

H. W. AVERY.  
METALLIC RAILWAY TIE.  
APPLICATION FILED AUG. 22, 1904.

Fig. 1.

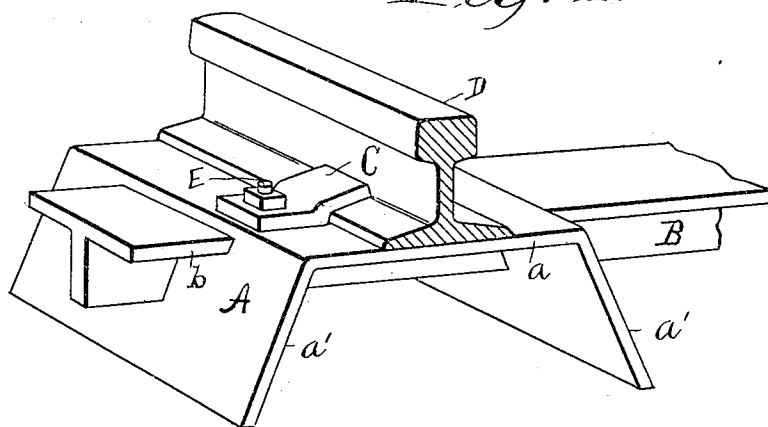
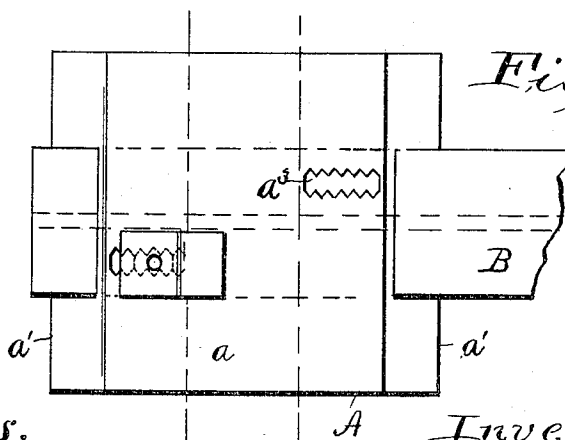


Fig. 2.



Fig. 3.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## METALLIC RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 784,530, dated March 14, 1905.

Application filed August 22, 1904. Serial No. 221,610.

*To all whom it may concern:*

Be it known that I, HENRY W. AVERY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Metallic Railway-Ties, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to metallic railway-ties, and especially to ties which are generically like those shown in several of my pending applications, for example, No. 187,889.

The object is to provide an adjustable knock-down tie—that is to say, a tie which may be easily adjusted for use with rails of different sizes and on roads of different gages and one whose constituent parts may be easily separated for shipment and easily assembled at the place of use.

The invention consists, generically, of a railway-tie comprising two chairs, each having a flat seat and depending side members, a tie-bar threaded through the side members of said chairs, hook-plates upon said seats for engagement with the rail-flanges, said members being relatively adjustable, and means whereby the members may be immovably held in any desired relative positions.

It also consists of a tie having the characteristics above referred to, wherein the said members interlock with each other when they are properly positioned.

It also consists in certain details of construction as shown in the drawings, and hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of one of the chairs, part of the tie-bar, and other parts associated with said chair. Fig. 2 is a sectional view of a complete tie, a portion of the tie-bar being broken out. Fig. 3 is a plan view of one of the chairs with the tie-bar and outer hook-plate in place. Fig. 4 is a bottom plan of one of the hook-plates.

Referring to the parts by letters, A A represent the chairs, each of which has a flat seat *a* and two depending and diverging side members *a'*.

B represents the tie-bar, which may be of

any suitable shape in cross-section, the tie-bar shown being a T-bar placed in an erect position. This bar passes through the holes *a''* in the side members of the chairs, and the broad flat top of said bar is in contact with the under surface of the chair-seat. These bars are fitted more or less nicely into the holes *a''* through which they pass.

The hook-plates are indicated by C, and they are secured upon the chair-seats on opposite sides of the rails D, overhanging and engaging with the flanges of said rails.

Different roads use rails of different sizes, and sometimes the same road uses different sizes of rails on different parts of its line. It is desirable, therefore, that means be provided whereby the same ties may be used with any kind of a rail. When a change is made in the size of rails, it involves a slight change in the relative position of the chairs and of the rail-holding devices on said chairs. It is therefore desirable that such ties be adaptable to the different conditions referred to. These desirable characteristics are to be found in the tie shown—that is to say, the chairs are movable along the tie-bar, and hook-plates are movable upon the chair-seats, and means are provided for firmly and immovably fastening the parts together in any desired relative position, said means being such as produce an interlocking of said parts. The means shown consist in forming through the chair-seats laterally-extended slots *a'''*, whose edges are serrated, in forming in the top member *b* of the tie-bar similarly-serrated slots *b'*, which are directly beneath the slots *a'''*, and in providing the hook-plates with downwardly-extended lugs *c'*, which are shorter than the slots, but which have serrated edges and which when the lugs pass through the slots referred to in the chair and bar interlock with the serrated edges thereof.

The ties can obviously be shipped before their parts are assembled. At the place of use the tie-bar may be readily threaded through the holes in the chairs, and said chairs may be placed in the desired relative position upon the said bar. Then the hook-plates are placed at the desired point upon the chair-seats and

the lugs *c'* passed down through the slots in the chair-seats and bar *b'*. Thereby said three members are so interlocked together that relative movement lengthwise of the tie-bar is impossible under any practical conditions. The parts may be held in said position by some suitable means—as, for example, bolts E, which pass through the slots in the tie-bar and chair-seats and through suitable holes in the hook-plates. Plates F may be interposed between the heads of the bolts and the under face of the tie-bar plate, spanning the slot therein. Of course if the heads of the bolts were large enough to span said slots these plates then would be unnecessary. The described action would be possible, but in a less satisfactory degree, if only one chair were adjustable upon the tie-bar or if only one hook-plate were adjustable upon each chair. The specific embodiment of the invention which is illustrated in the drawings and above explained is the best embodiment of the invention which has occurred to me; but obviously many changes in specific details are possible without affecting the relative adjustability of the members or their interlocking action when in readiness for use.

The claims are intended to be as broad as the invention, and it is not desired that they shall be limited to the specific details shown to any greater extent than the claims plainly expressed.

Having described my invention, I claim—

1. In a metallic tie-bar, the combination of

two chairs, each having a flat seat and depending side members, tie-bar threaded through the side members of said chairs, hook-plates upon the chair-seats, and means for rigidly fastening said members together in various relative positions.

2. In a metallic tie-bar, the combination of two chairs, each having a flat seat and depending sides, tie-bar threaded through the said sides of said chairs, and hook-plates upon the chair-seats, said three members being provided with means which interlock the one with the other when said members are in proper relative positions, and means for maintaining the interlocking relationship.

3. In a metallic tie, the combination of two chairs, having flat seats and depending side members, and one of said chairs having a traverse serrated slot, with a tie-bar threaded through the side members of said chair and having a top plate in which are correspondingly-serrated openings, and hook-plates upon said chair-seats having downwardly-projected serrated lugs which enter the slots in said chair-seat and tie-bar and interlock therewith, and means for preserving this interlocking relation.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

HENRY W. AVERY.

Witnesses:

E. L. THURSTON,  
B. W. BROCKETT.