Aug. 18, 1936. P. M. REIS 2,051,619

RAILWAY TRACK CONSTRUCTION

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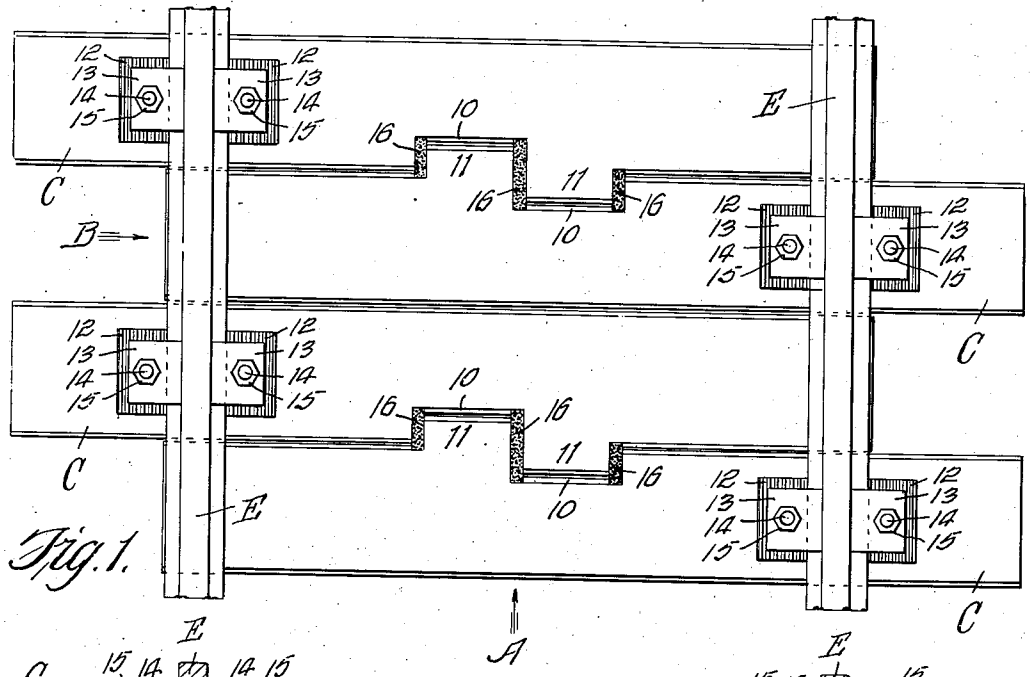


Fig. 1.

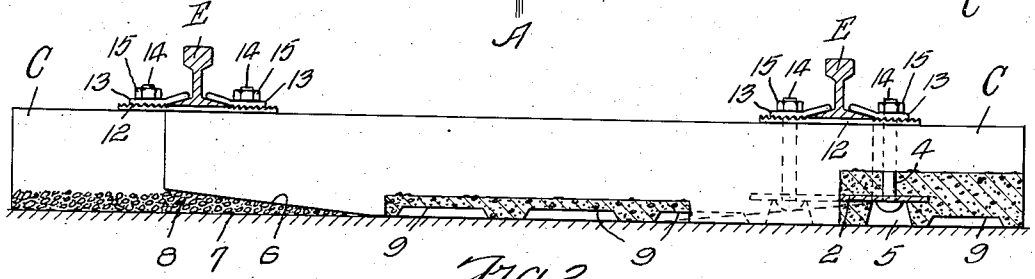


Fig. 2.

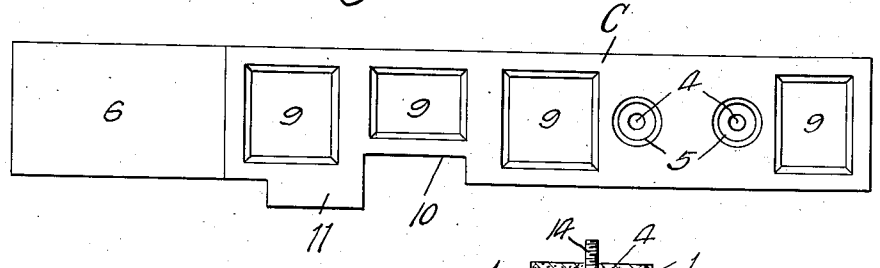


Fig. 3.

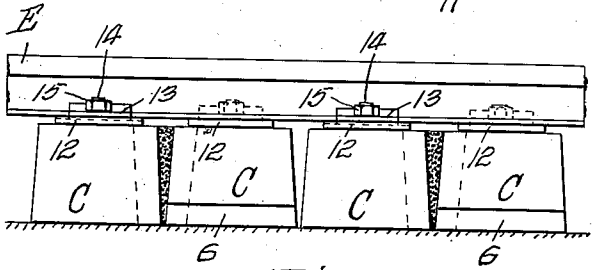


Fig. 4.

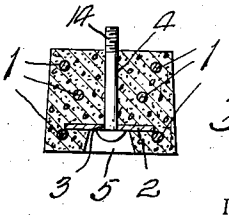


Fig. 5.

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UNITED STATES PATENT OFFICE

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RAILWAY TRACK CONSTRUCTION

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4 Claims. (Cl. 238—39)

My invention relates to a railway track construction, and to ties used therein.

Certain objects of the invention are to provide a simple track construction formed of composite ties upon which rails rest, and, to which ties the rails are fastened in staggered relation so that only one end of each tie is secured in fixed relation to the rails, whereby to effect a resiliently flexible, or yieldable track construction of superior durability and wearing qualities to the present track construction, and which will be relatively cheap in construction, compact in form, not easily washed away, and unlikely to easily get out of repair.

A further object of the invention is to provide separable composite ties in the track construction which are adapted to be arranged in interlocked pairs for the support of the rails, and, whereby one rail is fastened to one tie and the other rail fastened to the other tie so that opposite ends of adjacent ties are free for movement relative to the rails.

A further object of the invention is the provision of a reinforced composite tie provided on one of its side faces with a vertical groove and an adjacent vertical tongue so that two ties can be assembled in interlocked relation.

A further object of the invention is the provision of composite tie bodies interlocked in pairs and arranged in opposed staggered relation so as to provide a tie as a whole.

A further object of the invention is the provision of a tie formed of two composite bodies interlocked in reversed relation.

A still further object of the invention is the provision of a composite railway tie having one of its side faces provided with a vertical groove open to the top and bottom faces thereof, an adjacent vertical tongue, an inclined lower face at one end of the tie, a plate having fastener receiving openings embedded in the opposite end of the tie, and, having openings registering with the plate openings and the lower face of the tie, beyond the inclined portion thereof, provided with a plurality of recesses.

The purpose of the tie, so constructed, as well as the track construction made possible thereby, is to afford the requisite degree of yieldableness of the rail bed, which will not only improve traffic conditions, but will absorb the shocks and vibrations and so prevent breakage and disintegration of the composite, or concrete ties laid to form track construction.

With the above and other objects in view, the invention consists of the features of construction, the parts and combination thereof, and the mode of operation, or their equivalent, as hereinafter described and finally pointed out in the claims hereto appended.

Reference will now be had to the drawing, wherein:—

Fig. 1 is a top plan view of a section of railway track construction embodying the features of my invention.

Fig. 2 is an end elevation of the invention, looking in the direction of the arrow A in Fig. 1.

Fig. 3 is a bottom plan view of one of the tie bodies.

Fig. 4 is a side elevation of a section of railway track construction, looking in the direction of the arrow B in Fig. 1.

Fig. 5 is a transverse sectional elevation of one of the tie bodies.

In carrying out the aim of my invention, I build a railway track construction from the members which will now be described.

Each tie in the construction consists of two composite bodies of like construction.

Each body is designated C and is formed from concrete, poured into suitable molds, and the concrete is reinforced by means of suitable bars 1 running longitudinally of the body. The side walls of each body C are slightly tapered so that the base of the body will be wider than the top thereof. A suitable metallic plate 2 having a pair of openings 3 and which may be fixed to certain of the reinforcing bars 1, is embedded horizontally in the concrete near one end of the tie body, and the body is provided with a pair of vertical openings 4 above the plate and registering with the openings therein, and, the tie body is also provided with a pair of recesses 5 below the openings 3 in the plate 2.

The end portion of the tie body C, opposite the end carrying the apertured plate 2, has its lower face inclined upwardly, as at 6, toward the end face thereof to provide, when the tie body is laid upon a road-bed or formation D, a pocket 7 below such end of the tie body to receive ballast 8 packed under such end of the tie body.

The remainder of the lower face of the tie body which is not inclined, is provided with a series of suitable recesses 9 to serve for greater grip of the tie body to the foundation, or road-bed, due to the suction effect produced by the employment of such recesses. Each composite tie body C is provided on one of its side faces with a suitable vertical groove 10 open to the bottom and top faces of the tie body. Adjacent, or next to such groove, there is formed on the same side face of the tie

body, a suitable tongue or protuberance, 11, of a shape and size corresponding to the groove 10. The foregoing description as referring to each tie body C completes the construction thereof.

To build up the track construction for the support of the opposed rails E, two tie bodies C are laid side by side, in reversed relation, so that the tongue 11 of each tie body is receivable in the groove 10 of the other, thus assembling the tie bodies, in pairs, in staggered loosely interlocked relation, so that the plate carrying ends of the tie bodies will project beyond the ends thereof having their lower faces inclined.

The ends of each pair of interlocked tie bodies C, which have their lower faces inclined, do not extend beyond the outer base flange of each rail, but the rails rest upon the upper faces of the two tie bodies, and they are not, in any way, fastened to the rails, but they are free to move relative to the rails.

The opposite, or plate carrying ends of each pair of interlocked tie bodies have a tie plate 12 on the upper faces thereof, upon which the rails rest, and a pair of suitable clamp plates 13 are employed, one for each base flange of the rails, and these clamp plates are held in position by means of suitable bolts 14 passing upwardly through the embedded plates 2, the tie openings 4 and openings in the clamp plates 13, and the bolts 14 are provided with suitable nuts 15 for locking the clamp plates against displacement from their operative positions of holding down the rails.

It is to be understood that each pair of tie bodies C are to be interlocked in close, but slightly spaced relation to each other, and that in the space formed between the beveled side faces of the tongue and groove connections, between each pair of tie bodies, there is adapted to be placed suitably treated felt, or equivalent expansion pads 16.

From the foregoing description and reference to Fig. 1 of the drawing, it will be readily apparent that I fasten one end of each tie body to its respective rail, and that the opposite end of each tie body is free for movement relative to its respective rail.

In this manner, it will be observed that I have fastened the rails to the ties in staggered relation, so that one rail is fastened to every other tie body and the other rail it is fastened to each alternate tie body, thereby providing, or forming a composite rail supporting bed which is yieldable due to the interlocking of the tie bodies, in pairs, and due to the fact that each rail is fastened to but one end of adjacent tie bodies, the other end of each tie body being free for movement relative to the rail merely resting thereupon.

It is well apparent, that if a track construction is subjected to ordinary traffic shocks and impact of car wheels, concrete road-beds, or ties, are now liable to more or less breakage and disintegration, and it is a primary aim of my invention to remedy this defect, by providing a concrete road-bed or tie construction upon which the rails rest, which is yieldable under traffic shocks, thus enabling it to resist breakage of the ties. The blow, or impact of the car wheels upon an unyielding track structure is as detrimental to the rolling stock as it is to the track itself, and, therefore, the yieldableness of my track construction is equally advantageous in protection of the railway equipment as it is of the track construction.

The many advantages of the track construction made possible by the composite tie construction herein-described, will readily suggest themselves to those skilled in the art to which it appertains.

While in order to comply with the statute, the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not intended to be limited to the specific details shown, but that the means and construction herein disclosed comprise the preferred form of several modes of putting the invention into effect, and the invention is, therefore, claimed in any of its forms of modifications within the legitimate and valid scope of the appended claims.

What I claim is:—

1. A railway tie comprising a pair of composite bodies, vertical tongue and groove connections between the two bodies and expansion pads associated with the tongue and groove connections.

2. A railway tie comprising a pair of composite bodies, vertical tongue and groove connections between the two bodies, expansion pads associated with the tongue and groove connections, a plate having fastener receiving openings therein embedded in one end of each body, each body having openings registering with the openings in the plate, each body having one end of its lower face beveled, the lower face of each body having a plurality of recesses formed therein and said bodies adapted to lay side by side in reversed relation to each other so that the plate carrying ends thereof project beyond the beveled face ends thereof.

3. A railway tie comprising composite separable sections arranged in staggered relation, vertical tongue and groove connections between the sections extending from the lower faces of the sections to the upper faces thereof to prevent longitudinal displacement of the sections relative to each other but permitting yielding movement thereof relative to each other, a metallic plate having fastener receiving openings anchored in each section adjacent one end thereof, each section having enlarged recesses below the plate openings therein, the lower face of each section opposite the end thereof having the plate anchored therein being beveled and the remainder of the lower face of each section having a plurality of recesses formed therein.

4. A railway tie comprising a pair of composite bodies adapted to be laid side by side in staggered relation, vertical tongue and groove connections between the two bodies to retain the bodies in their staggered relation against longitudinal displacement relative to each other but yieldable relative to each other and expansion pads disposed between the tongue and groove connections.

PAUL M. REIS.