Oct. 7, 1941. P. VERPLANCK 2,257,923

TIE PLATE AND RAIL SUPPORT

Filed Dec. 11, 1939

Fig. 1.

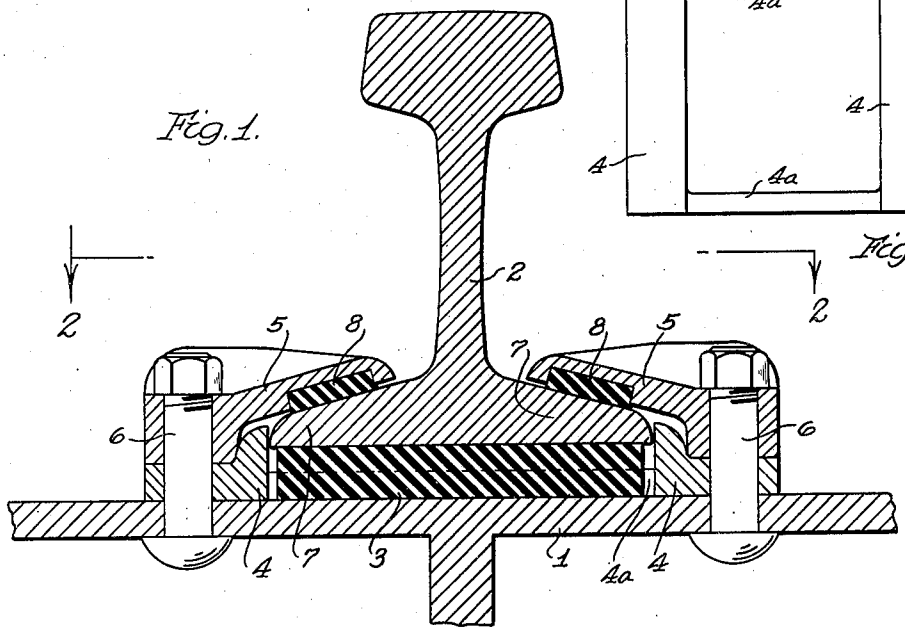
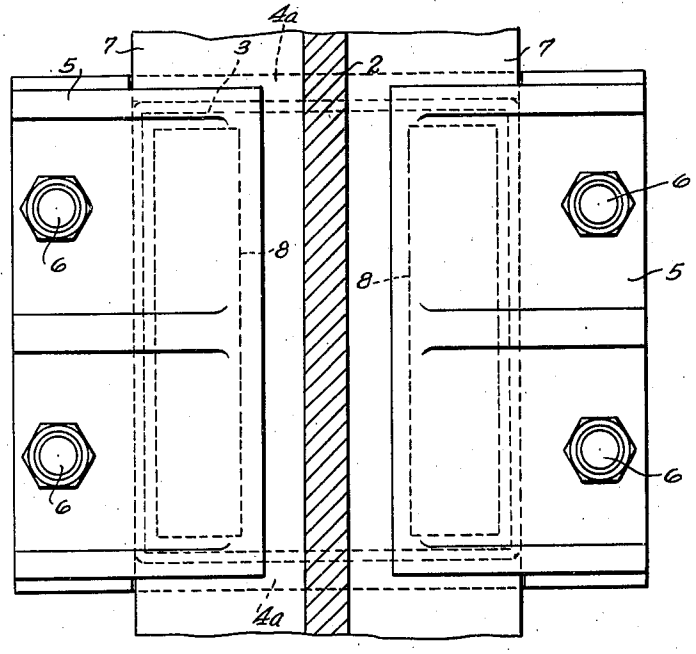


Fig. 3.

Fig. 2.



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TIE PLATE AND RAIL SUPPORT

Philip Verplanck, Akron, Ohio

Application December 11, 1939, Serial No. 308,529

1 Claim. (Cl. 238—283)

This invention relates to the tie plates for securing rails to supports, and particularly concerns rails such as are used in conjunction with rail vehicles having overhead trucks from which the vehicle body is suspended.

The primary object of the invention is to provide a tie plate and rail support embodying vibration damping means between the rail and the structure supporting the rail. In the case of an overhead railroad, traversed by rail trucks having a car body in suspended relation therebeneath, the wheels in traversing the rails and contacting the joints therebetween set up vibrations in the rails. These rail vibrations are transmitted through the car body suspending means and result in undesirable noises and rumbles therein, and are also ordinarily transmitted to the overhead railroad supporting structure and have detrimental effect thereon by placing the same in vibration. The supporting structure, when placed in vibration, adds to the vibrating mass, and the vibrations thereof are transmitted back through the rails and car body suspending means to the car body, and, therefore, add to the undesirable noises and rumbles therein. The present damping means, in being interposed between the rails and the structure supporting the same, tends to dampen the vibrations in the rails themselves, it reduces materially the vibrations transmitted from the rails to the supporting structure with advantage to the supporting structure, and by segregating the supporting structure and rail, it reduces the vibrating mass to an extent such that a material improvement in noise and rumble conditions are present in the car body.

Another important object is to provide sound deadening means between the rails of an overhead railway and the structure which supports the rails in an overhead position.

Other objects and advantages will become more fully apparent as reference is had to the accompanying drawing wherein my invention is illustrated, and in which:

Fig. 1 is a vertical, transverse cross section through a rail and its support,

Fig. 2 is a view taken on the line 2—2 of Fig. 1, and

Fig. 3 is a plan view of a detail.

In Fig. 1 there is shown a beam 1 adapted to be supported in an overhead position by any suitable structure or bridge work, an example of which is shown in my co-pending application Serial No. 308,528, filed Dec. 11, 1939. The beam 1, shown by way of example, comprises an I shaped metal beam, a fragment of which is shown in the drawing.

A rail 2 is supported upon the beam 1 by a mass 3 of elastic material, such as rubber. Positioning plates 4 and clamping plates 5 are arranged at opposite sides of the rail, and are attached to the beam 1 by bolts 6. The positioning plates 4 are so arranged that they prevent lateral movement of the rail to any appreciable extent, either by being placed in direct contact with the adjacent edges of the rail flanges 7, or in such close proximity that no appreciable movement can take place. The positioning plates 4 are connected one to another at their ends by integral transverse portions 4*a*, which are of a height less than that of the rubber mass 3, and which extend beneath the rail and prevent the rubber pad from creeping out of place. The clamping plates 5 have elastic pads 8, preferably of rubber, imbedded therein and contacting the adjacent rail flanges 7. With the clamping plates 5 in their tightened positions shown the rubber pads 8 and also the mass 3 are maintained under compression.

When the rail is traversed by a rail vehicle wheel the weight of the vehicle causes compression of the mass 3, and for this reason the mass 3 is formed shorter than the space between the positioning plates 4 in order that the elastic material may flow.

Although a specific embodiment of the invention is illustrated and described, it will be understood that various changes may be made within the scope of the appended claim without departing from the spirit of the invention, and such changes are contemplated.

What is claimed is:

In combination, a rail having a laterally extending base, a supporting member for said rail, a retaining plate interposed between the rail and the supporting member, said retaining plate having an opening therein disposed beneath the rail base, an elastic pad disposed in said opening and retained by the walls thereof against displacement from beneath the base, said pad being of greater thickness than said retaining plate whereby the rail base is supported thereby in vertically spaced relation with the retaining plate, said retaining plate having raised portions paralleling and upstanding alongside the rail base and constituting lateral positioning means therefor, tie-down plates having broad surface contact with said retaining plate and positioning contact with said respective raised portions, elastic pads disposed between respective tie-down plates and said rail base, and bolts extending through said tie-down plates, the base plate and said supporting member and rigidly holding said tie-down plates on said retaining plate and in contact with said raised portions.

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