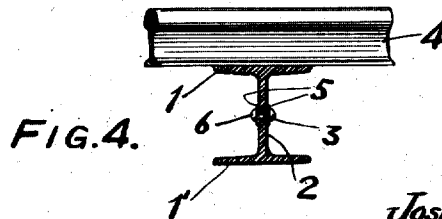
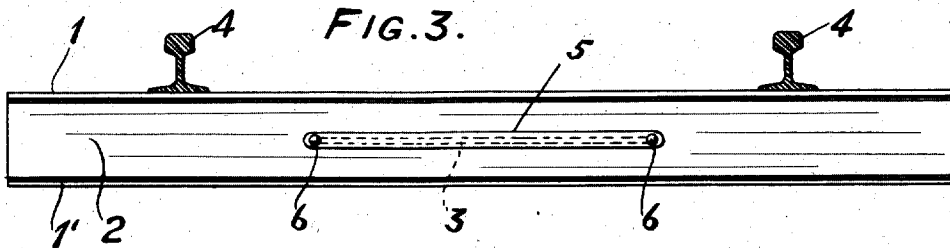
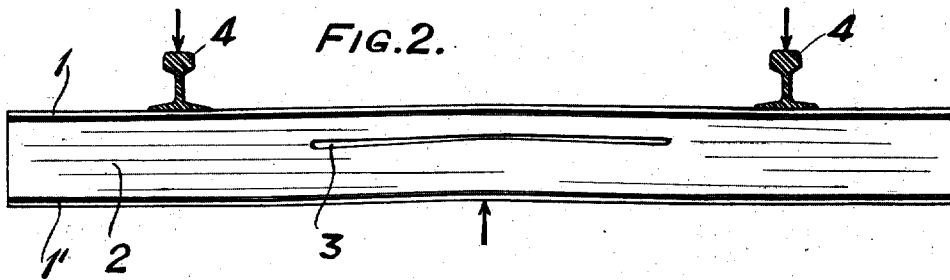
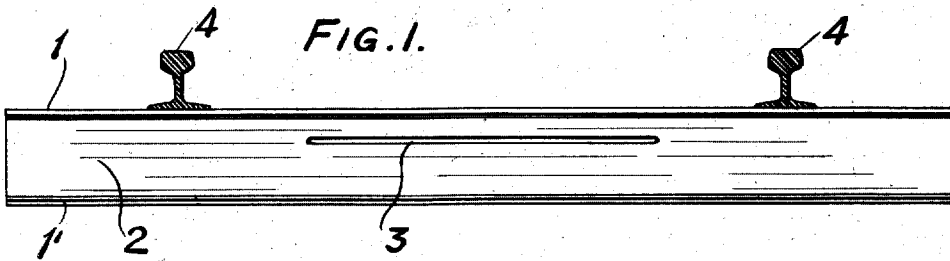


J. J. WHITE.
METALLIC RAILWAY TIE.
APPLICATION FILED MAY 11, 1911.

1,001,327.

Patented Aug. 22, 1911.



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UNITED STATES PATENT OFFICE.

JOSEPH J. WHITE, OF NEW LISBON, NEW JERSEY.

METALLIC RAILWAY-TIE.

1,001,327.

Specification of Letters Patent. Patented Aug. 22, 1911.

Application filed May 11, 1911. Serial No. 626,446.

To all whom it may concern:

Be it known that I, JOSEPH J. WHITE, a citizen of the United States, residing at New Lisbon, in the county of Burlington and State of New Jersey, have invented certain Improvements in Metallic Railway-Ties, of which the following is a specification.

My invention is a metallic railway tie having top and bottom flanges connected by a web containing a longitudinal slot, for the purpose of combining strength and durability with resiliency.

Metallic cross-ties heretofore used and proposed have been objectionable by reason of their rigidity, and efforts have been made to correct this objectionable characteristic by means such as weakening the structure of the ties directly beneath the rails but this is undesirable because the elasticity obtained thereby is slight and the unsupported sections between the rails and slots tend to become permanently bent or set so as to destroy any elastic action otherwise due thereby by reason of their character and location.

I avoid the defective characteristics of such prior arrangements by constructing the ties so that they will spring at the center of bending movements, in the line of the center of support, midway between the rails which carry the load, whereby the desired elasticity is obtained without weakening the structure of the ties beneath the rails where the greatest strength is needed to withstand the crushing force.

In the accompanying drawings, Figure 1 is a side elevation of a metallic cross-tie embodying my invention in its unloaded position; Fig. 2 is a side elevation of the same in its loaded position; Fig. 3 is a side elevation of the tie showing a second position of the slot with guard plates applied thereto, and Fig. 4 is a vertical sectional view taken through the center of the tie shown in Fig. 3.

The tie shown in the drawing is an I-beam having the top flanges 1 and the bottom flanges 1' connected by the web 2 which contains the longitudinal median slot 3.

The slot has its terminals between the rails carried by the tie and is of suitable length and such depth as to produce the resiliency desired, the depth being such that it will close before the elastic limit of the metal is reached whereby permanent distortion is prevented.

As shown in Figs. 1 and 2 the slot is placed at about one-third of the depth of the web but it may be placed at different elevations as shown in Figs. 3 and 4, where it is in the middle of the depth of the tie. Guards 5, suitably sheet metal plates, are preferably used to cover these slots, for the purpose of preventing them from filling with dirt or other substance liable to prevent them from closing under the bending stress to which they are subjected by the load, the plates being held in place by any suitable means as the bolts 6 passing through their ends and the ends of the slots.

It will be understood that when the rails are loaded the resultant forces to be considered are represented by the arrows shown in Fig. 2 and that the tie is permitted to assume the cambered position shown in this figure by the removal of the metal of the web due to forming the slot, the tie springing back to its normal position when relieved of the load.

Having described my invention I claim:

1. A tie comprising laterally extending top and bottom flanges connected by a vertical web containing a longitudinal median slot adapted for facilitating the bending only within the elastic limit of the material, substantially as specified.

2. A tie comprising top and bottom flanges connected by a web containing a longitudinal slot, said slot being disposed between said rails and having such depth that it will close before the metal is bent beyond its elastic limit, substantially as specified.

3. A tie comprising a metal shape having a web containing a slot adapted for rendering it resilient, in combination with means for preventing extraneous material

from entering said slot and obstructing the bending of said tie.

4. A tie comprising a metal shape having a web containing a slot adapted for rendering said tie resilient, in combination with guards comprising metal sheets, and bolts passing through the ends of said slot and said sheets.

In witness whereof I have hereunto set my name this ninth day of May, 1911, in the presence of the subscribing witnesses.

JOSEPH J. WHITE.

Witnesses:

J. H. KELSEY,
THOMAS EARLY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."