No. 847,745. PATENTED MAR. 19, 1907.

A. DURAND.

METALLIC RAILWAY TIE.

APPLICATION FILED DEC. 24, 1906.

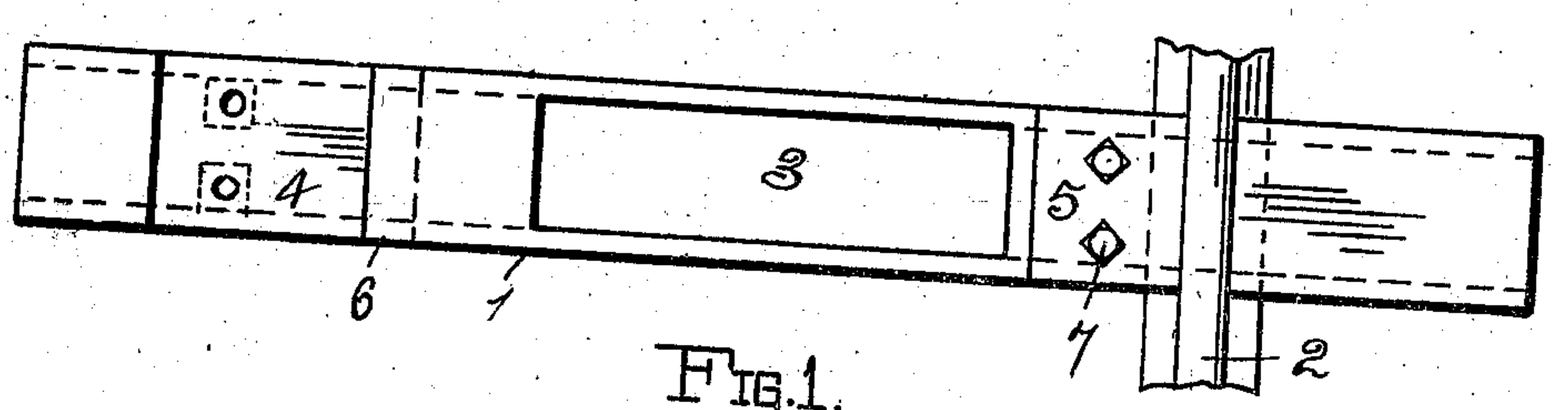

FIG. 1.

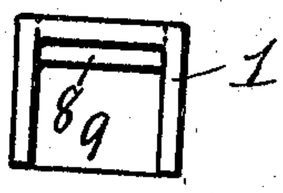

FIG. 2.

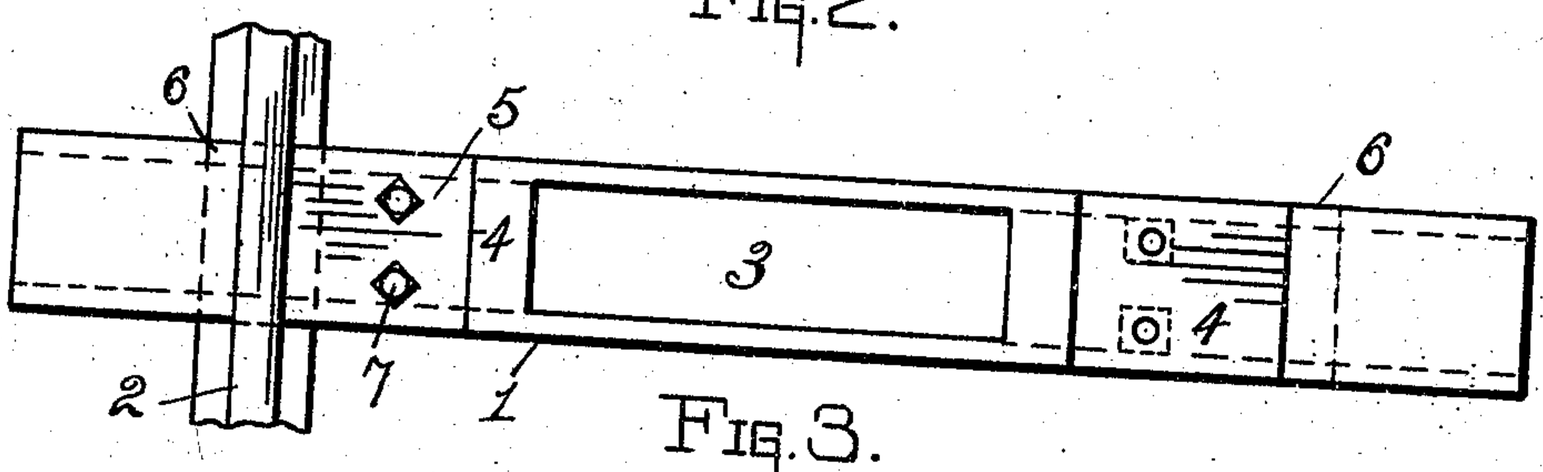

FIG. 3.

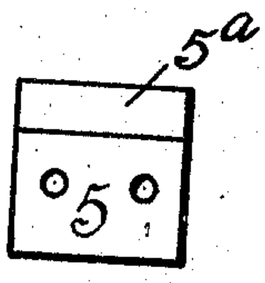

FIG. 4.

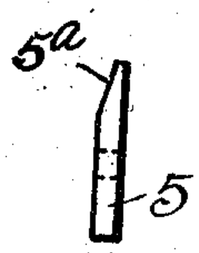

FIG. 5.

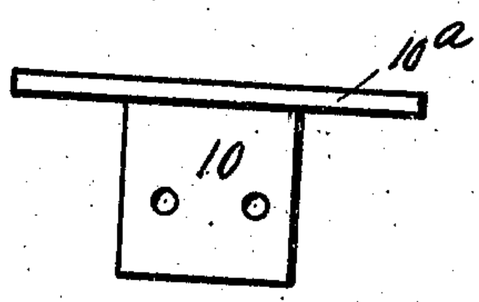

FIG. 6.

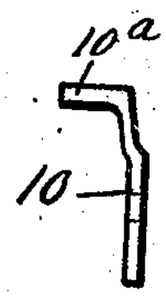

FIG. 7.

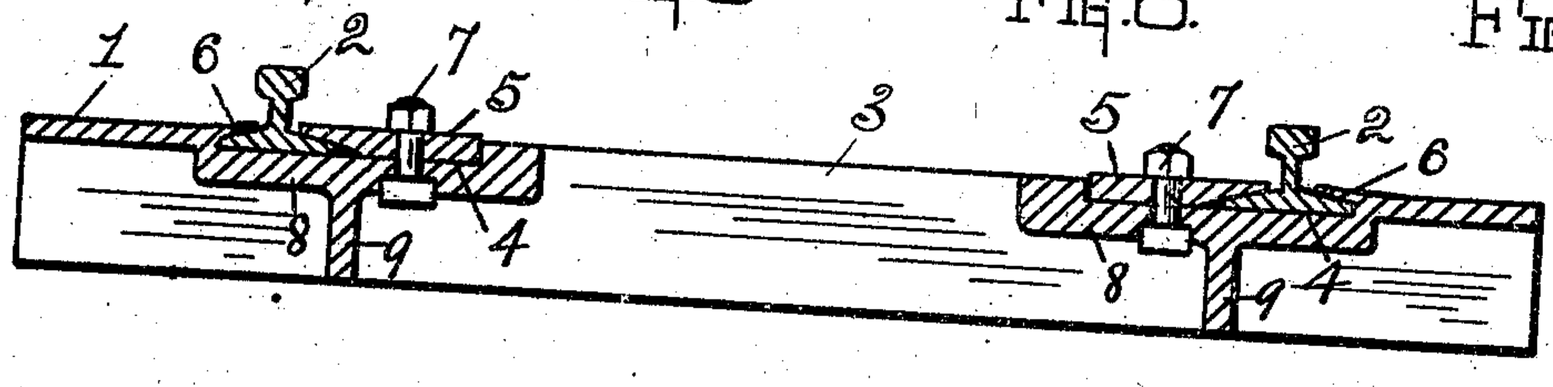

FIG. 8.

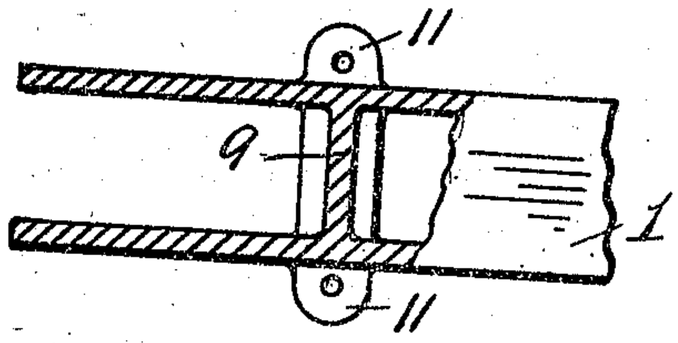

FIG. 9.

WITNESSES.

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METALLIC RAILWAY-TIE.

No. 847,745. Specification of Letters Patent. Patented March 19, 1907.

Application filed December 24, 1906. Serial No. 349,284.

To all whom it may concern:

Be it known that I, ALEXANDER DURAND, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Metallic Railway-Tie; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to railroad appliances, and particularly to metallic ties, and has for its objects the provision of a tie of this nature which is light, simple, and strong in its construction, economical of manufacture, and capable of being easily and quickly laid, and which is provided with simple and strong means for securing the rails thereto.

The invention is fully described in the following specification and illustrated in the accompanying drawings, in which—

Figure 1 is a top view of a tie embodying my invention with one rail and its clamping-plate attached thereto and in which the tie is designed for the attachment of a clamping-plate thereto at the outer side of one rail and the inner side of the other rail. Fig. 2 is an end view of the tie. Fig. 3 is a top view of a tie to which both clamping-plates are intended to be attached at the inner sides of the rails. Figs. 4 and 5 are different views of a rail-clamping plate. Figs. 6 and 7 are different views of a combined clamping and fish plate. Fig. 8 is a vertical longitudinal section of Fig. 3 with both rails clamped thereto; and Fig. 9 is a partial section of one end of a modified construction of the tie.

Referring to the drawings, 1 designates the tie, and 2 the supported rails of a railroad-track. The tie 1 is preferably made inverted-U shape in cross-section and has its top or loop portion provided between the points of attachment of the rails with an opening 3. The surface of the tie, at a proper distance each side of the opening 3 to suit the gage of the track, is transversely recessed or cut away to form countersunk surfaces 4 4, in which the bases of the rails 2 and clamps 5 seat, thus forming rail-chairs integral with the tie. One of the side ledges or walls of each groove 4, according to the side of a rail with which the clamp 5 is to coact, is grooved, as at 6, to receive the contiguous base-flange of a rail, as shown. The clamps 5, which seat within the recesses 4 4 at the opposite sides of the rails to the grooves 6 in the tie, are secured therein by one or more bolts 7 or other suitable retaining means and have their rail-coacting edges beveled or shaped, as at 5^a, to snugly fit over the contiguous base-flange of the rail, whereby to securely hold the rail to the tie. It will be noted that the edge of each clamp 5 more remote from its rail abuts against the contiguous side wall of the recess 4 of the tie in which it is secured, so as to materially strengthen the clamp relative to the rail and prevent a spreading thereof from the rail even should the retaining-bolts become loosened. The heads of the bolts 7 are preferably countersunk in the under surface of the tie-top in order to prevent a turning thereof when the nuts are being threaded thereto. The portions of a tie in which the recesses 4 are provided are made heavier, as at 8, for such purpose, and at these points the tie is further strengthened by webs 9 9, which extend from the surface to the base of the tie, as shown in Fig. 8. Should the joint of two rails fall over a tie, a clamp 10, such as shown in Figs. 6 and 7, is employed. This clamp is formed with a flange 10^a, adapted to be bolted to the rail-web, and combines both the functions of the clamp 5 and that of a fish-plate.

In Fig. 9 is illustrated a modified construction of the tie which is designed for use on bridge and culvert constructions employing supporting-girders of wood, steel, or concrete. For this purpose the tie is formed at its base with lateral ears 11, perforated to receive bolts, spikes, or other means for securing the ties to the girders.

In the manufacture of my tie two designs are preferably made—namely, one for use in the construction of new roadways and one to be used for renewal purposes. With the former it is not important if the rail-clamps are disposed on the outer or inner sides of the rails, as shown in Figs. 3 and 8; but in the latter it is quite important that the clamps engage the same sides of the two rails, as is illustrated by the construction shown in Fig. 1, so that when a renewal-tie has been placed under the two rails of a track the inner base-flange of one rail coacts with one groove 6 therein and the outer base-flange of the other rail coacts with the other groove 6 therein, otherwise it would be necessary to

subject the rails to a relative contracting or a relative expanding force to place their base-flanges in engagement with the grooves 6 in the tie.

The inverted-U shape and open-top construction of the tie enables it after being positioned on the road-bed to be filled with sand, gravel, concrete, or other suitable filling agent, which serves both to anchor the tie and to prevent lateral or longitudinal movements thereof. The filling agent is deposited in the opening 3 and thoroughly tamped within the tie between the two webs 9 therein. This agent is also tamped in the end cavities of the tie.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A metallic tie inverted-U shape in cross-section having its top provided with an opening 3 and transverse recesses 4, 4 each having one wall grooved, and its interior divided into sections by webs 9, 9 which are disposed beneath the recessed portions, and clamps secured in the recesses and coöperating with the grooves to retain a rail therein.

2. A metallic tie inverted-U shape in cross-section having its top provided with an opening and formed with recesses of greater width than a rail-base, said recesses each having like walls thereof grooved to engage like flanges of different rails, and a clamp secured in each recess and coöperating with the groove to retain a rail in its seat in the recess.

3. A metallic tie inverted-U shape in cross-section having a portion of its top open and provided at the ends of the opening with rail-receiving recesses, said recesses having like walls grooved to receive rail-flanges, flat clamps secured in the recesses with the rails and coöperating with the grooves to retain the rails fixed to the tie, and a strengthening-web formed beneath each recess and dividing the base of the tie into a plurality of compartments.

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

ALEXANDER DURAND.

Witnesses:

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Hazel B. Hiett.