Feb. 12, 1924. 1,483,827

W. E. MILLER

STEEL CROSSTIE

Filed June 22, 1923

Fig. 1.

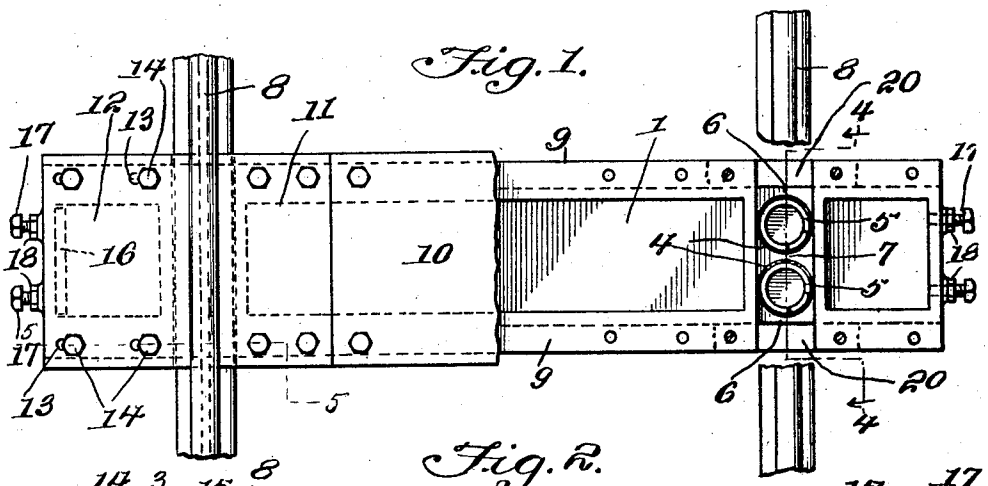


Fig. 2.

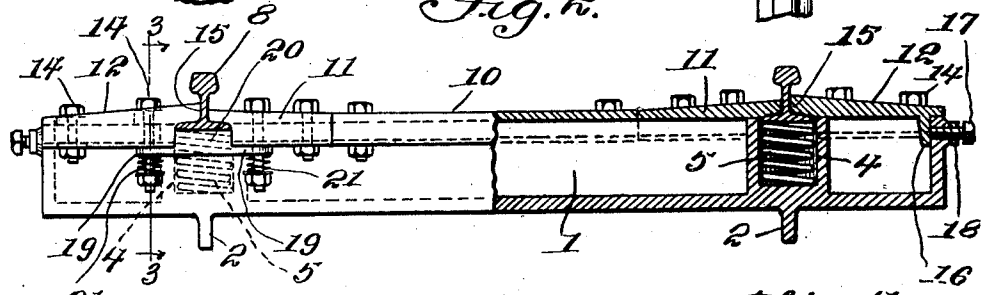


Fig. 3.

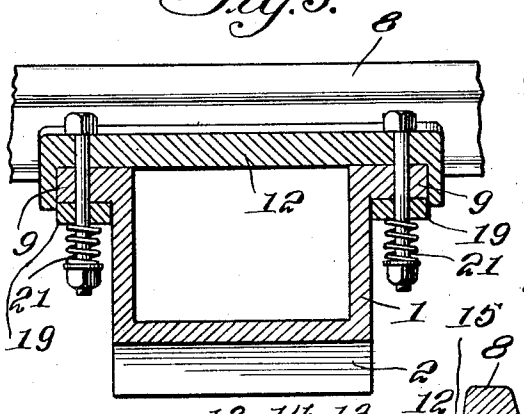


Fig. 4.

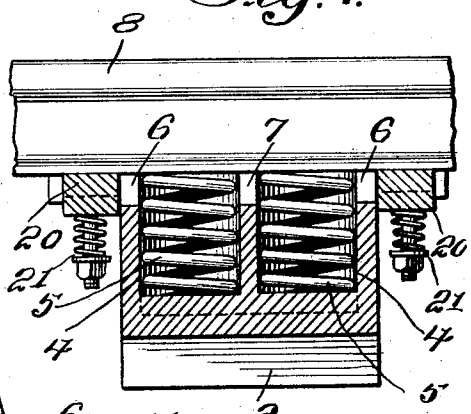
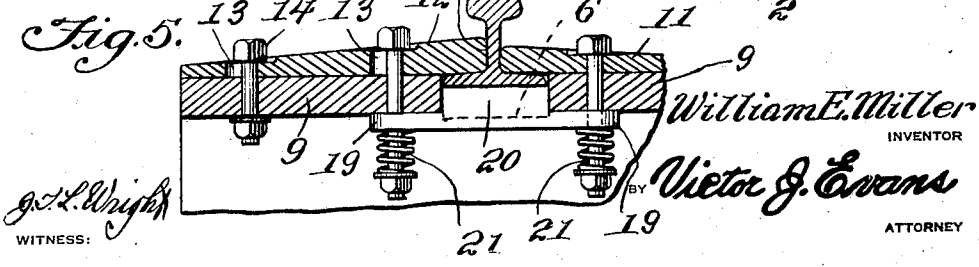


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM E. MILLER, OF GORMANIA, WEST VIRGINIA.

STEEL CROSSTIE.

Application filed June 22, 1923. Serial No. 647,185.

To all whom it may concern:

Be it known that I, WILLIAM E. MILLER, a citizen of the United States, residing at Gormania, in the county of Grant and State of West Virginia, have invented new and useful Improvements in Steel Crossties, of which the following is a specification.

An object of this invention is to produce a metal tie for railway rails which will afford the rails a resiliency or yieldability equalling if not exceeding that afforded by the ordinary wooden ties.

A further object is to produce a metal tie for supporting railway rails that shall be of a construction to prevent the sinking or lateral movement thereof in the roadbed, that shall be provided with spring cushioning means on which the rails rest and which has associated therewith and forming part thereof means for effectively clamping the rails thereon so that the said rails shall be held against tilting but permitted a limited longitudinal movement such as is necessary in the expansion and contraction thereof.

The invention further consists in the features of construction, combination and operative association of parts such as is disclosed by the accompanying drawings, set forth in the following description, and definitely claimed.

In the drawings:—

Figure 1 is a plan view of the improvement, a portion of the top being removed, and one of the rails being broken away.

Figure 2 is a side elevation, with parts broken away and parts in section.

Figure 3 is an enlarged transverse sectional view approximately on the line 3—3 of Figure 2.

Figure 4 is a similar sectional view approximately on the line 4—4 of Figure 1, the rail being in elevation.

Figure 5 is a detail enlarged fragmentary longitudinal sectional view approximately on the line 5—5 of Figure 1.

Ties, constructed in accordance with my invention each comprise a hollow metal body 1 that is of a substantially rectangular formation and is, of course, of a desired length, height and width. The body 1 is open at its top and is provided on its bottom, at suitable distance from its ends with depending transversely arranged ribs 2. These ribs are designed to enter the roadbed to hold the tie body 1 against lateral movement, and the surface afforded by the under face of the tie will prevent the sinking thereof in the roadbed.

The hollow tie 1 at points directly above the ribs 2 is formed with transversely arranged enlargements having spaced rounded depressions therein providing pockets 4 for helical springs 5. The sides of the tie 1 are notched as at 6 in a line with the pockets 4, and the central division wall between the pockets is likewise notched, as at 7. Between these notches and bearing directly on the springs 5 are the rails 8.

The sides of the tie 1, at the upper edge thereof are flanged outwardly, as at 9, the said flanges, of course, being cut away in a line with the notches 6, and centrally arranged over the flanges and bolted thereto there is a cover plate 10. In contacting engagement with the outer ends of the plate 10 there are rail engaging plates 11. These plates are likewise bolted to the flanges 9 of the tie body. The plates have their outer ends beveled on their lower faces to contact with the inner base flanges of the rails 8, and their straight ends are likewise arranged in contacting engagement with the inner faces of the webs of the rails. The outer rail engaging plates, indicated by the numeral 12 are provided with elongated slots 13 through which the securing elements 14 pass. The elements 14 are in the nature of the usual bolts and nuts, and the openings in the flanges 9 through which the said bolts pass are round so that the plates 12 may be adjusted longitudinally on the tie body to bring the rail engaging ends or lips 15 thereof against the outer base flanges and webs of the rails. When the plates are properly adjusted with respect to the rails the nuts are, of course, screwed home on the bolts.

The rail engaging plates 12 are provided with downturned flanges 16 disposed opposite the ends of the tie body, and the said tie body has threaded openings therethrough surrounded by bosses. These openings receive therethrough bolts 17 which contact with the flanges 16 for adjusting and sustaining the lips 15 of the plates 12 in rail engagement. On the bolts 17 there are lock nuts 18 that contact the bosses.

All of the top sections have depending flanges to contact with the outer edges of the flanges 9, and the said flanges of the rail engaging plates 11 and 12 are cut-away at the notched portion of the sides of the tie

body. Also the inner bolt members 14 of the rail engaging plates 11 and 12 are of a greater length than the outer bolts, the last mentioned bolts passing through openings in a plate 19. This plate is centrally formed with a lug 20 that fills the gap provided by the cut-away portions of the flanges of the plates 11 and 12 and likewise closes the notches 6 in the sides of the tie body so that dirt, dust, etc., will be prevented from entering the pockets 4 for the springs 5. On the last mentioned bolts there are springs 21 which, of course, are contacted by the nuts which are screwed on said bolts. The arrangement permits of a downward yielding of the filler blocks provided by the elements 19 and 20 when the ties move downwardly upon the cushioning springs 5 under the weight of rolling stock passing thereover.

It is thought that the foregoing description, when taken in connection with the drawings will fully set forth the simplicity of the construction and the advantages of my improvement to those skilled in the art to which such inventions relate, but it is deemed necessary to add that I do not wish to be restricted to the precise details of construction herein set forth and hold myself entitled to such modifications therefrom as fall within the scope of my claims.

Having described the invention, I claim:—

1. A metal tie for railway rails comprising a hollow body having an open top, transverse partitions therein adjacent the ends thereof, each of which being formed with spaced compartments, cushioning springs in said compartments, said springs designed to have rails rest thereon to space the same out of contact with the tie body, plates closing the open top of the body, and certain of said plates engaging with the base and webs of the rails for sustaining the rails on the tie.

2. A metal tie for supporting railway rails comprising a hollow body having its under face, adjacent its ends ribbed transversely, transverse partitions in the body above the ribs having spaced openings therein providing pockets, a cushioning spring in each pocket, said body and partition beign notched at the upper portions thereof to permit rails resting directly on the springs, plates covering the open top of the body, certain of said plates engaging the rails for sustaining the same on the tie, and yieldable blocks closing the notches in the sides of the tie body.

3. In a metal tie for supporting railway rails, a hollow body having ribs on the under face thereof and transverse partitions in the body above the ribs, said partitions being provided with spaced pockets, cushioning springs therein, the sides of the tie and the division wall between the pockets being notched to permit of rails resting directly on the springs, a central plate fixed on the open top of the body, rail engaging plates contacting with the ends of the central plate and also secured to the body, outer rail engaging plates adjustably secured on the top of the body, and yieldable blocks supported by the rail engaging plates for covering the notches in the sides of the body.

4. A metal tie for supporting railway rails comprising a hollow body having its open top flanged outwardly at the sides thereof, said body having depending ribs adjacent its ends and having transverse partitions in the body above the ribs, said partitions having round depressions providing pockets, a coiled spring in each pocket, the sides of the body and the division wall between the pockets having their upper portions notched for the reception of rails and to permit said rails resting directly on the springs, plates covering the top of the body and secured thereon, certain of said plates having rail engaging lips for contacting the base flanges and the webs of the rails, means between the ends of the body and the outer rail engaging plates for adjusting the latter with respect to the rails, blocks arranged on the sides of the tie for closing the notches therein, and spring means associated with certain of the securing means for the said rail engaging plates for yieldably supporting the blocks thereon.

In testimony whereof I affix my signature.

WILLIAM E. MILLER.