No. 803,751. PATENTED NOV. 7, 1905.

H. J. FIXMER.

COMPOSITE RAILROAD TIE.

APPLICATION FILED MAR. 20, 1905.

Fig. 1.

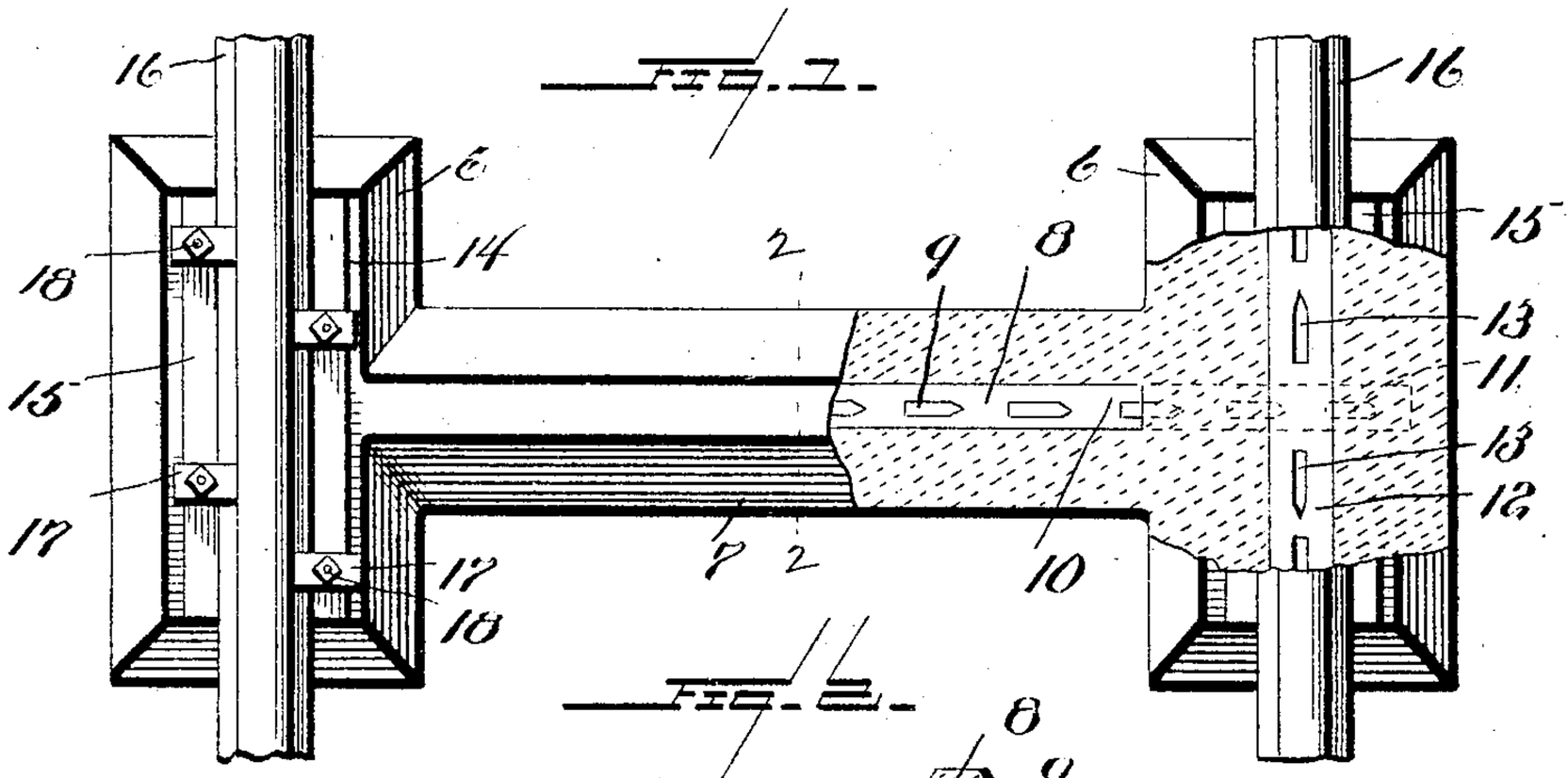


Fig. 2.

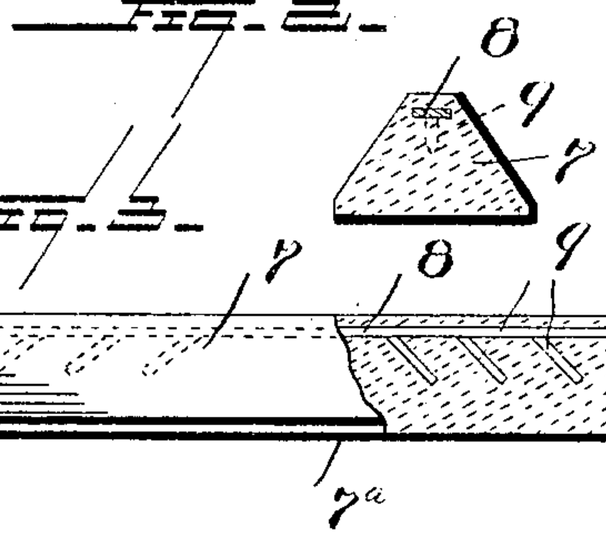


Fig. 3.

Fig. 4.

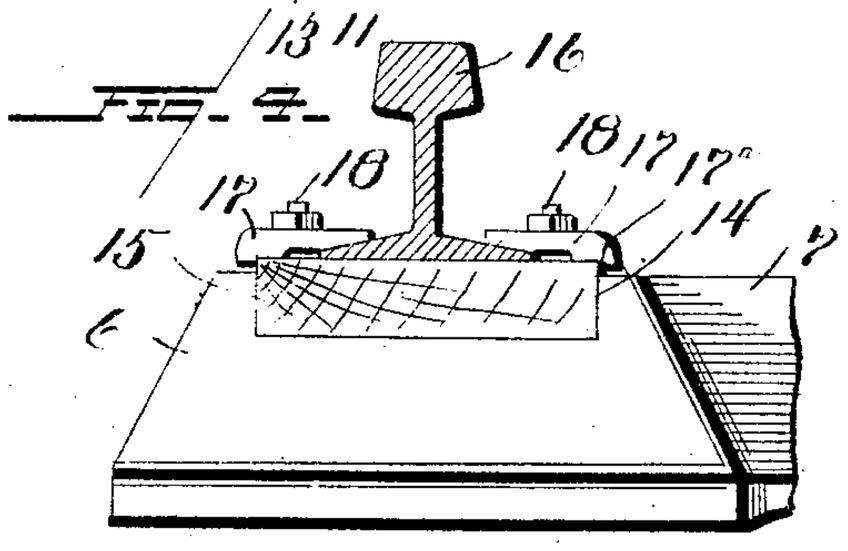


Fig. 5.

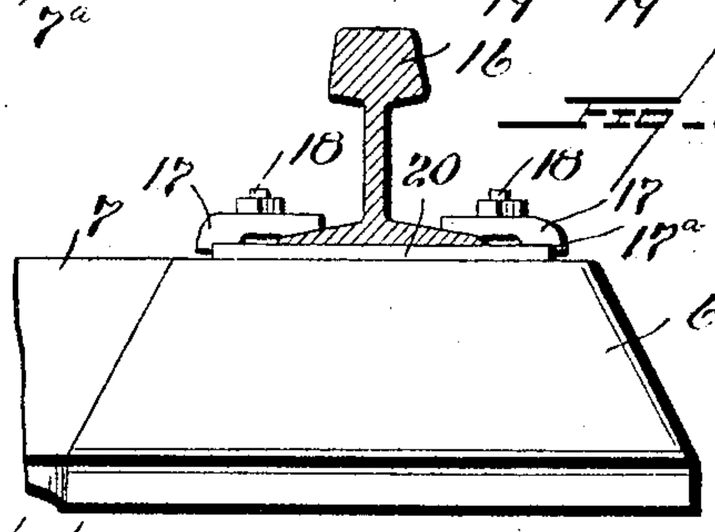
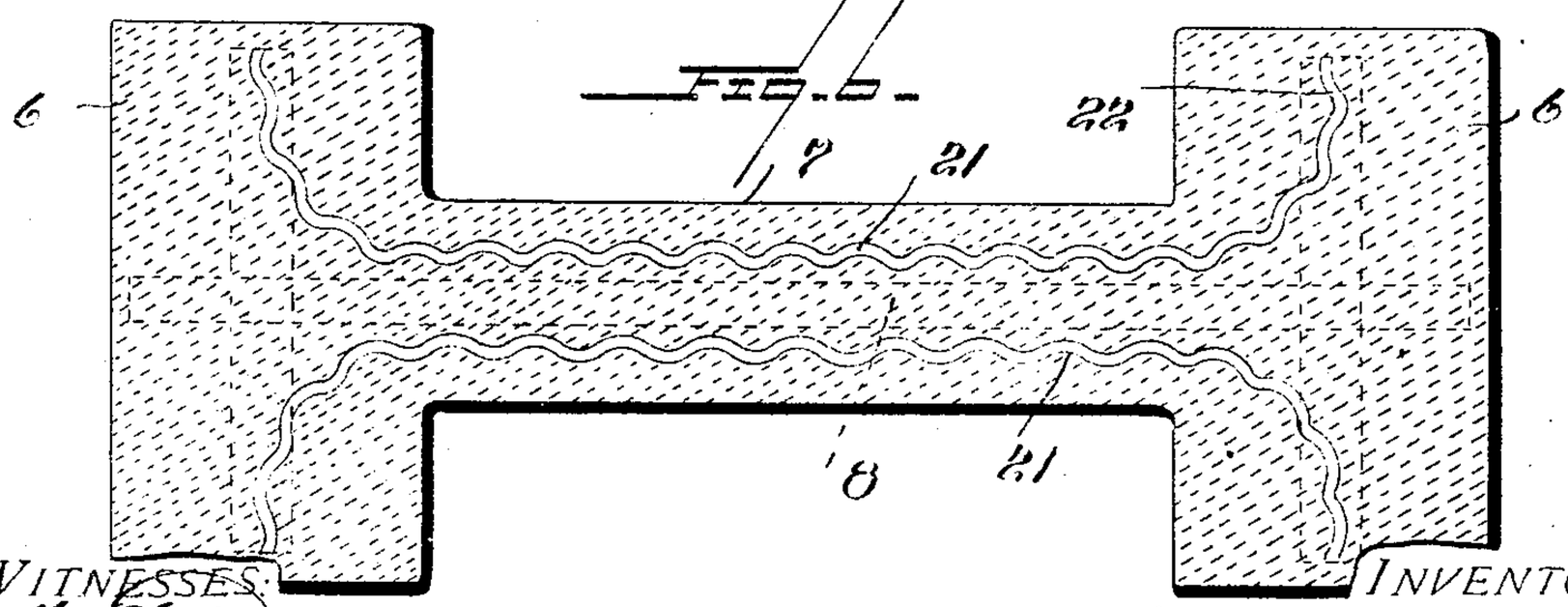


Fig. 6.



WITNESSES:

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COMPOSITE RAILROAD-TIE.

No. 803,751. Specification of Letters Patent. Patented Nov. 7, 1905.

Application filed March 20, 1905. Serial No. 250,959.

To all whom it may concern:

Be it known that I, HUGH J. FIXMER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Composite Railroad-Ties, of which the following is a specification.

This invention is a composite railroad tie or sleeper made of cement strengthened by metal bars, and having for its particular object to provide a tie suitable for steam or street railway systems and characterized by permanence, rigidity, and economy.

The tie is of an **I** form—that is, having enlarged heads or masses at each end with a connecting-body therebetween. These enlarged portions support the rail, and consequently provide the ballast or support where it is most needed—that is, under the rail. This construction also requires a less number of ties to the mile than would otherwise be the case. To absorb the shock, a wood or metal cushion or plate is provided directly under the rails.

The invention is also characterized by improved means for holding the rails to the ties, permitting easy attachment or detachment. Reinforcements consisting of steel bars are embedded in the ties and resist flexion and serve to bind the concrete together and to distribute the shocks and strains. These steel bars have tongues struck up therefrom to assist in binding the bars to the concrete.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the tie, partly in section. Fig. 2 is a cross-section on the line 2 2 of Fig. 1. Fig. 3 is a side elevation, partly in section. Fig. 4 is a side elevation of one end of the tie. Fig. 5 is a similar elevation of a modified form. Fig. 6 is a horizontal section of a modification provided with additional strengthening-bars.

Referring specifically to the drawings, the tie is molded to an **I** form, the end blocks or heads being indicated at 6 and the connecting-body at 7. These end blocks are of considerable width, so that a long and solid support for the rails is provided. The sectional shape of the tie may be that shown in the drawings, or it may be squared, curved, or otherwise varied as necessary or desired.

At 8 is indicated a steel or other metal bar, which is embedded in and extends lengthwise through the body 7 and projects into the blocks 6. In the body portion of the tie the bar lies near the top or upper surface thereof and has depending tongues 9 struck down therefrom. Where the ends of the bar enter the blocks 6, they are dropped, as indicated at 10, and have tongues 11 struck up from these end portions. This construction serves to bind the heads and body of the tie together and to resist longitudinal or spreading strain, which would tend to break the tie at the middle or in the connecting-body thereof. The heads 6 of the tie also have embedded therein metal bars 12, having depending tongues 13. These bars extend crosswise of the tie or parallel to the rails and are located directly thereunder. They serve to prevent crosswise fracture of the heads and to assist in binding all parts more securely together.

The heads 6 are recessed on the top, as at 14, to receive wooden blocks 15, on which the rails 16 rest. These blocks act as cushions to absorb the vibration or strain of the rails.

The rails are held in place by clips 17, engaging over the base thereof and secured by bolts 18, which extend through the wooden blocks and the heads of the tie, said heads being recessed on the under side, as at 19, to receive the heads of the bolts. The bolt-holes are molded in the tie when it is made. The clips 17 have on the under side thereof shoulders 17^a, which engage the edge of the block or plate on which the rail rests, and the clips are thereby prevented from turning.

In the modified form shown in Fig. 5 instead of the recess and wooden block in the head of the tie the latter is left flat on top, and a cast or rolled iron plate 20 is placed thereon, upon which the rail rests, and is fastened by clips and bolts similar to those used with the wood cushion.

In the modified form shown in Fig. 6 additional strengthening-bars are provided, consisting of corrugated bars 21, located in the body of the tie and extending at their ends into the heads thereof, where they are spread or curved out, as at 22. This latter construction is particularly serviceable and advisable for heavy traffic.

The invention is not limited to bars or constructions of the exact form or shape described and shown herein; but they may be varied as desired without departing from the scope of the invention.

A further important feature is that the connecting-body 7 of the tie is recessed on the under side, as at 7^a, so that its base does not bear directly on the ballast which would

tend to fracture, but is slightly elevated therefrom, so that the said body acts simply to connect the heads or ends which support the rails.

What I claim as new, and desire to secure by Letters Patent, is—

1. A concrete railroad-tie having embedded lengthwise therein a metal bar having at the ends dropped portions with upwardly-projecting tongues, and an intermediate raised portion with downwardly-projecting tongues.

2. A concrete railroad-tie having enlarged ends on which the rails rest, a metal bar embedded in said tie and connecting the said ends and having projecting tongues, and metal cross-bars embedded in said ends and having projecting tongues.

3. The combination with a tie having thereon a block on which a rail rests, of clips which engage the base of the rail and have shoulders depending over the edge of the block, and means to secure the clips to the tie.

4. The combination with a concrete tie having laterally-extending blocks at the ends thereof, of bars embedded in the body of the tie and having ends spread laterally in said blocks.

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

HUGH J. FIXMER.

Witnesses:
CLARA PROSCHE,
H. G. BATCHELOR.