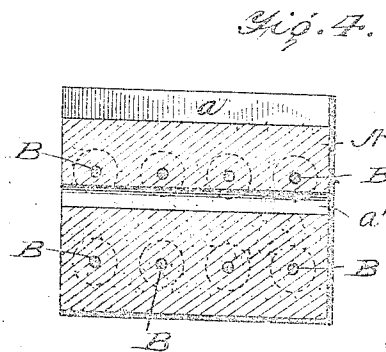
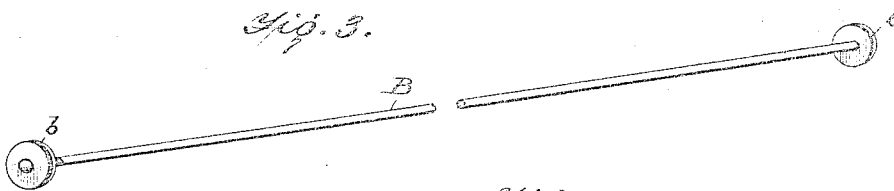
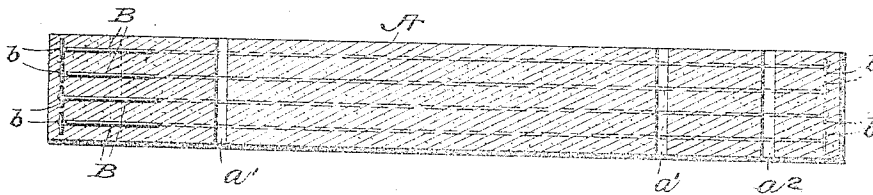
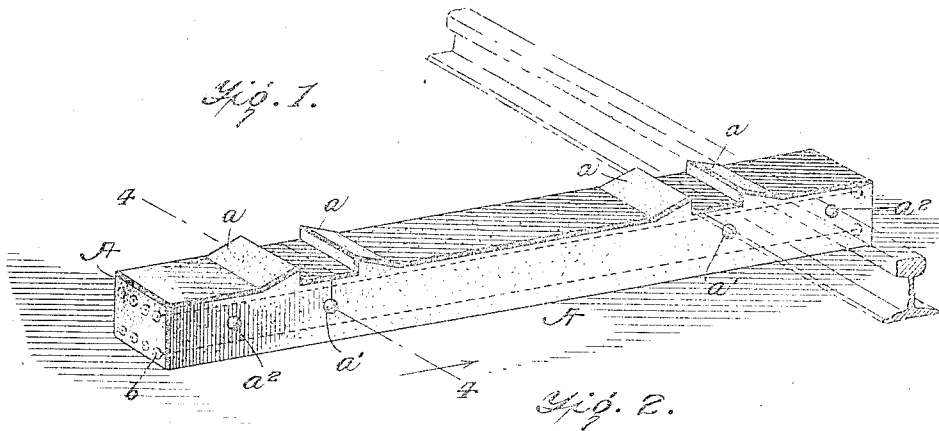


J. P. DONOVAN.
 CONCRETE RAILWAY TIE.
 APPLICATION FILED JAN. 23, 1909.

936,428.

Patented Oct. 12, 1909.



WITNESSES
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UNITED STATES PATENT OFFICE.

JAMES PETER DONOVAN, OF GEORGETOWN, KENTUCKY.

CONCRETE RAILWAY-TIE.

936,428

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed January 23, 1909. Serial No. 473,899.

To all whom it may concern:

Be it known that I, JAMES P. DONOVAN, a citizen of the United States, residing at Georgetown, in the county of Scott, State of Kentucky, have invented an Improvement in Concrete Railway-Ties, of which the following is a specification.

Concrete railway-ties are coming rapidly into use as a substitute for wooden or metallic ties, since they have several qualities, particularly cheapness, strength, and durability, which confer advantages over other forms.

The details of construction, arrangement, and combination of parts constituting my improved tie are as hereinafter described and claimed, reference being had to the accompanying drawing, in which—

Figure 1 is a perspective view of the tie; Fig. 2 a horizontal section in two different planes; Fig. 3 is a perspective view of one of the metallic reinforcing members; Fig. 4 is an enlarged cross section on the line 4—4 of Fig. 1.

The tie A is oblong and rectangular and provided on its upper side with shoulders *a* that are separated by a space sufficient to receive the base of a railroad rail. In other words, by means of such shoulders, which are arranged above the general surface of the tie, I provide rail-seats in which the rail bases are fitted and held. The tie is provided, immediately below the rail-seats, with a transverse hole *a'* for receiving bolts that secure the rail fastenings, and the tie is further provided, nearer its ends, with other transverse holes *a''*, that serve for the passage of wires, or small rods, used for controlling the switches, block-signals, etc.

The tie is provided with two sets or groups

of reinforcing members B, which are formed of steel or iron rods provided with enlarged disk-like heads *b*. These are arranged in sets of four, one set being near the bottom of the tie and the other set near the top thereof, as illustrated in Figs. 1 and 4. These reinforcing members are embedded in the tie in the process of molding, and the enlarged heads *b* lie within the ends of the tie, as shown in Fig. 2. These reinforcing members are cheaply produced, and are embedded in the tie in such manner as to reinforce it at points near the top and bottom, where the tie would be subjected to the greatest strain in practical use. The result is that the members B add to the normal or natural strength of the tie so that it is capable of resisting great strain, due to leverage or to the imposition of weight. At the same time, they do not add to the weight of the tie as a whole, sufficiently to prevent its being handled with comparative ease.

What I claim is:

The improved concrete railway-tie formed of concrete, with raised shoulders on the upper side which are separated to provide rail-seats, and with transverse openings below such rail-seats, for receiving rail-fastenings, and reinforcing metallic members arranged longitudinally of the tie and in two horizontal sets or groups, one located near the base and the other near the top of the tie, and comprising metallic rods having end disks which are wholly embedded in the concrete, substantially as described.

JAMES PETER DONOVAN.

Witnesses:

W. C. WARRING,

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