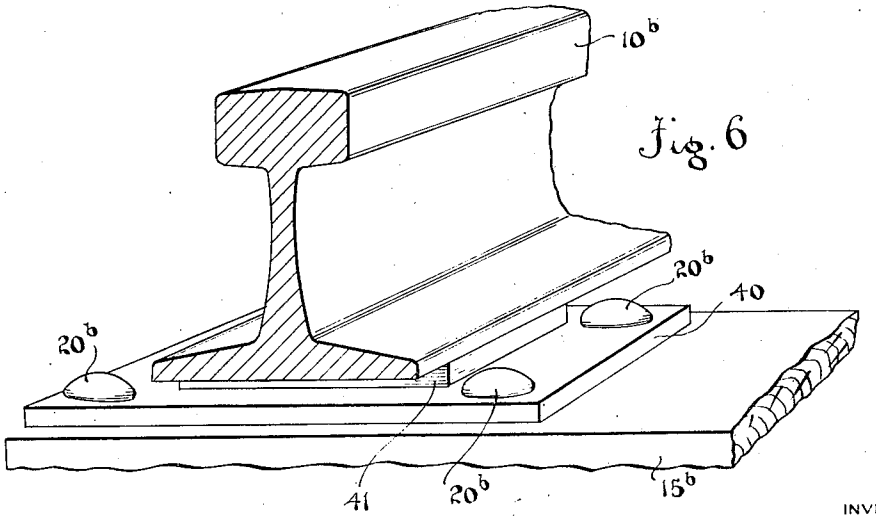


Fig. 6

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RESILIENT RAIL SUPPORT

William H. Funston, Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

Application May 12, 1931, Serial No. 536,757

2 Claims. (Cl. 238—283)

This invention relates to resilient supports for rails, such as the track rails of railroad and street car lines, and the chief objects of the invention are to reduce noise; to reduce wear on wooden ties; to permit the use of rails as electrical conductors for signal systems; to prevent current losses through the ground when the rails are used for return current as in the case of street car rails; and to prevent electrolysis of metal pipes from current escaping from the rails into the ground.

Of the accompanying drawings:

Figure 1 is a perspective view of a rail crossing, and the improved rail support, in its preferred form, associated therewith;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a section on the line 3—3 of Figure 1;

Figure 4 is a section on the line 4—4 of Figure 5;

Figure 5 is a plan view of a portion of a single car-rail showing the invention, in its preferred form, as it is applied thereto;

Figure 6 is a perspective view of a portion of a single car-rail, and a modified embodiment of the invention in association therewith; and

Figure 7 is a transverse section through a car-rail and another modified form of the invention.

Referring to Figures 1 to 3 of the drawings, 10, 10 are the usual car rails, 11, 11, are guard rails positioned parallel to the car rails at the inner sides thereof, 12, 12 are spacer members positioned between the car rails 10 and guard rails 11, and 13, 13 are angle members of great strength mounted in the outside corners of the crossing to reinforce the same and to preserve the proper alignment and angularity of the rails. The usual bolts 14, 14 are provided for holding the aforesaid parts securely in assembled condition described and illustrated. The crossing is supported upon the usual wooden ties 15, 15, and 16, 16 are the improved resilient rail supports that are mounted between the crossing structure and the ties 15.

Each resilient rail support 16 comprises a relatively wide base plate or tie plate 17, a top plate 18 of somewhat narrower width, and an intermediate layer or cushion of resilient rubber 19 vulcanized to the adjacent faces of the plates 17, 18, the cushion 19 being somewhat narrower than the top plate 18. The resilient support 16 is secured to the ties 15 by the usual spikes 20, 20 which extend through suitable apertures formed in the tie plates 17 in the region beyond the lateral margins of the top plate 18. One lateral marginal portion of the top plate 18 is formed with a plurality of integral, spaced-apart, upwardly turned and reversely directed flanges 21, 21 that engage the exposed base-edges of the guard rails 11. The opposite marginal portion of the top plate 18, in the construction shown in Figure 2, is secured to a lateral base flange 13^a formed on the angle member 13, by means of bolts 22, 22, the heads of which are countersunk into the plate 18 so as not to make contact with the tie-plate 17 even when the rubber cushion 19 is under compression.

In the construction shown in Figure 3 the top plate 18 is secured to the exposed base flange of the rail 10 by means of a series of clips 23, 23 that overlie the rail flange and are secured to respective ears or extensions 24 that project laterally from the top plate 18 by means of respective bolts 25, the latter being countersunk in the same manner as the bolts 22. The ears 24 are disposed between the holes in the tie plate 17 that receive the spikes 20 to facilitate driving of the latter.

The rail supports 16 may be of any length desired, and may be straight or angular to fit the particular installation for which they are intended.

The structure shown in Figures 4 and 5 is quite similar to that shown in Figure 3 except that it is smaller, being adapted to seat upon a single rail tie. It comprises a tie plate 30, a top plate 31 of narrower width, and an intervening layer 32 of resilient rubber vulcanized to each of said plates. One marginal portion of top plate 31 is formed with an upwardly turned and reversely directed flange 33 adapted to engage one base-edge of a rail 10^a. Mounted upon the opposite marginal portion of the top plate 31 is a clip 34 that overlies the opposite base-edge of the rail 10^a, said clip being secured to the top plate 31 by a bolt 35, the head of which is countersunk into the under side of the top plate 31. The tie plate 30 is secured to a tie 15^a by the usual spikes 20^a, 20^a that extend through the tie plate laterally of the top plate 31.

In the modified embodiment of the invention shown in Figure 6, a tie plate 40 is secured to a rail 10^b by means of an intervening layer of resilient rubber 41 that is vulcanized to each of them. The tie plate 40 extends laterally beyond both sides of the base of the rail and is secured to a tie 15^b by spikes 20^b, 20^b extending through said laterally extending portions.

In the modification shown in Figure 7 a tie plate 45 of the same width as the base flange of a rail 10^c is secured to the latter by an intervening cushion of rubber vulcanized to each of them. The structure is secured to a rail tie 15^c

in the usual manner by spikes 20c, 20c, the heads of which engage the base portion of the rail.

The feature of vulcanizing a layer of resilient insulation to respective members of the rail support, or to the rail, assures that the insulation will not become displaced during use, and also simplifies the attaching of the rail to a tie, especially metal ties, in a manner to obtain complete electrical insulating of the rail. The rubber cushion absorbs much of the rail vibration, with the result that there is less noise as a car passes over the rails, and also less rail vibration is transmitted to the tie plate and its securing spikes or bolts so that they are not loosened or pulled from the ties. The invention also obviates the necessity of insulating the spikes from the rails as is required in some prior installations.

Other modifications are possible within the scope of the appended claims which are not limited wholly to the specific construction shown and described.

What is claimed is:

1. In a resilient rail support, the combination of a rail tie, a tie plate adapted to be secured to said rail tie, a top plate adapted to be attached to said track rail, and a resilient rubber cushion between said plates and adhesively attached to both of them so as yieldingly to resist relative movement of the plates in all directions, said rubber cushion serving as the sole means for connecting said rail to said tie.

2. In a resilient rail support, the combination of a tie plate adapted to be secured to a rail tie, a top plate including means for securing a track rail thereto, and a cushion of resilient rubber between the two plates bonded by vulcanization to both of them, said rubber cushion serving as the sole means for connecting said rail to said tie.

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