

H. W. AVERY.
METALLIC RAILWAY TIE.
APPLICATION FILED MAY 17, 1904.

Fig. 1.

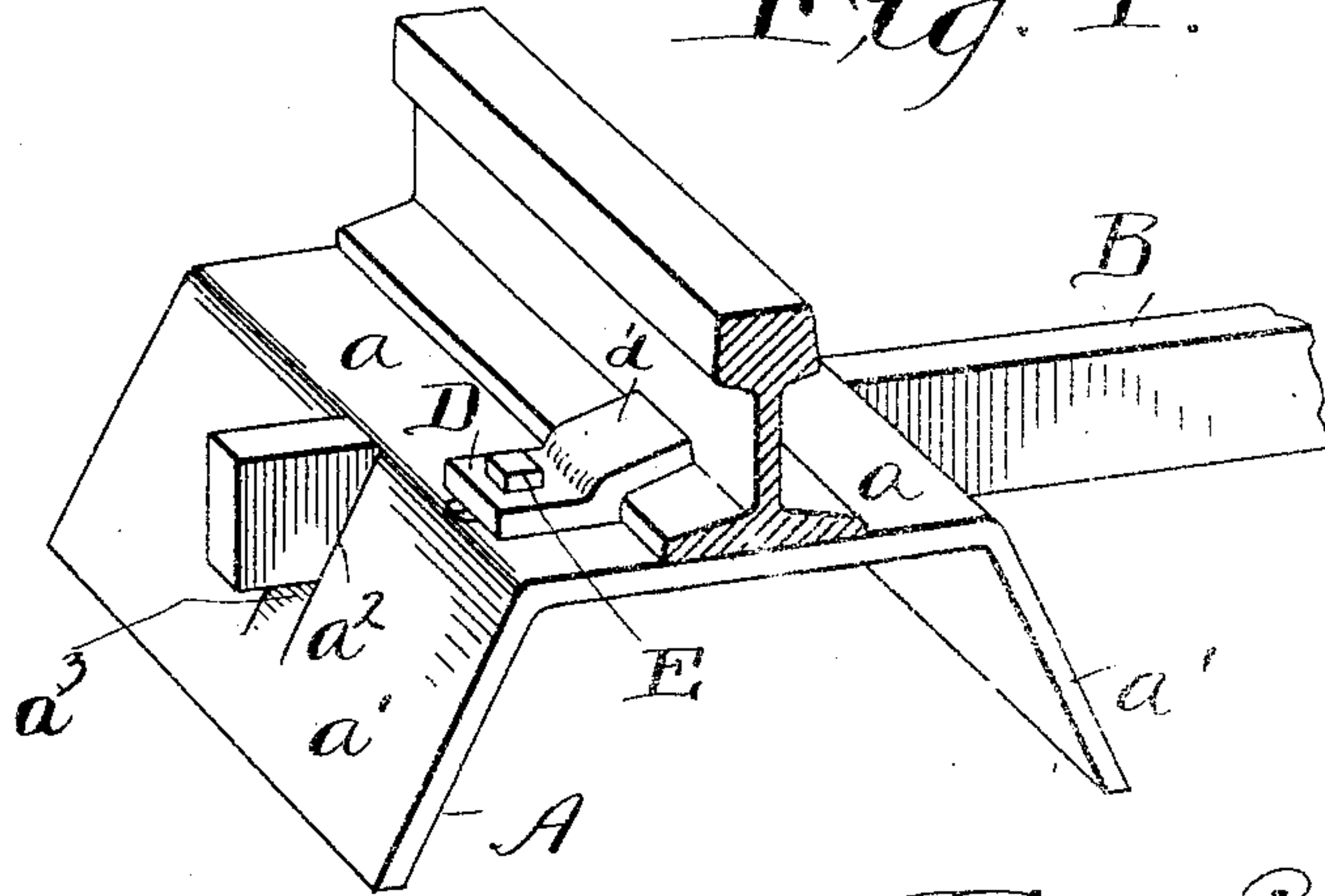


Fig. 2.

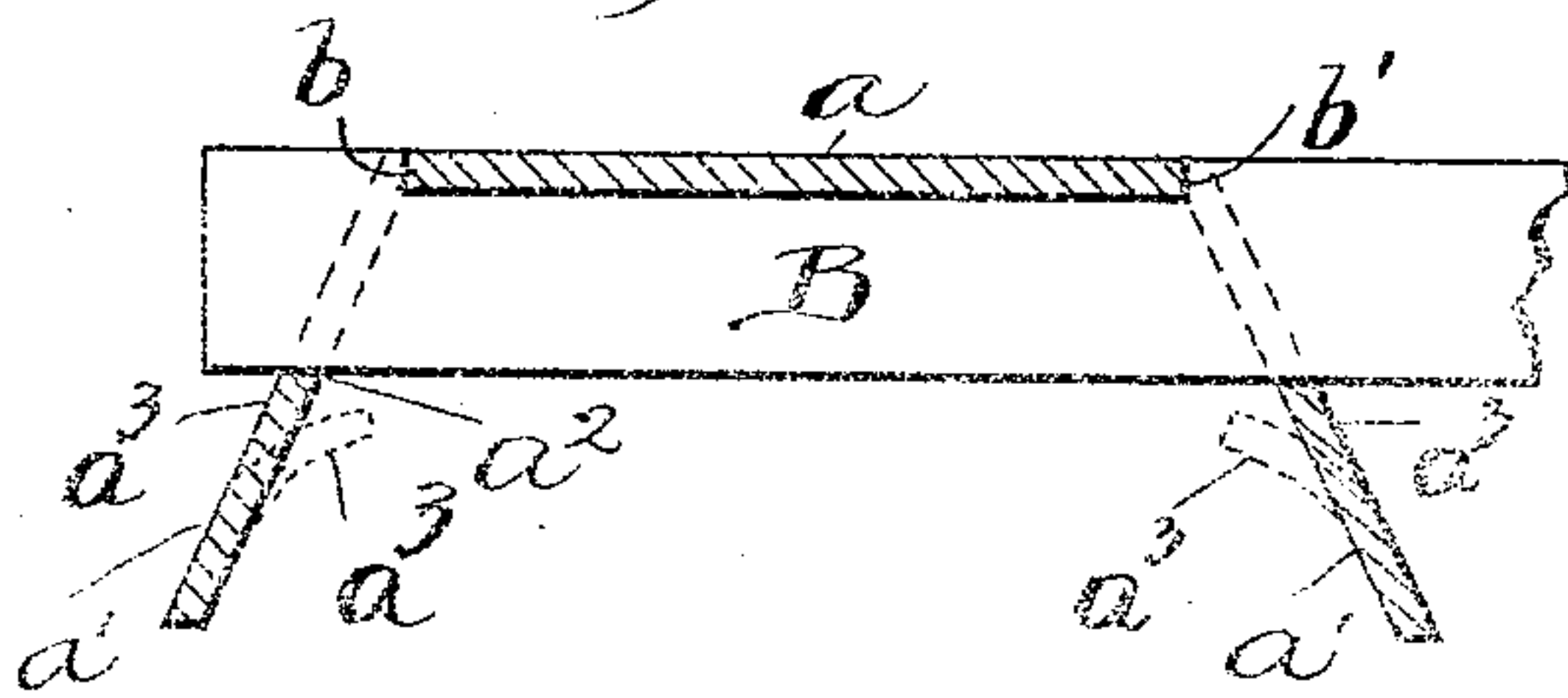


Fig. 3.

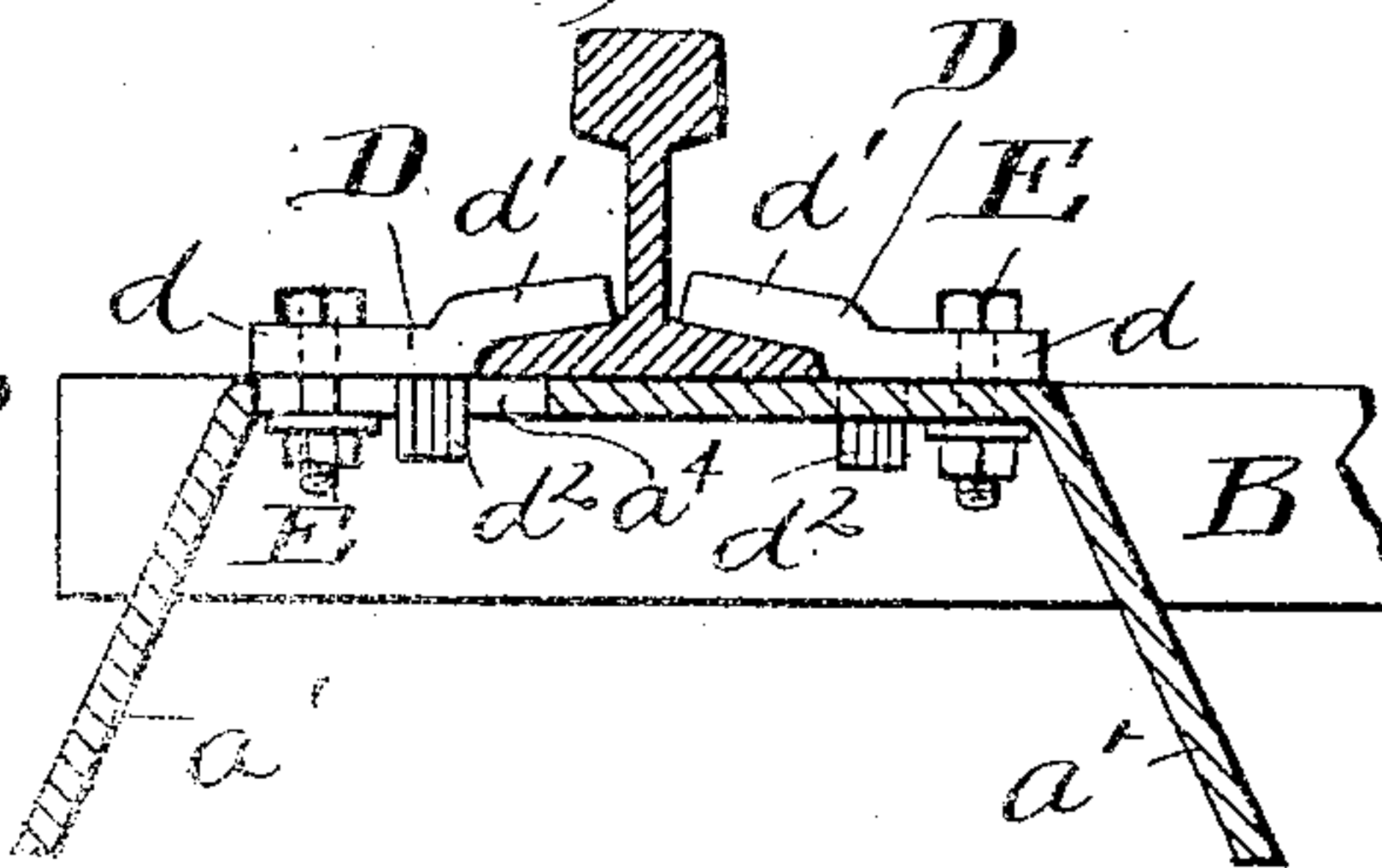


Fig. 5.

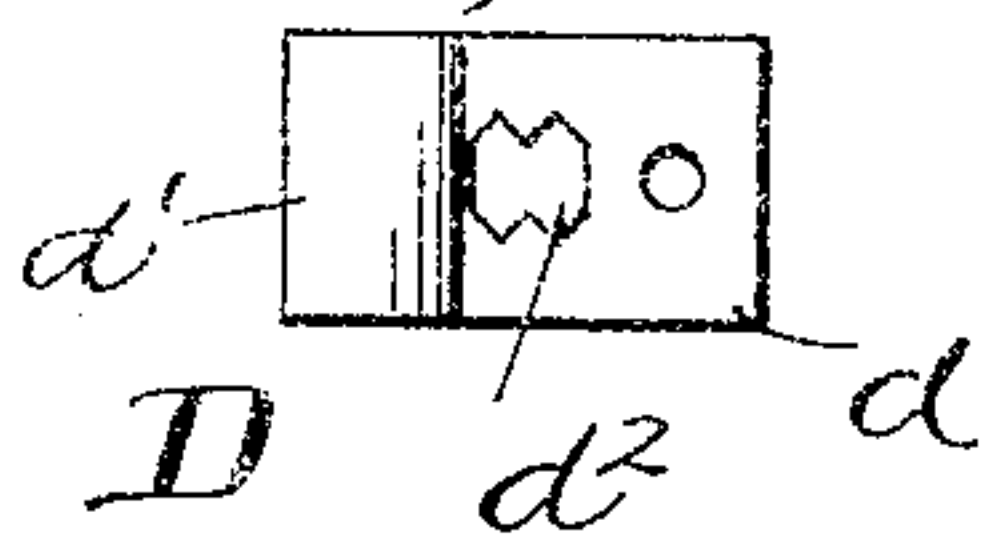
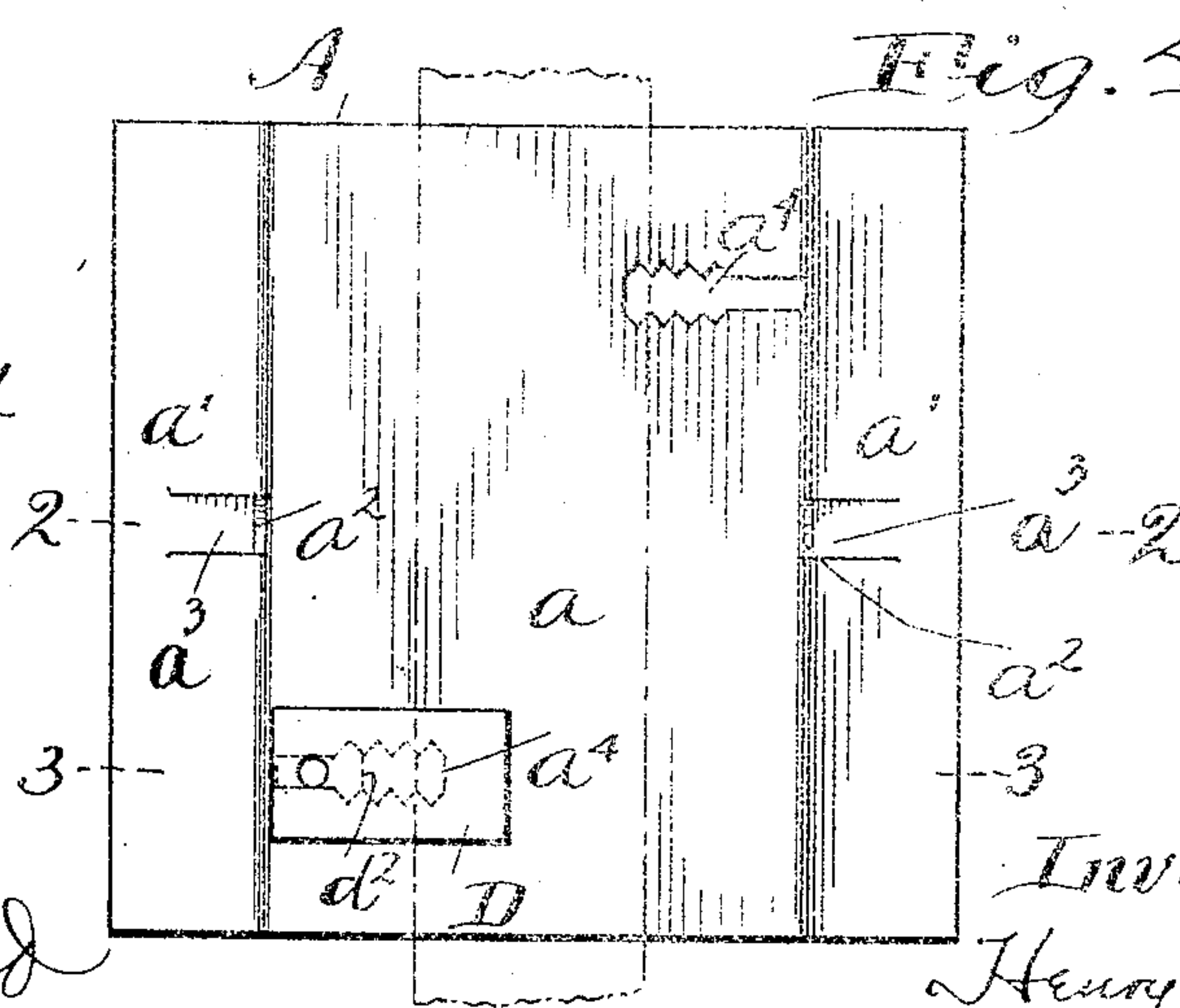


Fig. 4.



Witnesses.
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Inventor:
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UNITED STATES PATENT OFFICE.

HENRY W. AVERY, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO THE AVERY STAMPING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

METALLIC RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 779,756, dated January 10, 1905.

Application filed May 17, 1904. Serial No. 208,380.

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.

In many localities during the winter season railway road-beds alternately freeze and thaw, and as a result, sometimes of the freezing and sometimes of the thawing, and sometimes of both, railway-ties are pushed up or allowed to settle out of alinement. This renders the track uneven and sometimes unsafe. The ordinary temporary expedient employed while the road-bed remains frozen so that the ties cannot be leveled up easily is to draw the spikes and put shims under the rails and thereby level them. This invention was primarily designed for the purpose of permitting this same temporary expedient to be employed with that type of metallic railway-ties which is shown in several of my own prior patents and pending applications. The tie, however, embodies improvements which are not all dependent for their practical value on the adaptability of the tie to the described use, and as a matter of fact the ties embodying my said invention are adapted for use as a substitute for any other form of tie. It is very light for an efficient metallic railway-tie and is easily adapted for use with different sizes of rails.

In the drawings, Figure 1 is a perspective view of one of the chairs with a portion of the tie-bar. Figs. 2 and 3 are cross-sections of the chair on the correspondingly-numbered lines of Fig. 4, Fig. 3 showing the rail in place. Fig. 4 is a plan of the chair with one of the clamping members in place, and Fig. 5 is a bottom plan of the clamping member.

A tie embodying the invention consists, essentially, of two chairs A and a connecting tie-bar B. Each chair consists of a flat seat a of suitable size and two depending but diverging side members a' . Through these side members are alined holes a^2 , through

which the tie-bar passes. It will be noted, however, that these holes or slots do not extend across the seat. In fact, they do not of necessity extend into the seat, and as a matter of fact it is best that they should not. They could not extend entirely across the seat, because they would not then furnish the necessary shoulders for engagement with shoulders on the tie-bar.

The tie-bar B may have any cross-sectional configuration. It passes through and is substantially fitted to the holes a^2 in the side members of the chair. It has, however, at each end and on its top edge two substantially vertical shoulders $b b'$, formed by cutting away the intervening top edge of said bar. When the tie-bar has been passed through the holes in the sides of the chair, a portion of the chair lies between these shoulders and engages with them, and this prevents the endwise movement of the chair along the tie-bar and maintains a constant distance between the two chairs. It is quite evident that if the holes in the sides of the chairs were only as deep as the cut-away portions of the tie-bar it would be impossible to get the bar into the position shown, because the shouldered part of the tie-bar is wider than the cut-away part. Therefore the holes in the sides of the chair are made at least as deep as the widest part of the tie-bar which passes through them. Then after the tie-bar has been passed through and moved into the position shown, so that its shoulders $b b'$ engage with the sides of the seat, the lower parts of these holes are closed up, thus preventing the relative downward movement of said tie-bar. Preferably the metal cut out to enlarge these holes as specified remains attached to the sides of the chair in the form of tongues A^3 , which are bent downward far enough to permit the tie-bar to pass. Then these tongues are bent back again as near as possible to their original position, at which time their upper ends engage with the lower edge of the tie-bar and hold it up, as stated. It is believed that this is a better construction than to cut off these tongues and to close the lower parts of the holes after the

tie-bar has been passed through by pieces of metal riveted to the sides of the chair, because it is cheaper, and there is no considerable strain when the ties are in use, tending to bend these
 5 tongues downward, and so to permit the tie-bar to move down and disengage its shoulders from the chair.

With the construction above described the chair-seat having in it no slot for the tie-bar
 10 to pass through remains strong, and since said seat rests directly upon the cut-away top edge of the tie-bar it receives reinforcing support therefrom.

There remains to be described the means
 15 for securing the rails upon the chair-seats. These securing means consist of hook-shaped members D, whose feet d rest upon the chair-seats on opposite sides of the rail, so that their hooks d' extend over and bear upon the rail-
 20 feet. These hook members are secured to said seats by bolts E. In order, however, to supplement the bolts and to provide at the same time means which permit these hook members to be adjusted sidewise, so as to be capable of
 25 engaging with rail-feet of different width, each hook member is provided on its under side with a boss d'' , and said bosses project through holes a^1 in the seat. These bosses may be of any suitable form in cross-section—as, for
 30 example, circular or long and narrow with fluted sides. The holes in the chair-seat are made longer than these bosses, but are enlarged periodically, so as to receive said boss, but to prevent its movement therein, because
 35 the lug and slot interlock. The bolts may pass through these same slots in the seat and through holes in the feet of the hook members. To adjust the position of these hook members upon the chair-seat, the bolts are loosened
 40 and the hook members pulled up and then replaced in another position on the seat, with their bosses passing through other parts of said slots. It is obvious that shims may be
 45 placed on the chair-seats beneath the rails and beneath these hook members, it only being necessary to use longer bolts when such shims are used.

Having described my invention, I claim—

1. A metallic railway-tie comprising two
 50 chairs, each consisting of a flat seat and two diverging side members through which are holes for the passage of the tie-bar, said holes being normally as deep as the highest part of the tie-bar which is passed through them,
 55 combined with a tie-bar having on its top edge, at each end, two upwardly-projecting and oppositely-faced shoulders which engage with the associated chairs, and means for closing the lower parts of said holes and thereby
 60 holding the tie-bar up in said chair in operative position.

2. A metallic railway-tie comprising two chairs, each consisting of a flat seat and two diverging side members through which are

holes extending from the level of the under
 65 surface of said seat downward, combined with a tie-bar having on its top edge at each end two upwardly-projecting shoulders at opposite ends of a depressed part of the edge of
 70 said bar, said tie-bar being passed through the holes in the sides of said chairs, and means for holding the tie-bar up in a position where its shoulders engage with the edges of the chair-seats, and the depressed parts of the upper
 75 edge of said tie-bar, between said shoulders, engage with the under sides of said seats.

3. A metallic railway-tie, comprising two chairs, each consisting of a flat seat and two diverging side members through which are
 80 holes for the passage of the tie-bar, there being at the lower end of each hole an integral tongue capable of being bent out to thereby increase the depth of said hole, combined with a tie-bar having on its top edge, at each end,
 85 two upwardly-projecting and oppositely-faced shoulders which engage with the associated chairs, said tongues being then bent up against the lower edge of said tie-bar thereby holding it in a position relative to the seat in
 90 which said engagement is maintained.

4. A metallic railway-tie, comprising two chairs, each consisting of a flat seat and two diverging side members through which are
 95 holes extending from the level of the under surface of said seat downward, combined with a tie-bar having on its top edge, at each end, two upwardly-projecting shoulders at opposite ends of a depressed part of said edge,
 100 said tie-bar being passed through the holes in the sides of said chairs, and means for holding the tie-bar up in a position where its shoulders engage with the edges of the chair-seat, and the depressed parts of the upper edge of
 105 said tie-bar, between said shoulders, engage with the under sides of said seats, and hooked members bolted to the top of said chair-seats.

5. A metallic railway-tie, comprising two chairs, each consisting of a flat seat and two diverging side members through which are
 110 holes for the passage of the tie-bar, combined with a tie-bar having on its top edge, at each end, two upwardly-projecting and oppositely-faced shoulders, and means for holding the tie-bar up in a position where its shoulders
 115 engage with the chairs, and hooked members bolted to the top of said chair-seat, said hooked members having on their under sides downwardly-projecting bosses, and the chair-seats having holes through them through
 120 which said bosses pass.

6. A metallic railway-tie, comprising two chairs, each consisting of a flat seat and two diverging side members through which are
 125 holes for the passage of the tie-bar, combined with a tie-bar having on its top edge, at each end, two upwardly-projecting and oppositely-faced shoulders and means for holding the tie-bar up in a position where its shoulders

engage with the chair-seats, and hooked members bolted to the top of said chair-seat, said hooked members having on their under side downwardly-projecting bosses, and said chair-seats having through them slot-like holes having periodical enlargements to which said bosses are fitted.

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

HENRY W. AVERY.

Witnesses:

E. L. THURSTON,
ALBERT H. BATES.