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2,272,218

STEEL TIE

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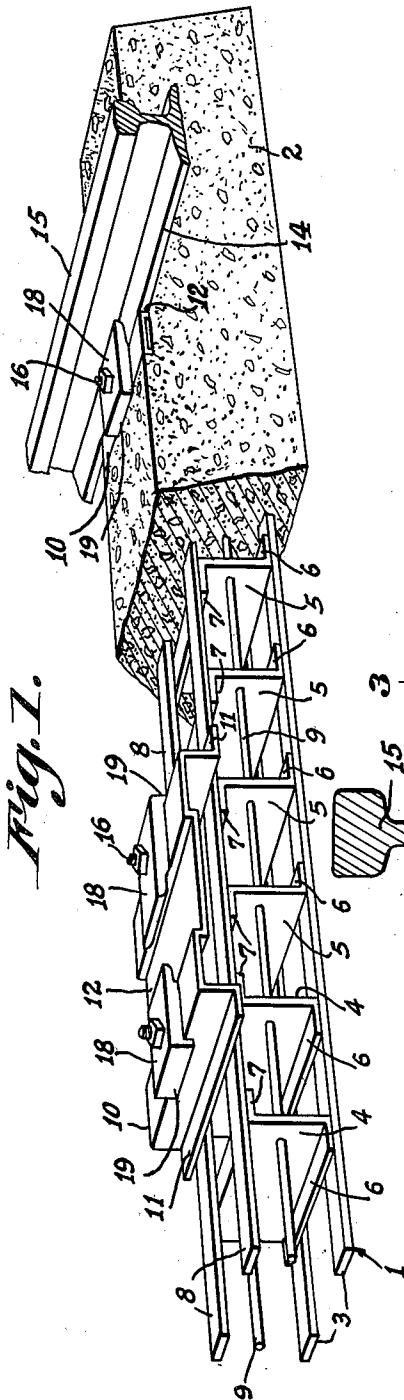


Fig. 1.

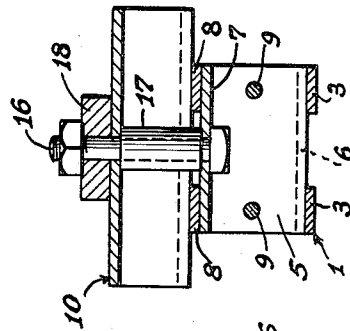


Fig. 3.

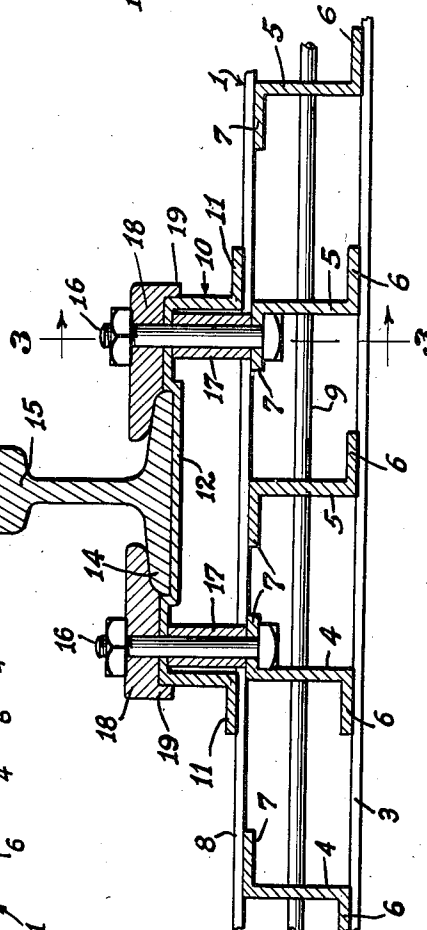


Fig. 2.

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STEEL TIE

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Application October 7, 1939, Serial No. 298,458

1 Claim. (Cl. 238—85)

Steel and concrete have not replaced wood as a structural material for railroad cross ties, because, so far as I am advised as to the state of the art, no steel or concrete cross tie has been invented, which meets fully the exacting demands of the railroads, and is capable of standing up under heavy traffic. The chief defect of steel and concrete ties heretofore invented has been the means for fastening the rail to the tie. In view of that circumstance, one object of the present invention is to improve the fastening means.

Another object of the invention is to improve the construction of the frame which is embedded in the concrete, the construction being such that the frame will cooperate properly with the fastening means.

Another object of the invention is to provide a tie of the class described which will be inexpensive to manufacture, the construction being such that the tie can be made larger, stronger, and better adapted to have a long effective life. The construction of the tie is such that railroad trains can be run at high modern speed over rails supported by it, the construction being such that the tie can be adjusted and placed on the road bed, to accommodate itself for the exigencies of track work.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the present invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Attention is directed to the accompanying drawing, forming a part of this specification, wherein:

Fig. 1 shows in perspective, a tie constructed in accordance with the invention, part of the concrete being removed, in order that metal structural parts may the more clearly appear;

Fig. 2 is a longitudinal section, showing a portion of the frame and attendant parts;

Fig. 3 is a transverse section on the line 3—3 of Fig. 2.

In carrying out the invention, there is provided a metal frame 1, which is inserted in a

concrete body 2, of any desired cross section. The frame 1 comprises lower strips 3, of oblong, rectangular cross section, arranged in parallel relation. Disposed transversely of the lower strips 3 are Z-bars 4 and 5, not differing from each other in construction, the bars 5 being mentioned specifically, because they bear to each other, a relation which will be brought out hereinafter. The lower flanges 6 of the Z-bars 4 and 5 are secured to the lower strips 3 of the frame 1, the Z-bars being arranged in parallel relation, at right angles to the lower strips 3. The upper flanges 7 of the Z-bars 4 and 5 have secured to them, upper strips 8, arranged in parallel relation, above the lower strips 3. Parallel reinforcing rods 9 extend through the bodies of the Z-bars 4 and 5, and are secured therein.

An inverted, U-shaped bridge 10 is disposed transversely of the upper strips 8, the bridge having outstanding, oppositely projecting flanges 11, which are secured to the upper strips 8 of the frame 1. It is shown in Fig. 1 that the upper surface of the bridge 10, for the most part, is flush with the upper surface of the concrete body 2. In the crown of the bridge 10 there is a depressed seat 12, shaped to receive the base 14 of a railroad rail 15.

As to the Z-bars 4 which are located adjacent to the ends of the frame 1, their upper flanges 7 extend inwardly but as to the Z-bars 5 that are disposed along the intermediate portion of the frame 1, their upper flanges 7 extend outwardly. Thus, as shown in Fig. 2, the upper flange 7 of one of the Z-bars 4, and the corresponding flange of a Z-bar 5 extend toward each other, the flanges of the said Z-bars 4 and 5 being disposed below the bridge 10, near to the sides thereof. Through the specified flanges 7 pass securing elements 16, such as bolts. The heads of the bolts 16 engage underneath the flanges 7 that project toward each other, as shown in Fig. 2. The heads of the bolts also engage the bodies of the Z-bars 4 and 5 under consideration, and, therefore, the bolts are held against turning. The bolts 16 pass through sleeves 17, the sleeves finding an abutment at their lower ends against the flanges 7 of certain of the Z-bars 4 and 5, and finding an abutment at their upper ends, against the crown of the bridge 10. The reinforcing and strengthening function of the sleeves 17, when the nuts on the bolts 16 are set up, will be obvious from Fig. 2.

The bolts 16 pass upwardly through clips 18, recessed to overhang and engage the base 14 of the rail 15, under the impulse of the nuts on the

bolts. In order to prevent the clips 18 from swinging horizontally on the bolts 16, the clips are provided with depending wings 19, engaging the outer surfaces of the bridge 10.

Having thus described the invention, what is claimed is:

A railroad tie comprising transverse Z-bars having upper and lower horizontal flanges, upper longitudinal strips secured to the upper flanges, lower longitudinal strips secured to the lower flanges, an upwardly arched bridge provided with

outwardly extended feet secured transversely to the upper strips, the crown of the bridge having a rail-receiving depression, sleeves extended between the upper flanges and the crown of the bridge, rail clips on the crown of the bridge and overhanging the depression, and securing devices engaged with the upper flanges, the securing devices passing through the sleeves, the crown of the bridge and the clips.

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