

K. R. SCHUSTER.
RAILWAY TIE.
APPLICATION FILED JULY 29, 1909.

Patented May 30, 1911.
3 SHEETS—SHEET 1.

993,798.

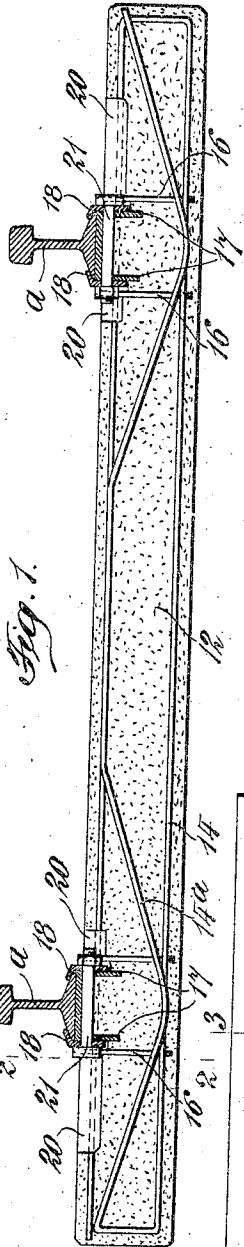


Fig. 1.

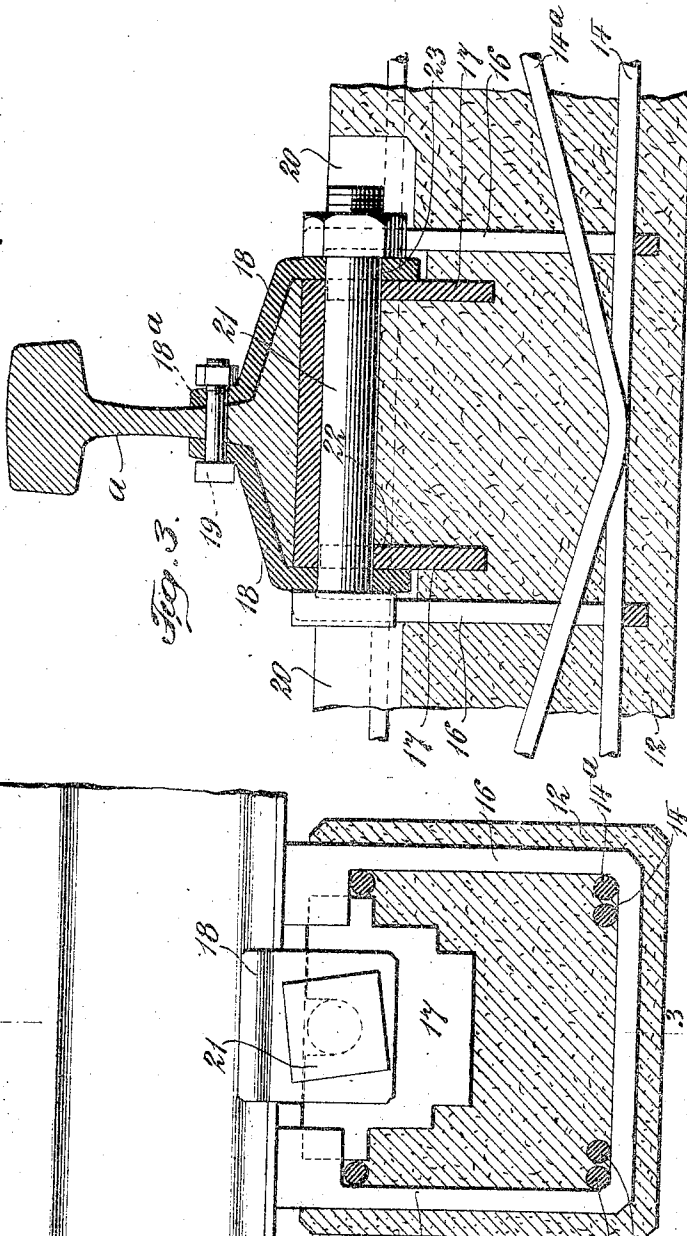


Fig. 3.

Fig. 2.

WITNESSES:

Julius H. Hutz
B. Bigge

INVENTOR

Karl R. Schuster
BY *Wm. B. Owens*
ATTORNEY

993,798.

K. R. SCHUSTER.
RAILWAY TIE.
APPLICATION FILED JULY 29, 1909.

Patented May 30, 1911.

3 SHEETS—SHEET 2.

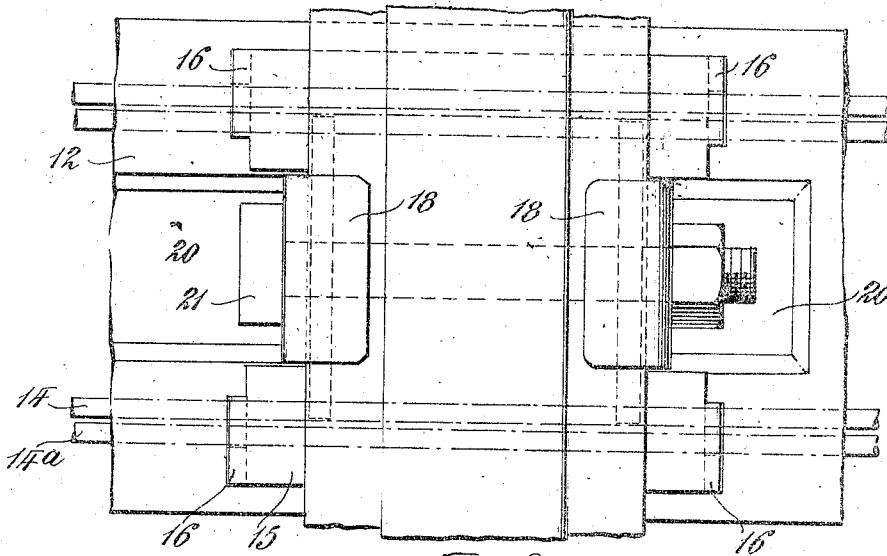


Fig. 4.

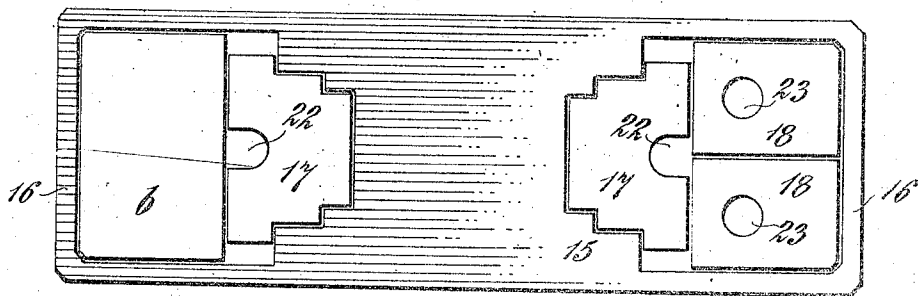


Fig. 5.

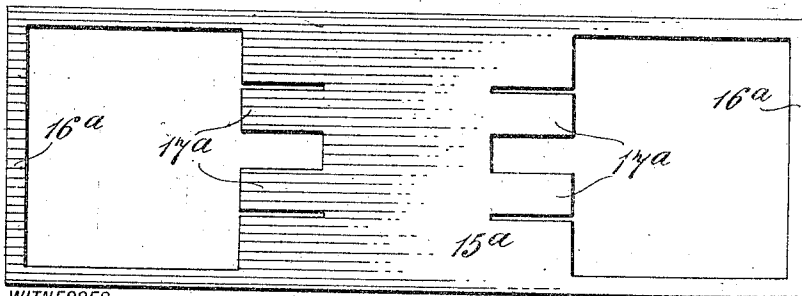


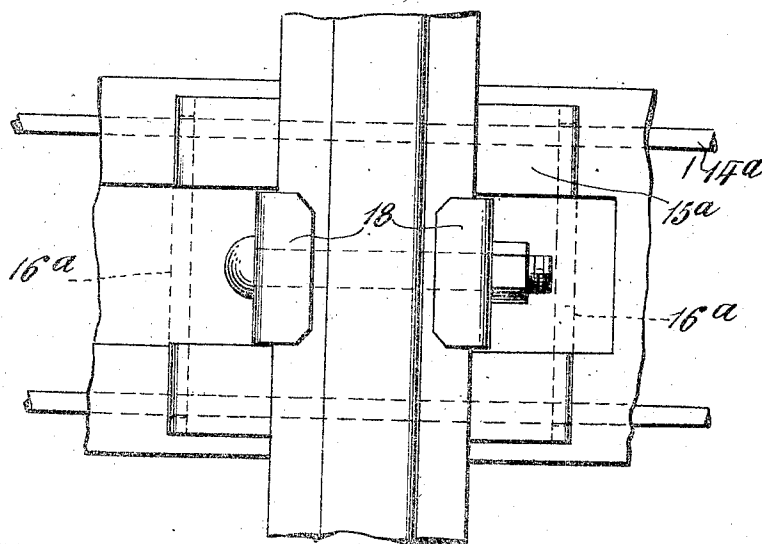
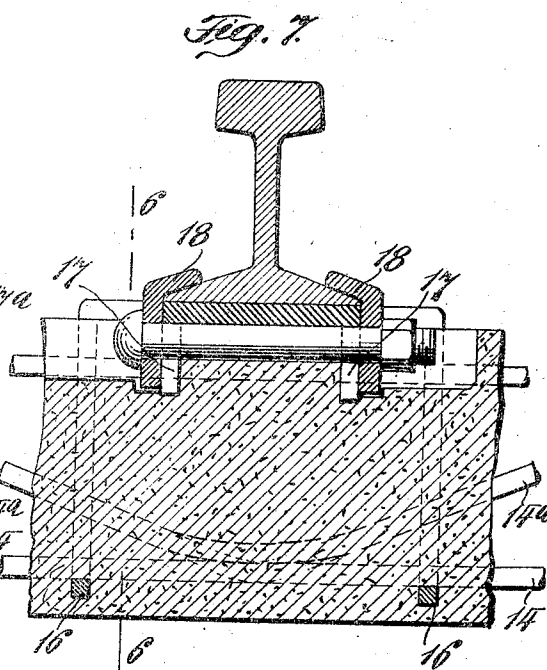
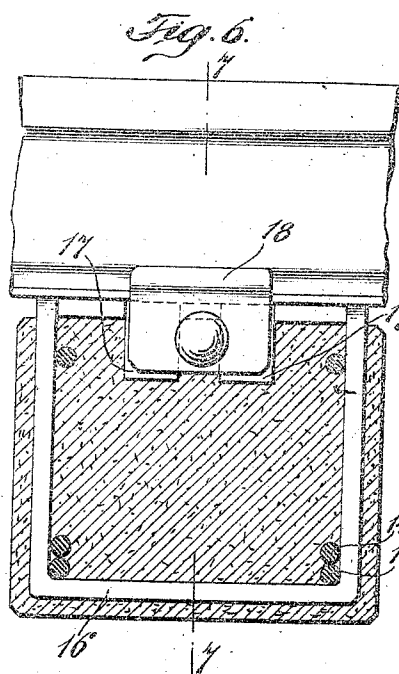
Fig. 9.

WITNESSES:
Julius H. [Signature]
B. [Signature]

INVENTOR
Karl R. Schuster
BY
Wm. B. Owens
ATTORNEY

993,798.

Patented May 30, 1911.
3 SHEETS-SHEET 3.



WITNESSES:

[Signature]
B. Bigge

Fig. 8. Karl R. Schuster

INVENTOR
BY *[Signature]*
ATTORNEY

UNITED STATES PATENT OFFICE.

KARL R. SCHUSTER, OF NEW YORK, N. Y.

RAILWAY-TIE.

993,798.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed July 29, 1909. Serial No. 510,216

To all whom it may concern:

Be it known that I, KARL R. SCHUSTER, of the borough of Manhattan, city and State of New York, have invented certain new and useful Improvements in Railway-Ties, of which the following is a full, clear, and exact specification, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a concrete tie for railways and its object is to devise a structure by which the tie may be effectually reinforced without, however, making the cost of the tie prohibitive. In attaining this end I embed in the tie a longitudinally extending reinforce rod which is run back and forth through the tie to secure a truss effect and combine with this truss rod metallic seats for the rail, which seats are embedded in the concrete and form transverse reinforces for the same. Further, I so arrange these seats that they furnish means for holding the fastenings of the rails by which the rails are held on the tie.

The invention involves various other features of importance, all of which will be fully set forth hereinafter and particularly pointed out in the claims.

Reference is now had to the accompanying drawings, which illustrate as examples the two practical embodiments of my invention, which at this time I deem preferable; and in these drawings;—Figure 1 is a longitudinal section of the tie constructed in accordance with my invention; Fig. 2 is a sectional elevation on the line 2—2 of Fig. 1; Fig. 3 is a section on the line 3—3 of Fig. 2 but showing a modified form of rail retaining clip; Fig. 4 is a plan view of the device for attaching the rail to the tie; Fig. 5 is a diagram showing the manner of stamping the tie plates and forming from the waste the bearing and clip plates; Fig. 6 is an enlarged cross-section on the line 6—6 of Fig. 7 showing the second preferred form of the invention; Fig. 7 is a section of the same on the line 7—7 of Fig. 6; Fig. 8 is a plan view of the part shown in Figs. 6 and 7; and Fig. 9 is a diagram showing the manner of forming the tie, bearing and clip plates.

The body 12 of the tie is constructed of concrete and has embedded therein two reinforce bars or rods 14. These bars or rods are turned back upon themselves and are bowed to form trusses 14^a directly under the position of the rails *a*, thus affording longi-

tudinal reinforcement which resists all bending stress on the tie.

Bearing under each rail is a tie-plate 15, which lies on the top surface of the tie and has at each end a loop 16. These loops extend transversely into the tie and embrace the reinforce bars 14. Embedded in the tie under the tie-plate 15 and at each side edge thereof are bearing-plates 17 against which the clips 18 engage. These clips are bent over into angular form so that their main portions lie perpendicular while their upper portions over-hang and engage the base of the rail at opposite sides holding the rail in place. If desired, the clips 18 may be extended as indicated by the broken lines 18^a in Fig. 3, so that they will lie against the web of the rail and in this case the extended parts of the clips may be fastened together by a bolt 19 passing through the web. In this manner the clip-plates may be made to serve to prevent creeping of the rails; and by placing the bolt 19 at the middle of the rail, the latter may be allowed to expand and contract at the ends. The top surface of the tie is recessed as indicated at 20, to permit the introduction of a bolt 21. This bolt extends through openings 22 in the bearing-plates and through openings 23 in the clip-plates, and the head and nut of the bolt bear against the clip-plates drawing them inward against the rail. The bearing-plates 17 are permanently embedded in the concrete of the tie, but the plates 18 are loosely fitted in the recesses 20 so that upon removing the bolt the clip-plates may be removed, thus completely disengaging the rail from the tie.

Fig. 5 shows an economical and effectual manner of forming the tie-bar and clip-plates as well as the loops 16. In accomplishing this purpose, a rectangular-plate is employed, the ends of which are recessed to form the loops 16 and also the clips 18 and bearing-plates 17, leaving the tie-plate 15 in the center of the original rectangular-plate. The loops 16 are bent down from the blank. It will be seen that two bearing-plates 17 and two clip-plates 18 are necessary for each tie-plate and that these may be formed from the metal stamped out of the original plate, leaving a section of metal, designated *b* in Fig. 5, from which larger clip-plates may be formed if desired, for example, clip-plates embodying the elongated or extended portion 18^a indicated in Fig. 3, or clips may be made large enough to embrace the angle-bars

at a joint in the rail. This, it will be seen, enables all the parts to be formed by a very simple operation and minimizes the waste involved.

5 The construction shown in Figs. 6, 7, 8 and 9 differs from that described mainly in the manner of forming the tie-plate 15^a and bearing-plates 17^a. In this case the bearing-plates 17^a instead of being separated from the tie-plate are formed integral therewith and are bent down from the tie-plate to lie in the concrete. This is shown in Fig. 9 where there are two bearing-plates 17^a at each side of the tie-plate. These bearing-plates are stamped from the original plate as described with respect to Fig. 5; and the metal removed to form the loops 16^a may be employed to form the clips 18, the same as in the first described construction. This tie 20 may be assembled with great convenience and little labor. After forming the bearing, clip and tie-plates, the tie-plates, bearing-plates and loops may be set in the mold in inverted position and the reinforce bars 14 25 may be placed in the mold and held by the loops and tie-plates. The bottom of the mold should have a suitable formation to produce the recesses 20, and a wooden pin should be inserted between the bearing-plates to form the cavity for the bolt 21. When the concrete is set and removed from the mold this pin may be knocked out from under the tie-plate 15. Where the rails are not to be removed or where there is little 35 traffic on the road so that the rails wear very slowly the recesses 20 may be filled with pitch or some other plastic substance, thus protecting the metal parts from the weather and holding the nut of the bolt 21, thus 40 avoiding the use of a nut lock.

The tie is practically indestructible and will endure the stress of the heaviest railroad traffic. Further, it produces a solid and practically unyielding roadbed.

45 Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. A concrete railway-tie having a tie-plate on the upper surface, means for anchoring it to the tie, vertical bearing-plates at the edges of the tie-plate, said bearing-plates having their inner sides against the concrete and their outer sides exposed, clips bearing against the outer exposed sides of the bearing-plates at the base of the rail, and means for forcing the clips inward against the rail.

2. A concrete railway-tie having a tie-

plate on the upper surface, means for anchoring it to the tie, vertical bearing-plates 60 constituting permanent parts of the tie, said bearing-plates having their outer sides exposed, clips bearing against the outer exposed sides of the bearing-plates at the base of the rail, and means for forcing the 65 clips inward against the rail.

3. A concrete railway-tie having a tie-plate on the upper surface, means for anchoring it to the tie, vertical bearing-plates constituting permanent parts of the tie, said 70 bearing-plates having their outer sides exposed, clips bearing against the outer exposed sides of the bearing-plates at the base of the rail, and means for forcing the clips inward against the rail, consisting of a bolt 75 passing through the clips beneath the tie-plate.

4. A concrete railway-tie having a tie-plate on the upper surface, said tie-plate having recesses extending inward from opposite edges, means for anchoring the tie-plate to the tie, vertical bearing-plates disposed in said recesses with their outer sides exposed, clips bearing against the outer exposed sides of the bearing-plates, and means 85 for forcing the clips inward against the rail.

5. A concrete railway-tie having a tie-plate on the upper surface, said tie-plate having recesses extending inward from opposite edges and having anchoring loops extending from said edges into the concrete, vertical bearing-plates at the inner edges of said recesses with their outer sides exposed, clips bearing against the outer exposed sides of the bearing-plates, and means 95 for forcing the clips inward against the rail, consisting of a bolt passing through the clips beneath the tie-plate, the upper surface of the tie being recessed in the region of said recesses to permit removal 100 and manipulation of the bolt.

6. A concrete railway-tie having a tie-plate, means for anchoring it in place and means for fastening a rail to the tie-plate including an element extending under the 105 tie-plate, said tie having a cavity adjacent to the tie-plate to facilitate the entry and removal of said fastening element.

In testimony whereof I have signed my name to this specification in the presence of 110 two subscribing witnesses.

KARL R. SCHUSTER.

Witnesses:

ISAAC B. OWENS,
B. BIGGS.