No. 690,138. Patented Dec. 31, 1901.

D. FORD.

RAILWAY CROSS TIE.

(Application filed June 26, 1901.)

(No Model.)

Fig. 1.

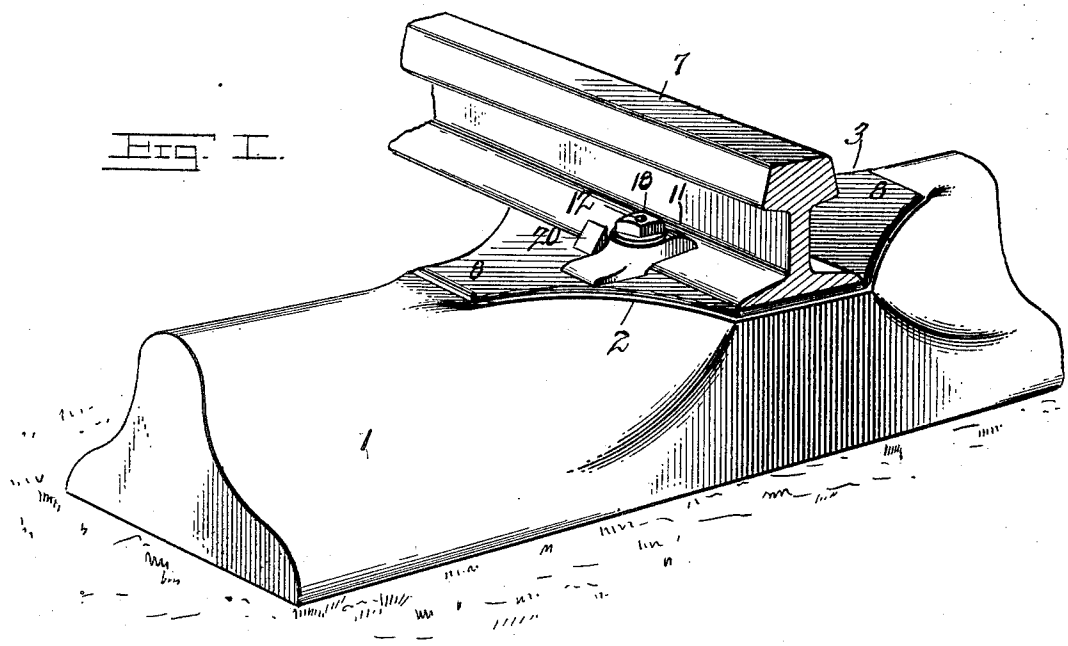


Fig. 2.

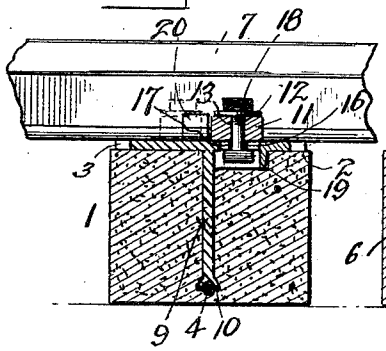


Fig. 3.

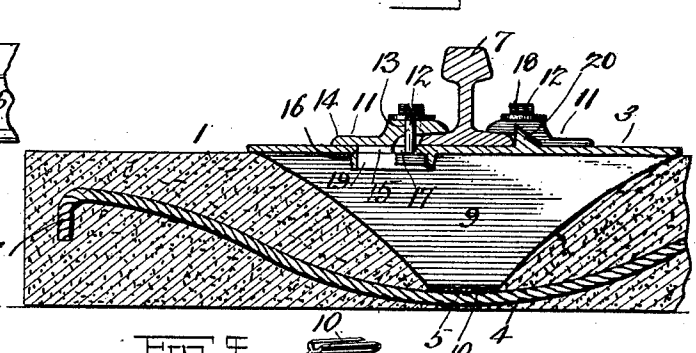


Fig. 4.

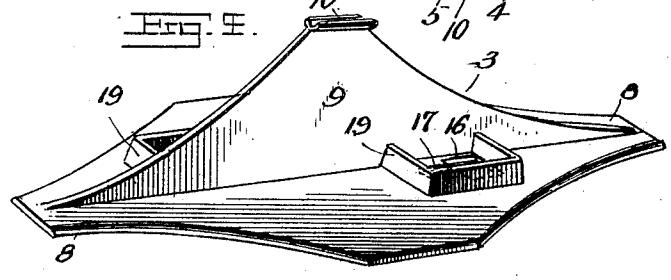
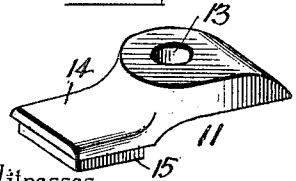


Fig. 5.



Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DAVID FORD, OF ALBION, MICHIGAN.

RAILWAY CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 690,138, dated December 31, 1901.

Application filed June 26, 1901. Serial No. 66,116. (No model.)

To all whom it may concern:

Be it known that I, DAVID FORD, a citizen of the United States, residing at Albion, in the county of Calhoun and State of Michigan, have invented a new and useful Railway Cross-Tie, of which the following is a specification.

The invention relates to improvements in railway cross-ties.

The object of the present invention is to improve the construction of cross-ties and to provide a simple, inexpensive, and efficient one which will possess great strength and durability and which will not be affected by moisture.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of one end of a tie constructed in accordance with this invention. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a longitudinal sectional view of one end of the cross-tie. Fig. 4 is a detail perspective view of the rail-chair, the same being inverted to show the longitudinally-supporting web. Fig. 5 is a detail view of one of the rail-clamps.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a plastic cross-tie constructed of cement, artificial stone, or other similar material and provided adjacent to each end with a flattened enlarged portion 2, receiving a rail-chair 3 and having the same partially embedded in it. The enlarged portion 2 of the cross-tie is provided with a flat upper face to receive the upper portion of the rail-chair, and the cross-tie, beyond the enlarged portions 2, is approximately triangular in cross-section and tapers from the base or bottom to the top, which is rounded, as clearly illustrated in Fig. 1. The cross-tie is strengthened by a truss-rod 4, preferably constructed of wires twisted to form a cable and provided at each end of the cross-tie with a curved portion 5, presenting a concave upper face or edge and extending beneath and having inclined portions at opposite sides of the rail-chair, as clearly shown in Fig. 3. Each terminal 6 of the truss rod or cable is bent at an angle to anchor it. The truss rod or cable extends substantially the entire length of the cross-tie and terminates adjacent to the ends of the same, as illustrated in Fig. 3.

The rail-chair 3 consists of a horizontal top plate arranged to receive a rail 7 and provided with tapering end portions 8 and having a depending longitudinal web 9, extending centrally of the rail-chair the entire length of the same. The depending web tapers toward its lower end, and it extends downward to the longitudinal rod or cable 4, and it is provided thereat with curved side flanges 10, forming a semicircular saddle or seat and arranged upon and conforming to the configuration of the rod or cable. By supporting the chair on the longitudinal rod or cable and on the upper face of the cross-tie the strain or pressure is distributed over a large portion of the said tie, and the latter is enabled to successfully withstand the jars and vibrations incident to the passage of the cars over the rails.

The rail is secured to the chair by means of a pair of clamps 11, located at opposite sides of and engaging the bottom flanges of the rails and secured to the chair by vertical bolts 12. The bolts 12 pass through perforations 13 of the engaging portions or jaws of the clamps, and the outer portions 14 thereof are recessed at their lower faces to provide depending lugs or bosses 15 to fit in rectangular openings 16 of the horizontal plate or body portion of the chair. The plate or body portion of the chair is also provided with narrow slots 17, communicating with the rectangular openings 16 and adapted to receive the fastening devices 12. The heads of the fastening devices 12 are passed through the openings 16 and after they are arranged beneath the plate or body portion of the chair the fastening devices are moved inward toward the rail and are arranged in the slots 17, as indicated in Fig. 3 of the drawings. The nuts 18 of the bolts are arranged at the upper faces of the engaging portions of the clamps, and washers are interposed between the nuts and the clamps. The chairs are provided with depending flanges 19, extending from the web at opposite sides thereof and forming walls

around the openings and slots 16 and 17. The web of the chair is embedded in the material of which the tie is constructed, and the walls surrounding the slots and the openings will enable the cement or other material to be hollowed out under the said openings and slots without affecting the surrounding material. The space inclosed by the flanges may also be filled with any suitable material for excluding the cement while the tie is being molded, and after the tie is complete such material may be removed through the slots and openings. The rail is held against lateral movement by lugs 20, located at opposite sides of the rail. The clamps are located at opposite sides of the depending web, and the lugs are located at points opposite the clamps.

It will be seen that the tie is simple and comparatively inexpensive in construction, that it is strong and durable, and that it is not affected by water. It will also be apparent that the chair affords a firm support for the rails and that the latter are securely fastened to the cross-tie.

What I claim is—

1. The combination of a plastic cross-tie, and a rail-chair arranged to receive a rail and having a depending flanged portion embedded in the cross-tie, substantially as described.

2. The combination of a plastic cross-tie, a longitudinal rod embedded in the cross-tie, and a rail-chair adapted to receive a rail and having a depending web located within the cross-tie and provided with laterally-extending flanges, substantially as described.

3. The combination of a plastic cross-tie, of a rod embedded within the same, and a rail-chair having a depending portion arranged within the cross-tie and seated on and supported by the rod, substantially as described.

4. The combination of a plastic cross-tie, a rod embedded in the cross-tie, and a rail-chair provided with a depending web having oppositely-disposed flanges arranged at the bottom of the web and forming a saddle or seat for the reception of the rod, substantially as described.

5. The combination of a plastic cross-tie, a longitudinal rod or cable embedded in the cross-tie and having a curved portion at the end of the tie, said curved portion presenting a concave upper edge or face, and a rail-chair provided with a depending tapering web arranged on and supported by the rod or cable, substantially as described.

6. The combination of a rail-chair having a depending web and provided at opposite sides of the same with openings and having slots extending therefrom, depending flanges arranged beneath the chair adjacent to the web and coöperating with the same to form walls around the slots and openings, clamps interlocked with the openings and provided with fastening devices extending through the slots, and lugs projecting from the upper face of the chair and adapted to support a rail against lateral movement, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

DAVID FORD.

Witnesses:
GILSON E. MURDOCK,
C. G. BIGELOW.