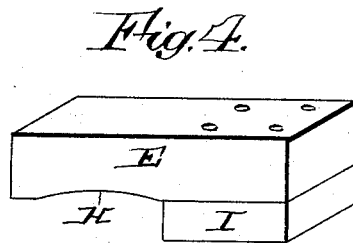
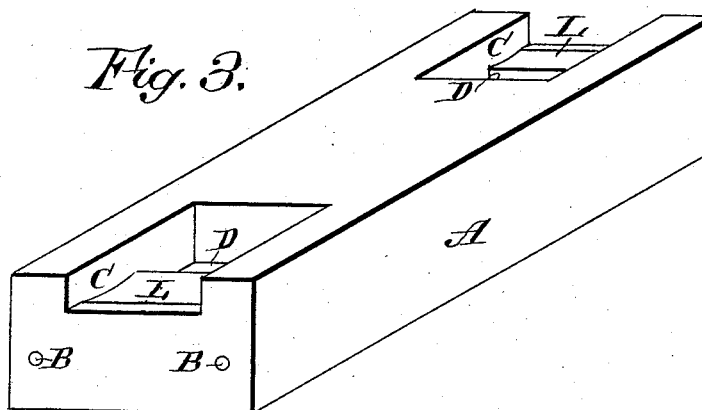
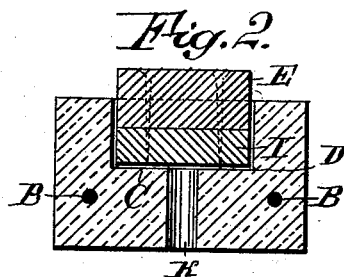
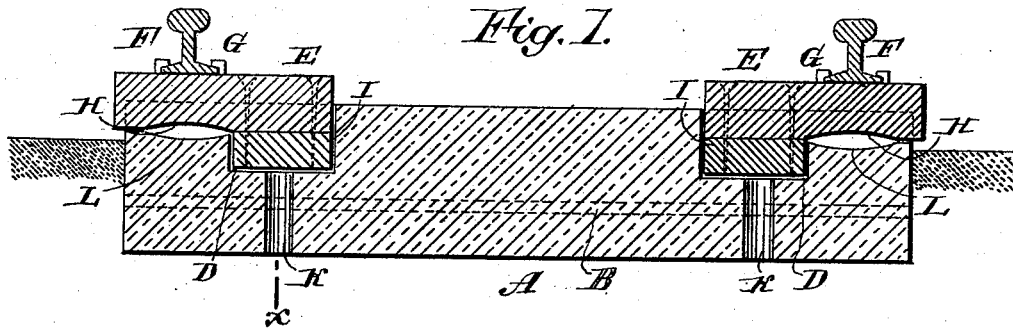


(No Model.)

A. N. D. DELFFS.
RAILROAD TIE.

No. 305,156.

Patented Sept. 16, 1884.



WITNESSES:

Otto Beyer
Co. Sedgwick

INVENTOR:

A. N. D. Delffs

BY

Amundson
ATTORNEYS.

UNITED STATES PATENT OFFICE.

ARNOLD N. D. DELFFS, OF BEDFORD, TENNESSEE.

RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 305,156, dated September 16, 1884.

Application filed December 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, ARNOLD N. D. DELFFS, of Bedford, in the county of Bedford and State of Tennessee, have invented a new and Improved Railroad-Tie, of which the following is a full, clear, and exact description.

My invention relates to an improvement in railroad-ties, wherein I have beton, wood, and iron combined and constructed into a tie, substantially as hereinafter set forth.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal section of a tie; Fig. 2, a cross-section of Fig. 1 on the line *xx*. Fig. 3 is a perspective view of the bed-piece; Fig. 4, a perspective view of a wooden piece to be attached to the bed.

In my construction of an improved railroad-tie I make the bed-piece A of beton concrete, formed in the usual manner from gravel or broken stone, cement, and sand. These bed-pieces, when molded, will have one or more iron rods or wires, B, embedded in the material, extending through the whole length of the tie, to strengthen it. In each end of the bed is a mortise, C, having in the inner end a recess, D, to receive a wooden piece, E, extending above the bed, to which the rail F will be secured by the spikes G. The bottom of the mortise, outside of the recess D, has a downward curve, L, extending across it, and the piece E has in the end fitted to lie over this curve a corresponding upward curve, H. The end pieces, E, of the tie are made of wood, to give to the tie a measure of elasticity, and the curves G and H provide for an increase of elasticity, as the rail F is secured to this wood piece directly over these curves. The part I of the piece E, resting in the recess D, holds the said pieces in place and prevents the rails from spreading. In the bottom of the recess D is a hole, K, through the bed A, to allow any water that might get in said recess to escape.

I may dispense with the curve H in the end

of the bed-piece, as sufficient elasticity may be secured without it; but it will usually be preferable with it. In this way, by combining concrete, iron, and wood, I make a tie at a moderate cost and well adapted to the purpose.

In building a new road the wooden blocks comprising the parts E and I may be made in one piece, while in repairing the piece I has to be separate and first placed in the recess D. The piece E is then put in place and secured to it.

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

1. The combination of the concrete bed A, having one or more iron rods or bars, B, and the wooden pieces E, substantially as and for the purpose set forth.

2. The bed A, having the mortises C, in combination with the pieces E, substantially as and for the purpose set forth.

3. The bed A, having the mortises C, curves L, and recesses D, in combination with the pieces E, substantially as and for the purpose set forth.

4. As a new article of manufacture, a railroad-tie constructed as set forth, and consisting of a concrete bed having metal rods or bars embedded longitudinally therein, and adapted to receive and retain wooden blocks for supporting the rails.

5. The railroad-tie having the bed A, provided with the mortises C, recesses D, and curves L, in combination with the pieces E, having the part I and curve H, substantially as and for the purpose set forth.

6. The bed A, having the mortises C, recesses D, and holes K, in combination with pieces E, substantially as and for the purpose set forth.

7. A concrete railroad-tie having metal rods or bars embedded longitudinally therein, substantially as and for the purpose specified.

ARNOLD N. D. DELFFS.

Witnesses:

W. D. MADISON,
JOHN TRICE.