No. 868,651. PATENTED OCT. 22, 1907.

A. C. DINKEY.

INSULATED METAL CROSS TIE.

APPLICATION FILED DEC. 31, 1906.

2 SHEETS—SHEET 1.

FIG. 1.

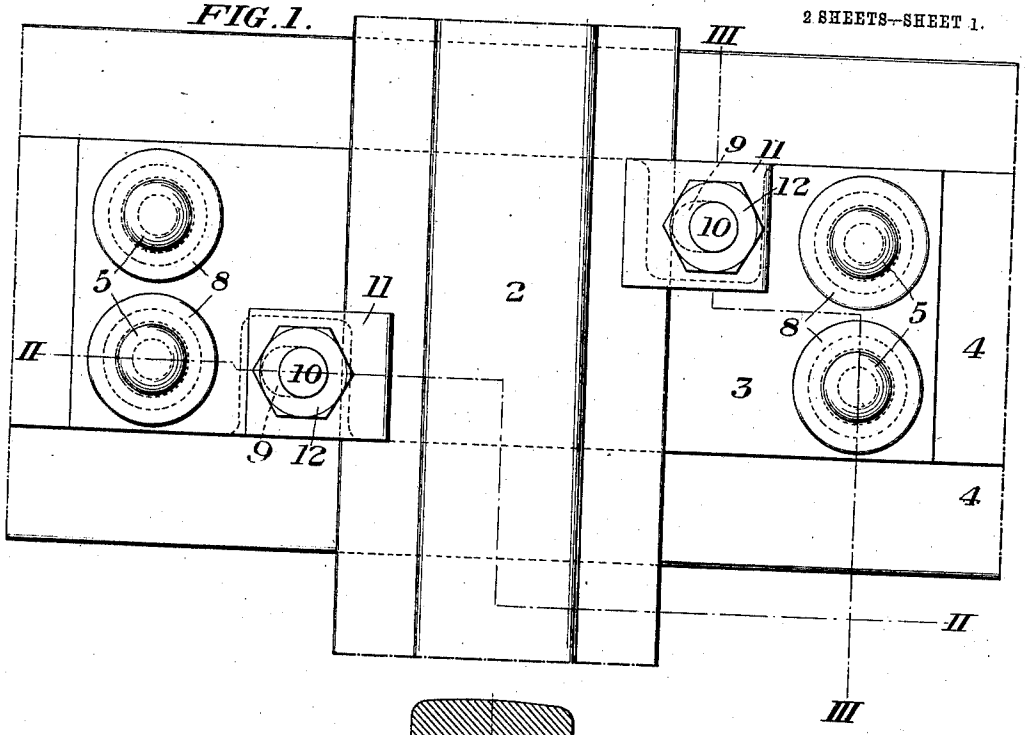
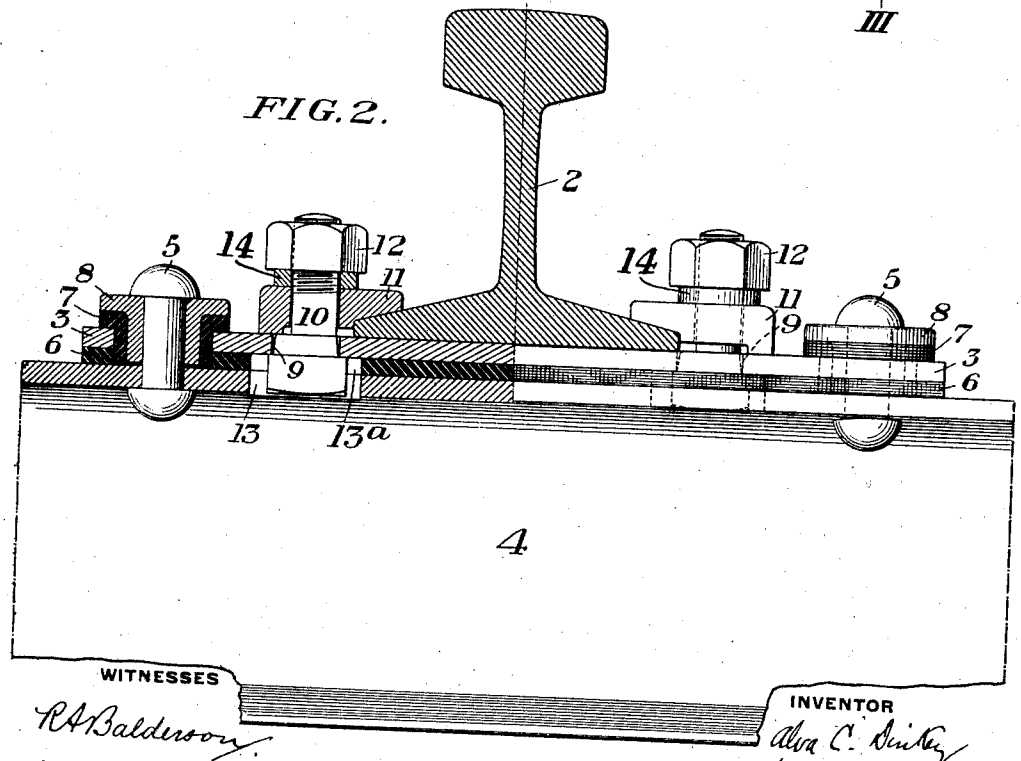


FIG. 2.



WITNESSES

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2 SHEETS—SHEET 2.

FIG. 3.

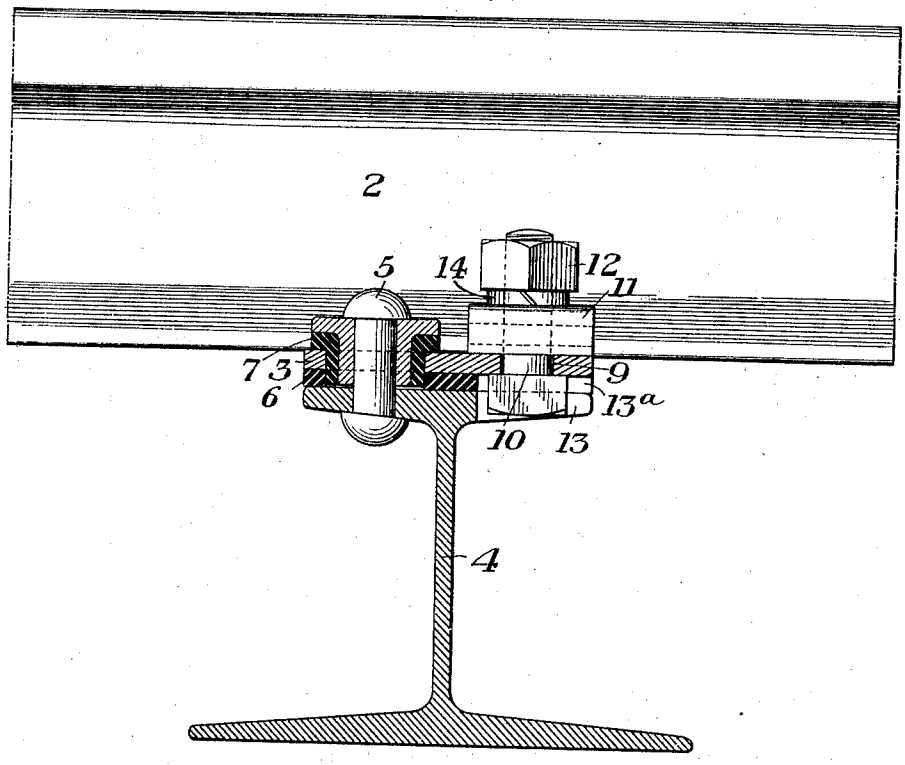


FIG. 4.

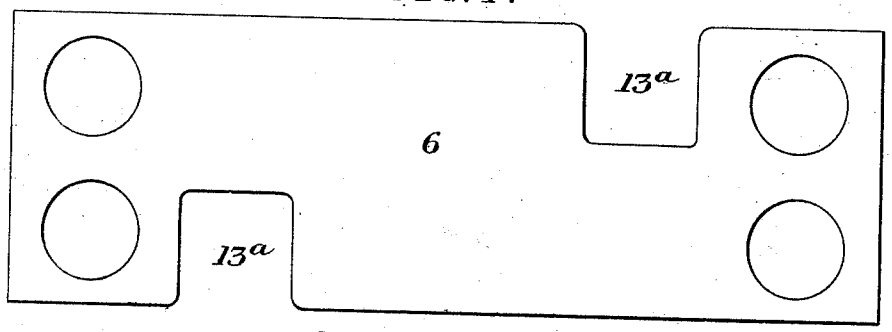
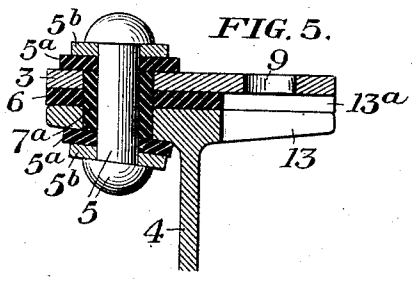


FIG. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

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INSULATED METAL CROSS-TIE.

No. 868,651. Specification of Letters Patent. Patented Oct. 22, 1907.

Application filed December 31, 1906. Serial No. 350,247.

To all whom it may concern:

Be it known that I, ALVA C. DINKEY, of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful Improvement in Insulated Metal Cross-Ties, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view showing my invention applied to the rails of a railway track; Fig. 2 is a sectional elevation on the line II—II of Fig. 1; Fig. 3 is an irregular cross section through the tie on the line III—III of Fig. 1. Fig. 4 is a detail view of the insulating plate on a larger scale; and Fig. 5 shows a modified form of insulation for the plate fastening.

My invention relates to insulated metal cross ties for the track rails and rail fastenings of a railway and to protecting the insulating material from crushing and wear.

The invention also relates to providing for adjustment of the rails on the ties without disturbing or displacing the insulation and forming the insulation as a permanent part of the tie.

In the drawings, 2 represents one of the rails of a railway track which is fastened in place on a metal bearing plate 3. The plate 3 is secured to the top of the metal tie 4, preferably by means of the insulated rivets 5. The bearing plate 3 is kept out of contact with and is insulated from the metal tie 4 by means of an insulating plate 6 which is preferably composed of wood fiber, although hard rubber or other insulating materials may be employed for this purpose.

The rivets 5 are provided with flanged sleeves 7 composed of similar insulating material and within each of these insulating sleeves, a flanged thimble or sleeve 8 is placed, to protect the sleeve 7 and prevent its crushing while the rivets are being headed in place.

In the modification shown in Fig. 5, the rivets 5 securing the bearing plate 3 to the tie 4 are insulated from both the tie and bearing plate by means of the sleeve 7^a of insulating material and the insulating washers 5^a, a metal washer 5^b being inserted between the insulating washers 5^a and the heads of the rivets 5 to provide a bearing for these heads and to protect the insulation while the rivets are being headed. In this way the insulation may be made a permanent part of the tie, while the rail and rail fastenings are insulated therefrom. Elongated holes 9 are provided in the bearing plates 3 in which the eccentric portions of bolts 10 are inserted in securing the rails to the ties, the bolts 10 extending upwardly through holes in the rail clips 11 and being held in position by means of the nuts 12. In the form of metal tie shown, which consists of a top and bottom flange connected by a web portion, the top flange is provided with openings or slots 13 in which are the heads of the bolts 10 when the parts are assembled in place. These slotted openings are made of such size as to be clear of the bolt heads on all sides when the bolts are assembled in place. The insulating plates 3 are preferably provided with slots 13^a as shown in Fig. 4, although these openings may be circular if desired. A locking washer 14 is placed on each bolt between its nut 12 and the rail clip 11.

The advantages of my invention will be apparent to those skilled in the art. By means of my invention an insulated metal tie is obtained. The insulation is made a permanent part of the tie and may be assembled in place before shipment, thus reducing the number of separate parts to be assembled in the field. The bolts for fastening the rail clips in place are removably secured to the tie, permitting them to be shipped in bulk to the place of use, and avoiding the liability of damage to these bolts which would occur if the bolts were not removable. New bolts may also be inserted in place whenever necessary without disturbing or displacing the insulation. The insulated ties may be put into place in the track with ordinary labor.

By means of my invention a cheap and substantial insulated metal tie is easily made and the rails may be adjusted on the ties in the usual manner without disturbing or affecting the insulation.

Variations in the construction and the type of the metal tie and in the means for securing the insulation on the tie may be made within the scope of my invention.

I claim:—

1. A metallic cross tie having an insulating plate on its top, a metallic bearing plate resting on the insulating plate and secured to the tie, a rail clip and a removable clip fastening extending below the level of the insulating plate; substantially as described.

2. A metallic cross tie having a recess or slot in its top portion and having an insulating plate thereon, a metallic bearing plate lying on the insulating plate, a fastening for securing the bearing plate and insulating plate to the tie, a rail clip and a removable clip fastening extending below the insulating plate and lying in the recess or slot in the top portion of the tie; substantially as described.

3. A metallic cross tie having a recess or slot in its top portion and having an insulating plate thereon, a metallic plate on the insulating plate, a rail clip and a removable clip fastening for the rail lying within holes or recesses in the tie and the insulating plate; substantially as described.

4. A metallic cross tie having an insulating plate thereon, holes or recesses in the tie and insulating plate a metallic plate on the insulating plate, a rail clip and a removable clip fastening lying within holes or recesses in the tie and the insulating plate, the bearing plate and insulating plate being separately secured to the tie; substantially as described.

5. A metallic cross tie having an insulating plate thereon, bearing plate on the insulating plate, a permanent fastening securing the plates to the tie and a separate independent removable clip fastening for the rail; substantially as described.

6. A metallic cross tie having an insulating plate thereon, a bearing plate lying on the insulating plate, a fastening for securing said parts to the tie and a clip fastening

having a removable bolt with its head lying wholly below the level of the bearing plates; substantially as described.

7. A cross tie having an insulating plate thereon, a bearing plate seated on the insulating plate, a permanent fastening for securing the plates to the tie and an independent detachable clip fastening for securing the rails to the tie, the upper portion of the tie being slotted to receive the fastening for the clip; substantially as described.

8. A metallic rail tie of I-beam form and having its upper flanges formed with slots to receive the heads of detachable rail securing bolts and an insulating plate permanently secured to the upper flanges of the tie and having openings for the rail-securing bolts; substantially as described.

9. A cross tie having an insulating plate thereon, a bearing plate seated on the insulated plate, a permanent fastening for securing the plates to the tie, said fastening being insulated from the bearing plate, a rail clip and an independent removable fastening for the clip; substantially as described.

10. A cross tie having an insulating plate thereon, a bearing plate seated on the insulating plate, a permanent fastening for securing the plates to the tie, said fastening being insulated from the bearing plate, a bearing washer to protect the insulation for said fastening, a rail clip and an independent bolt securing the rail clip; substantially as described.

11. A metallic cross tie having an insulating plate, a bearing plate on the insulating plate, a fastening for securing the plates to the tie, a rail clip and a separate independently removable clip fastening arranged to be removed without disturbing the fastening for the plates; substantially as described.

12. A metallic cross tie having a rail bearing plate insulated from the tie, a permanent fastening securing the plates to the tie, a rail clip and a separate independently removable clip fastening for securing the rail clip to the insulated bearing plate; substantially as described.

In testimony whereof, I have hereunto set my hand.

ALVA C. DINKEY.

Witnesses:
R. D. LITTLE,
H. M. CORWIN.