

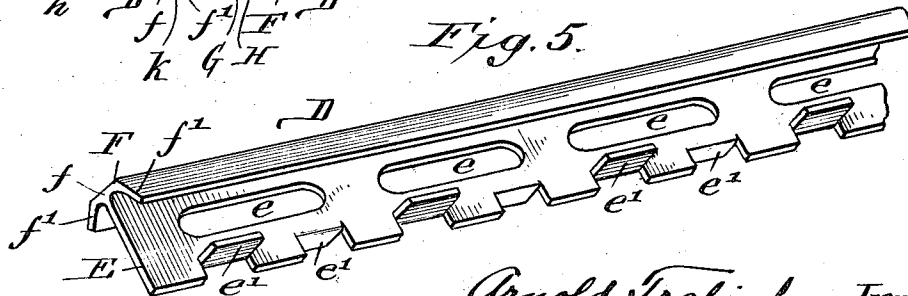
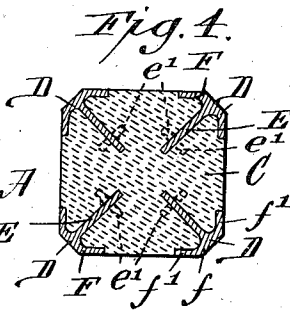
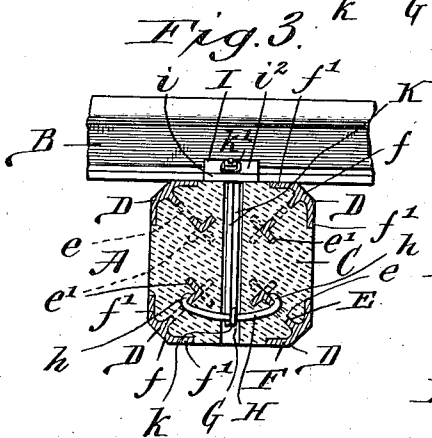
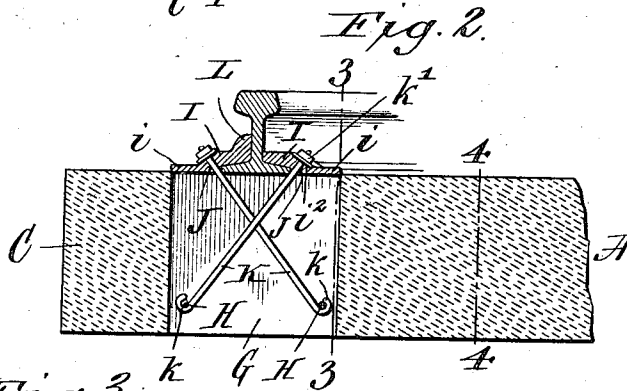
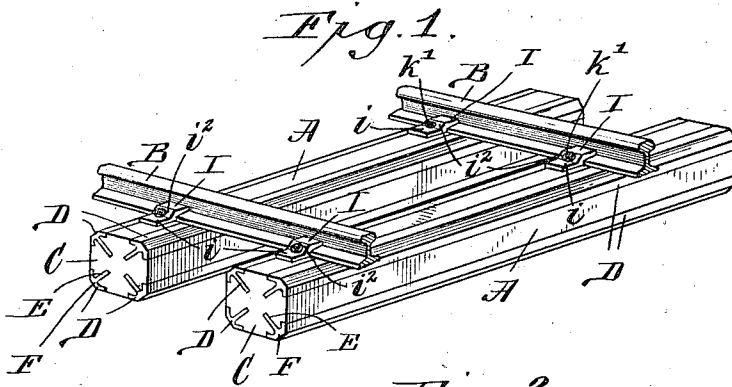
A. TRALIOT.

RAILWAY TIE.

APPLICATION FILED AUG. 24, 1909.

952,693.

Patented Mar. 22, 1910.



Christ Feinle, Jr.
and C. Pluckhahn.

Witnesses.

Arnold Tralioh Inventor.
By Emil Neuhart
Attorney.

UNITED STATES PATENT OFFICE.

ARNOLD TRALIOT, OF LEXINGTON, KENTUCKY.

RAILWAY-TIE.

952,693.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed August 24, 1909. Serial No. 514,414.

To all whom it may concern:

Be it known that I, ARNOLD TRALIOT, a citizen of the United States, residing at Lexington, in the county of Fayette and State of Kentucky, have invented certain new and useful Improvements in Railway-Ties, of which the following is a specification.

My invention relates to railway-ties, and more particularly to that class of ties known as composite ties constructed of iron or steel and cement, concrete, or other suitable plastic composition.

The primary object of my invention is the production of ties of this character which will withstand the heavy jarring action of trains passing over them and which are so constructed that crumbling of the tie cannot occur.

Another object of my invention is the provision of means whereby the rails can be easily and securely fastened to the ties and as readily removed therefrom.

A further object is to so construct the ties that the rails will be held against lateral movement and shall be so anchored to the embedded metallic members that the strain will be distributed over the entire length of the ties; also to provide a composite tie which is comparatively light in weight, possesses the required flexibility and durability, and which has its corners protected by the metallic reinforcing bars.

To these ends, the invention consists in the construction, arrangement, and combination of parts to be hereinafter described and more particularly pointed out in the subjoined claims.

In the drawings,—Figure 1 is a perspective view of two adjoining ties having sections of rails secured thereto. Fig. 2 is a central longitudinal section through one end of a tie and a cross-section through a rail secured thereto. Fig. 3 is a cross-section taken on line 3—3, Fig. 2. Fig. 4 is a cross-section taken on line 4—4, Fig. 2. Fig. 5 is an enlarged perspective view of one of the reinforcing bars used in the construction of my improved tie. Fig. 6 is a detached perspective view of one of the anchor bars to which the securing-bolts are anchored. Fig. 7 is a detached perspective view of one of the securing-bolts.

Referring now to the drawings in detail, like letters of reference refer to like parts in the several figures.

The reference letter A designates the tie considered as a whole and B the rails secured thereto.

The body of the tie is constructed of cement composition or concrete and metallic reinforcing-members. The cement composition or concrete is designated by the letter C and the reinforcing-member by the letter D. Said reinforcing-members, preferably four in number, are embedded in the concrete and extend from end to end of the tie, each member being constructed of a bar substantially T-shape in cross-section and having a web E and a trough-like head F centered on said web. These reinforcing-members are arranged at the four corners of the tie and the webs extend from the corners toward a common center. The heads of the reinforcing-members serve as protectors for the concrete corners of the tie and consist of a center portion *f* arranged at a right-angle to the web E and two flanges *f'* arranged at such an angle to the center portion *f* that their outer faces are flush with adjoining sides of the tie. The webs E have openings *e* throughout their length in which the cement composition or concrete is held and the inner edges of the webs are provided with lateral lips *e'*, preferably oppositely-directed alternately. The webs so constructed assure a secure bonding of the reinforcing-members within the cement or concrete material.

Near each end of the tie, a narrow longitudinally-disposed opening G is formed and embedded in the concrete and extending transversely through each opening are two curved anchor-bars H, having hooks *h* at their ends which are passed through the end opening *e* in the two lower reinforcing-members and hook onto the webs of the latter, as clearly shown in Fig. 3.

The rails B lie centrally over the openings G and resting upon the flanges thereof are securing-plates I which have extended off-set bearing-portions *i* resting upon the upper faces of the ties, the upper faces of said plates having an inclined surface *i'*, for the purpose to appear presently. Two securing-plates are employed to fasten the rails to each tie, one being placed on each side of the rail and each plate has an obliquely-disposed bolt-hole J through which the threaded end of a securing-bolt K extends. Each securing-bolt has a hook *k* at its inner end which is engaged with one of the anchor-bars H and these bolts, like the bolt-holes J

through which they extend, are obliquely-disposed and cross each other so that they not only serve to secure the rails to the ties, but also act as braces and prevent lateral deflection of the rails. Nuts k^1 are threaded onto the projecting ends of said bolts and securely fasten the latter. This form of fastening I consider an important feature of my invention, since it assures distribution of the strain along the lower reinforcing-members of the ties, thus lengthening the life of the ties and the rail fastenings.

The section shown in Fig. 2 is taken through a curved portion of a railway-track, the rail shown representing the outer rail of the curve. The inner securing-plate is similar to the form used on both sides of a rail where the track is straight, but the outer plate I have shown with an upwardly-directed extension L at its inner end which bears against the outer face of the web of the rail and serves to more effectively withstand the enormous lateral strain to which the rail is subjected when trains pass over a curved portion of a track at a high rate of speed.

Having thus described my invention, what I claim is,—

1. A railway-tie comprising a body formed of molded material and metallic reinforcing-bars arranged lengthwise therein at the four corners thereof, said reinforcing-bars comprising webs disposed obliquely to extend from the corners inward toward a common center and heads at the outer edges of said webs facing the corners of the tie.

2. A railway-tie comprising a body formed of molded material and having metallic reinforcing-bars arranged lengthwise therein at the four corners thereof, said reinforcing-bars being arranged obliquely so as to extend from the corners toward a common center.

3. A railway-tie comprising a body formed of molded material and metallic reinforcing-bars arranged lengthwise therein at the four corners thereof, said reinforcing-bars having flat webs arranged obliquely within said body and extending from the corners thereof toward a common center and flanges at the outer sides of said webs to form heads facing the ties at the corners.

4. A railway-tie comprising a body formed of molded material and metallic reinforcing-bars arranged lengthwise therein at the four corners thereof, said reinforcing-bars having flat webs extending from the corners of the tie toward a common center and trough-like heads at the outer edges of said webs to face the corners of the tie.

5. A railway-tie comprising a body formed of molded material and having four corner facing-members provided with webs

embedded in said body and converging toward the center in lines passing through the corners.

6. A railway-tie comprising a body formed of molded material and metallic reinforcing-bars having webs arranged obliquely to extend from the corners of said body toward a common center and flanges at the outer edges of said webs whose outer faces are flush with the sides of said body, the web of each reinforcing-bar having a longitudinal series of openings and laterally-directed lips stamped therefrom and oppositely-disposed alternately.

7. A railway-tie comprising a body formed of molded material, metallic reinforcing-bars embedded lengthwise in said body, and transversely-disposed anchor-members connected at their ends to said reinforcing-bars; combined with rails resting upon said tie, and securing-bolts connected to said anchor-members and serving to fasten the rails to the tie.

8. A railway-tie comprising a body formed of molded material, metallic reinforcing-bars embedded lengthwise therein and having openings at opposite ends, and an anchor-bar embedded in each end of said body and having hooks at opposite ends passed through the openings in said reinforcing-bars and hooking onto the latter; combined with rails resting upon said tie, securing-plates bearing against said rails, securing-bolts having hooks at their inner ends engaging said anchor-bars and having their outer ends passed through said securing-plates, and nuts applied to the outer end of said securing-bolts.

9. A railway-tie comprising a body formed of molded material having a longitudinal slot at each end extending from top to bottom thereof, metallic reinforcing-bars embedded within said body, said bars lying on opposite sides of said longitudinal slots and having openings in line with said slots, two anchor-bars embedded in said body at each end and extending transversely through said longitudinal slots, said anchor-bars having their ends bent into hooks passed through the openings in said reinforcing-bars so as to engage the latter; combined with rails resting upon said tie, securing-plates at each side of each rail co-acting with the flanges of the latter and provided with obliquely-disposed bolt-holes, two securing-bolts in each longitudinal slot of said body having hooks at their inner ends engaging said anchor-bars and having their outer ends threaded and passed through the bolt-holes in said securing-plates, the securing-bolts in each longitudinal slot being arranged obliquely to cross each other, and nuts applied to the threaded ends of said bolts.

10. A railway-tie comprising a body

formed of molded material, reinforcing-bars embedded lengthwise therein, and anchor-bars connecting said reinforcing-bars and curved downward; combined with rails
5 resting upon said tie, and securing-bolts for fastening said rails to the tie having their inner ends connected to said anchor-bars.

11. A railway-tie comprising a body formed of plastic or concrete material, re-
10 inforcing-bars embedded lengthwise therein and arranged at the corners of said body, and an anchor-member at each end of said body connecting the reinforcing-bars at the lower corners of said tie; combined with

rails resting upon said tie, and securing- 15
plates at each side of each rail resting upon their flanges, the outer securing-plate having an upwardly-directed extension bearing against the web of the rail, and securing-
bolts passed through said securing-plates 20
and connected to said anchor-member.

In testimony whereof, I have affixed my signature in the presence of two subscribing witnesses.

ARNOLD TRALIOT.

Witnesses:

H. H. GIBBONS,
J. H. BOSTON.