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W. H. MINER & J. F. O'CONNOR.

# COMPOSITE METAL AND WOOD TIE FOR RAILWAY TRACKS.

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Fig. 1

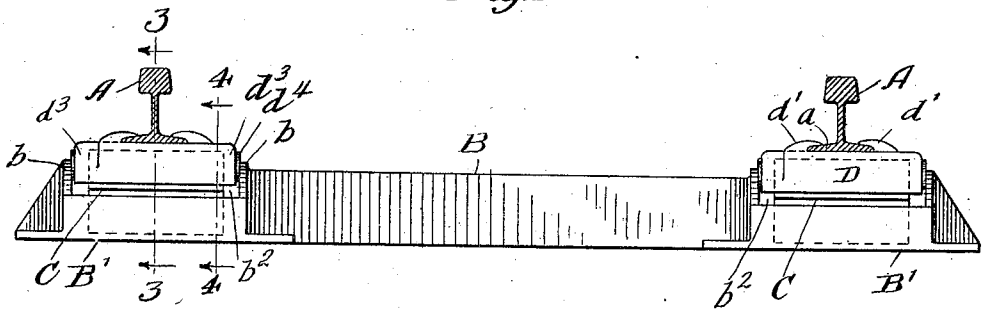


Fig. 2

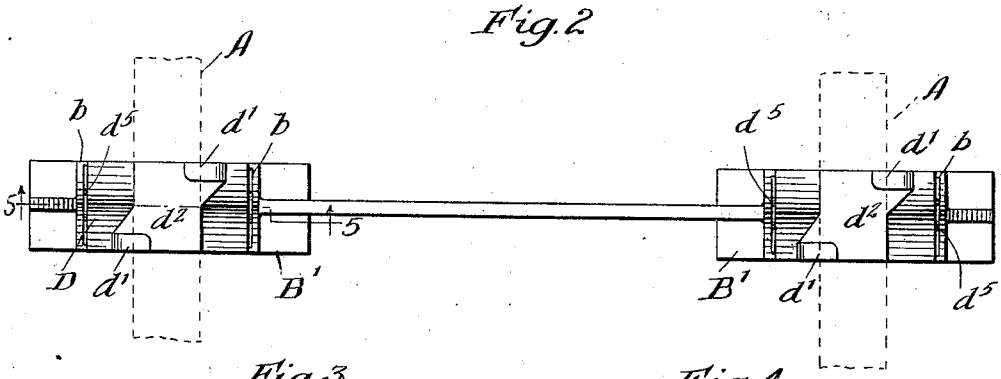


Fig. 3

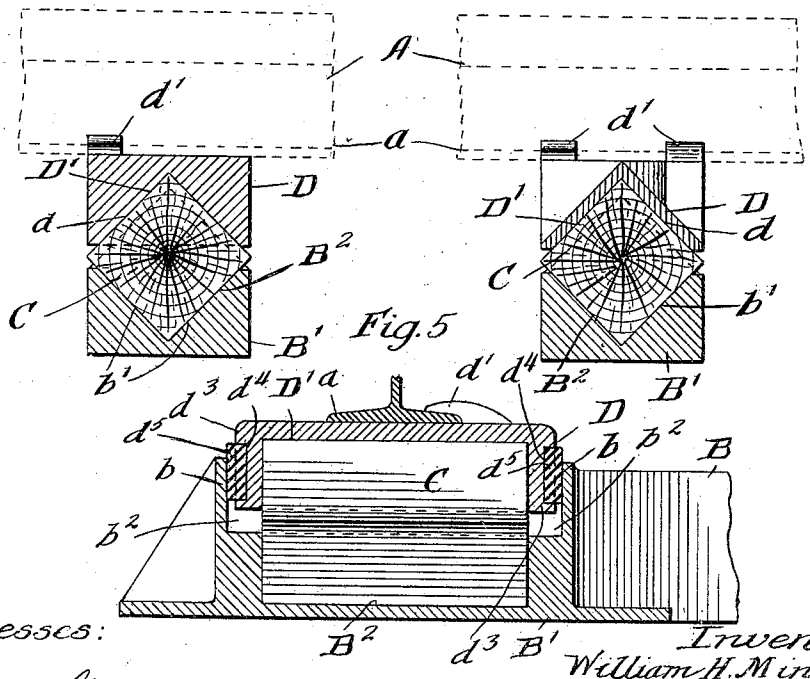


Fig. 4

Fig. 5




Witnesses:

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# UNITED STATES PATENT OFFICE.

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## COMPOSITE METAL-AND-WOOD TIE FOR RAILWAY-TRACKS.

No. 838,562. Specification of Letters Patent. Patented Dec. 18, 1906.

Application filed August 2, 1906. Serial No. 328,855.

*To all whom it may concern:*

Be it known that we, WILLIAM H. MINER and JOHN F. O'CONNOR, citizens of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Composite Metal-and-Wood Ties for Railway-Tracks, of which the following is a specification.

Our invention relates to ties for railway-tracks.

The object of our invention is to provide a composite tie of wood and metal for railway-tracks of a strong, simple, efficient, and durable construction capable of being cheaply manufactured, which will unite in itself the cushioning advantages of the ordinary wooden tie and the strength and durability of the metal tie, which will have adequate provision for shrinkage or swelling of the wood members under variations in moisture without interfering with the snug coöperative relation of the wood and metal members, and by means of which a railway-track may be rapidly and conveniently laid, repaired, or replaced with little labor and expense.

Our invention consists in the means we employ to practically accomplish this object or result—that is to say, it consists in a composite wood and metal railway-track tie comprising in coöperative combination a metal tie member extending between the rails and having at each end an enlarged base provided with a wedging angular or flaring socket with upright ends formed by transverse shoulders or flanges on the base portion, diagonally-arranged wood blocks fitting in said flaring sockets, and metal rail-seat or cap members having angular wedging or flaring sockets fitting and resting upon the wood blocks and fitting between the upright shoulders or flanges of the enlarged bases of the metal tie member and provided with integral lips or hooks for securing the track-rails thereto.

Our invention also consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described.

In the accompanying drawings, forming a part of this specification, Figure 1 is an elevation of a railway-track tie embodying our invention, showing the track-rails in section. Fig. 2 is a plan view. Figs. 3 and 4 are cross-sections of the tie on lines 3 3 and 4 4, respectively, of Fig. 1; and Fig. 5 is a longitudinal section through the base portion of the tie at one end thereof on line 5 5 of Fig. 2.

In the drawings, A represents the rails of a railway-track; B, the metal tie member extending between the rails and provided with enlarged bases B′ B′ at each end, having flaring or wedging sockets $B^2$ to receive the diagonally-arranged wood blocks C. Each of the enlarged bases B′ is provided with transverse shoulders or flanges *b*, forming the ends of the sockets $B^2$ and serving as shoulders or end abutments engaging the ends of the wood blocks C to hold the same in place longitudinally of the tie. The wood blocks C are preferably square in cross-section, and the two lower sides of each of the diagonally-arranged wood blocks fit snugly against the inclined or flaring lateral walls *b*′ of the sockets $B^2$.

D D are the rail-seat or cap members on which the rails A directly rest, and which themselves rest directly upon the diagonally-arranged wood blocks C C, which are interposed between the rail-seat or cap members D and the enlarged bases B′ of the metal tie member B. The rail-seat or cap members D D are each furnished with wedging or flaring sockets D′ on the under sides, the inclined or flaring walls *d* of which fit snugly against the two upper faces of the wood block C. The rail-seat or cap members D fit between the transverse flanges or shoulders *b b* of the bases B′, thus holding the members D snugly in place longitudinally of the tie. The interposed diagonally-arranged wood blocks C separate the seat or cap members D and bases B′ from each other sufficiently to allow for all shringage of the wood blocks, so that the rails may have the full cushioning effect of the interposed wood blocks. The wood blocks at the same time serve not only as cushioning members, but also as the means for locking or holding the metal tie member B and the rail-seat or cap members D D together. The rail-seat or cap members D are preferably furnished with integral flanges or lips *d*′ *d*′, arranged diagonally at opposite edges of the cap or seat D and adapted to en-

gage and embrace the opposite flanges *a a* of the rail A. The rail-seat or cap member D has a diagonally-extending opening $d^2$ between the rail locking or engaging lips *d' d'*, so that by turning the seat or cap member D at an angle to the rail A the cap or seat member may be applied to the rail and then caused to snugly embrace the flanges of the rail by simply turning the seat or cap member D at right angles to the rail. The rail-seat or cap members D may be preferably made of malleable or tough metal, so that the rail holding or locking lips *d' d'* may, if desired or when required, be hammered down tightly upon the flange of the rail.

The rail-seat or cap members D D are provided with end flanges or shoulders $d^3$ to engage the ends of the wood blocks C, and which flanges $d^3$ fit within the transverse flanges or shoulders *b* of the bases B', said flanges *b* having an offset $b^2$ to accommodate the flanges $d^3$.

The end flanges $d^3$ of the rail-seat or cap members D are preferably provided with insulating-blocks $d^4$, of wood or other electrical insulating material, which fit as inserts in suitable sockets $d^5$ in the flanges $d^3$ of the cap members D. The rails A A thus have no metallic connection with each other, and one or both may be used as part of an electric circuit when desired.

We claim—

1. In a railway-track, the combination of the track-rails with a composite metal-and-wood tie comprising a metal tie member extending between the rails and provided with enlarged bases at each end thereof, having wedging or flaring sockets to receive wood block members and transverse flanges or shoulders for the ends of the wood block members to abut against, diagonally-arranged wood blocks fitting in said sockets, and rail-seat or cap members having sockets on their under faces fitting the interposed wood blocks, substantially as specified.

2. In a railway-track, the combination of the track-rails with a composite metal-and-wood tie comprising a metal tie member extending between the rails and provided with enlarged bases at each end thereof, having wedging or flaring sockets to receive wood block members and transverse flanges or shoulders for the ends of the wood block members to abut against, diagonally-arranged wood blocks fitting in said sockets, and rail-seat or cap members having sockets on their under faces fitting the interposed wood blocks, said rail-seat or cap members having integral locking-lips engaging the flanges of the rails, substantially as specified.

3. In a railway-track, the combination of the track-rails with a composite metal-and-wood tie comprising a metal tie member extending between the rails and provided with enlarged bases at each end thereof, having wedging or flaring sockets to receive wood block members and transverse flanges or shoulders for the ends of the wood block members to abut against, diagonally-arranged wood blocks fitting in said sockets, and rail-seat or cap members having sockets on their under faces fitting the interposed wood blocks, said rail-seat or cap members having integral locking-lips engaging the flanges of the rails, said locking-lips being diagonally arranged in respect to each other at the opposite edges of the rail-seat or cap member with an open space between them to receive the flanges of the rail when the cap member is turned at an angle to the rail, substantially as specified.

4. A composite metal-and-wood railway tie comprising a metallic tie member provided with bases at each end having wedging or flaring sockets to receive wood blocks, rail-seat or cap members having wedging or flaring sockets to receive wood blocks, and wood blocks interposed between and separating said metal tie member and said rail-seat or cap members, substantially as specified.

5. A composite metal-and-wood railway-tie comprising a metallic tie member provided with bases at each end having wedging or flaring sockets to receive wood blocks, rail-seat or cap members having wedging or flaring sockets to receive wood blocks, and wood blocks interposed between and separating said metal tie member and said rail-seat or cap members, said metal tie member being provided with transversely-extending shoulders or flanges to form end abutments for the wood blocks, substantially as specified.

6. A composite metal-and-wood railway-tie comprising a metallic tie member provided with bases at each end having wedging or flaring sockets to receive wood blocks, rail-seat or cap members having wedging or flaring sockets to receive wood blocks, and wood blocks interposed between and separating said metal tie member and said rail-seat or cap members, said metal tie member being provided with transversely-extending shoulders or flanges to form end abutments for the wood blocks, said rail-seat or cap members abutting at their ends against said transverse shoulders or flanges on the metal tie member, substantially as specified.

7. A composite metal-and-wood railway-tie comprising a metallic tie member provided with bases at each end having wedging or flaring sockets to receive wood blocks, rail-seat or cap members having wedging or flaring sockets to receive wood blocks, and wood blocks interposed between and separating said metal tie member and said rail-seat or cap members, said metal tie member

being provided with transversely-extending shoulders or flanges to form end abutments for the wood blocks, said rail-seat or cap members abutting at their ends against said transverse shoulders or flanges on the metal tie member, said rail-seat or cap members having at their ends insulating-blocks interposed between the same and said transverse flanges or shoulders on the metal tie member, substantially as specified.

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Witnesses:
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