C. B. FAIRWEATHER.

RAILWAY TIE.

APPLICATION FILED NOV. 20, 1911.

1,072,932.

Patented Sept. 9, 1913.

2 SHEETS—SHEET 1.

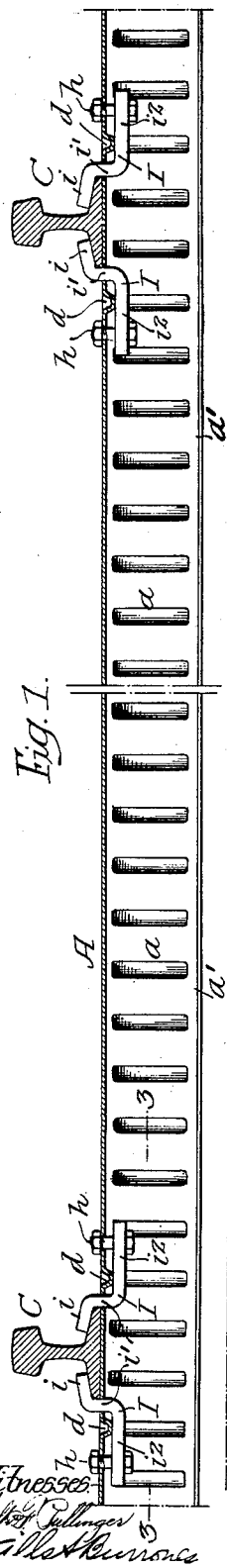


Fig. 1.

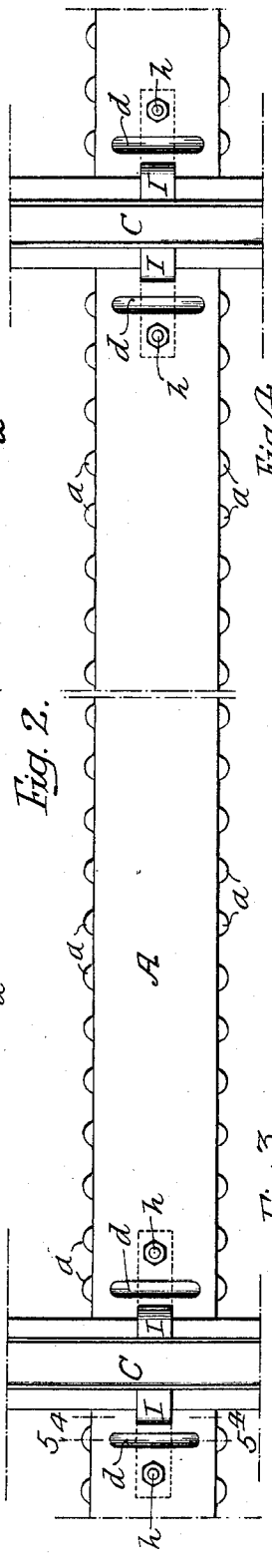


Fig. 2.

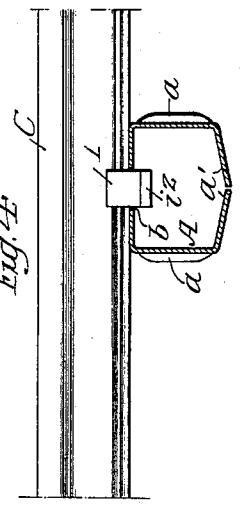


Fig. 4.

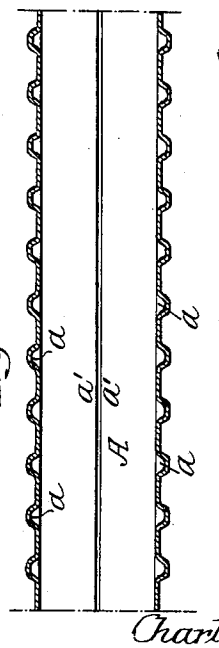


Fig. 5.

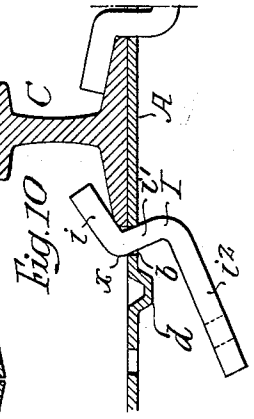


Fig. 10.

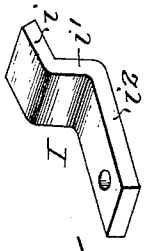


Fig. 9.

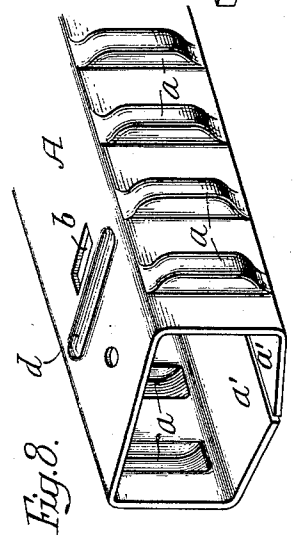


Fig. 8.

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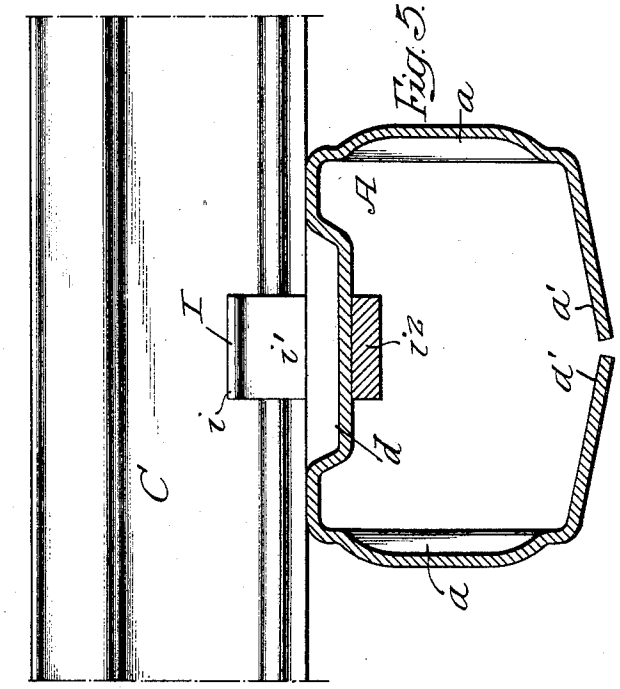
RAILWAY TIE.

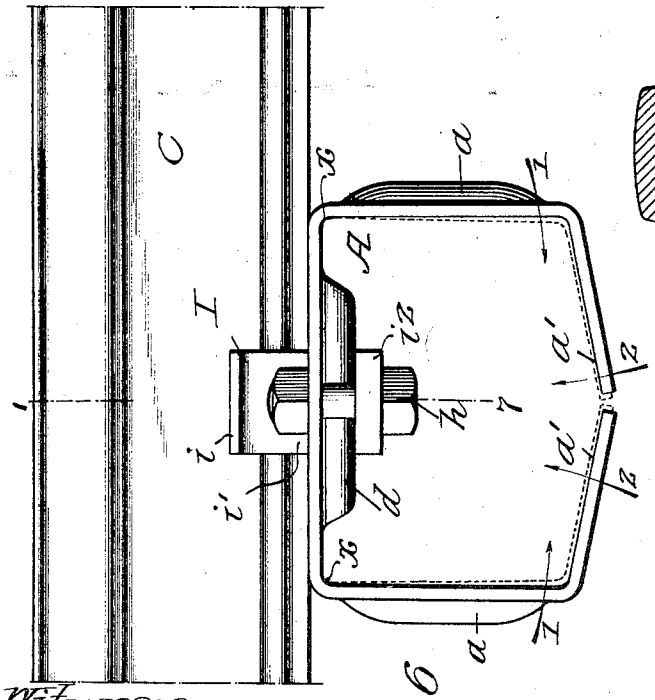
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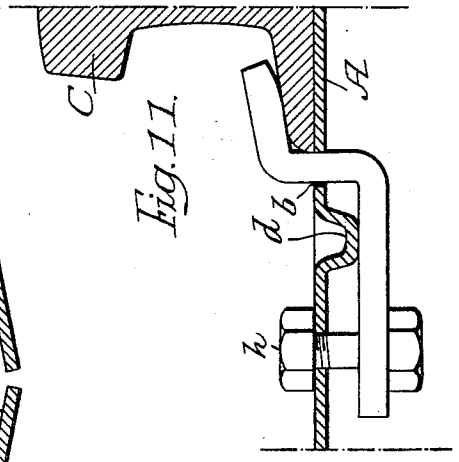
1,072,932.

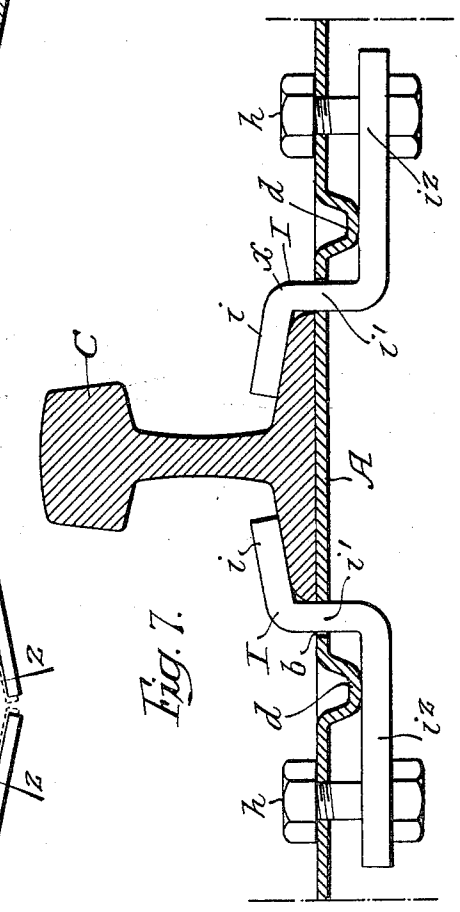
Patented Sept. 9, 1913.

2 SHEETS—SHEET 2.









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Inventor.—
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UNITED STATES PATENT OFFICE.

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RAILWAY-TIE.

1,072,932. Specification of Letters Patent. Patented Sept. 9, 1913.

Application filed November 20, 1911. Serial No. 661,284.

To all whom it may concern:

Be it known that I, CHARLES B. FAIRWEATHER, a citizen of the United States, residing in Coatesville, county of Chester, State of Pennsylvania, have invented certain Improvements in Railway-Ties, of which the following is a specification.

The object of my invention is to construct a railway tie from sheet metal in such a manner that it will properly support the rails and will yield under a given load.

In the accompanying drawings: Figure 1, is a longitudinal sectional view of my improved tie with rails secured thereto; Fig. 2, is a plan view; Fig. 3, is a sectional plan view on the line 3—3, Fig. 1; Fig. 4, is a transverse sectional view on the line 4—4, Fig. 2; Fig. 5, is an enlarged transverse sectional view on the line 5—5, Fig. 2; Fig. 6, is an end view; Fig. 7, is a sectional view on the line 7—7, Fig. 6; Fig. 8, is a perspective view of one end of the tie; Fig. 9, is a perspective view of the clip used to secure the rail to the tie; Fig. 10, is a diagrammatic view illustrating the clip hung loose on the tie and holding the rail in alinement; and Fig. 11, is a view illustrating a modified form of the clip.

A is the tie made from a flat sheet of steel of any thickness desired. By shaping the tie in the manner which I will proceed to describe comparatively light material may be used.

The tie is flat on top and slightly beveled at the bottom toward the middle from each side, as shown in Fig. 6, and has a series of vertical ribs *a* at each side spaced a given distance apart and stopping short of the top and bottom of the tie so that the plate can be readily bent into shape, as it will be understood that I press the plate to form the ribs prior to bending it to form the tie. Thus the plate can be readily bent and the corners properly formed. Furthermore by shaping the tie in this manner, when the tie is supporting a load such as a train, the sides of the tie can move inward, as indicated by the arrows 1, Fig. 6, the sides swaying from the points *x* at the upper edge as shown in said figure, after which the bottom plates *a'*, *a'* will yield in the direction of the arrows 2, thus the tie forms the same cushion for the track as the ordinary wooden tie.

I so proportion the side ribs *a* of the tie that two of these ribs will be directly under the rail, as illustrated in Fig. 1, this preventing the crushing of the tie due to the weight of trains, and consequently the tie can be made from comparatively thin steel.

Quadrangular holes *b* are punched in the tie in line with each side of the base flange of the rail C, and I form a depression *d* in the upper surface of the tie close to the hole *b*, which not only strengthens the tie at this point but acts as a fulcrum for the clip I. This clip is shaped as clearly shown in Figs. 7 and 9, and has a portion *i* which extends over the base flange of the rail, as shown in Fig. 7, and has a vertical portion *i'* which extends through the hole *b* in the tie and which forms a continuation of the body portion i^2 which rests against the fulcrum formed by the depression *d* in the tie when secured to the tie by the bolt *h*.

When the nut on the bolt is screwed tight the clip is drawn down onto the base flange of the rail, holding the rail rigidly to the tie. If, for any reason, the nut should become detached from the bolt and the clip should drop, its shape would prevent it from dropping through the hole as the back *x* of the upper portion, Fig. 10, would bind against the rear wall of the hole and hold the rail against lateral displacement. In order to locate the clip in position it must be inserted from above, as it cannot pass entirely through the hole.

While I make the clips conform to the shape of the base flange of the rail, they may be slightly curved on the underside, as shown in Fig. 11, so as to bear upon the base flanges at one point, and this shape of the clip will also prevent it passing through the opening in the tie should its bolt become detached.

No claim is made to the form of clip fastening shown and described; the same forming the subject-matter of a companion application.

I claim:—

1. A railroad tie formed of a sheet metal plate bent substantially into quadrangular form in cross section and having the free edges of the plate disposed at the under side of the tie and spaced apart, said free edges being unconfined and free to move vertically and laterally, said tie having a series of vertical ribs in each side wall serving to stiffen the same, said ribs stopping short of the top and bottom of the tie, said

top of the tie being a substantially continuous web except for apertures receiving rail holding means, and means carried by the top of the tie for holding rails in place.

2. A railroad tie formed of a sheet metal plate bent substantially into quadrangular form in cross section and having the free edges of the plate disposed at the under side of the tie, the under portions of the tie being downwardly inclined and spaced apart, said free edged portions being unconfined and free to move vertically and laterally, said tie having a series of outstanding vertical ribs in each side wall serving to stiffen the same, said ribs stopping short of the top and bottom of the tie, said top of the tie being a substantially continuous web except for apertures receiving the rail holding means, and anchoring means carried by the top of the tie and disposed on both sides of the same for holding rails in place, said top having depressed portions forming fulcrums on the under side for the anchoring means.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

CHARLES B. FAIRWEATHER.

Witnesses:

Jos. H. Klein,

Wm. A. Barr.