A. O. COFFIN.

CONCRETE TIE AND RAIL FASTENING.

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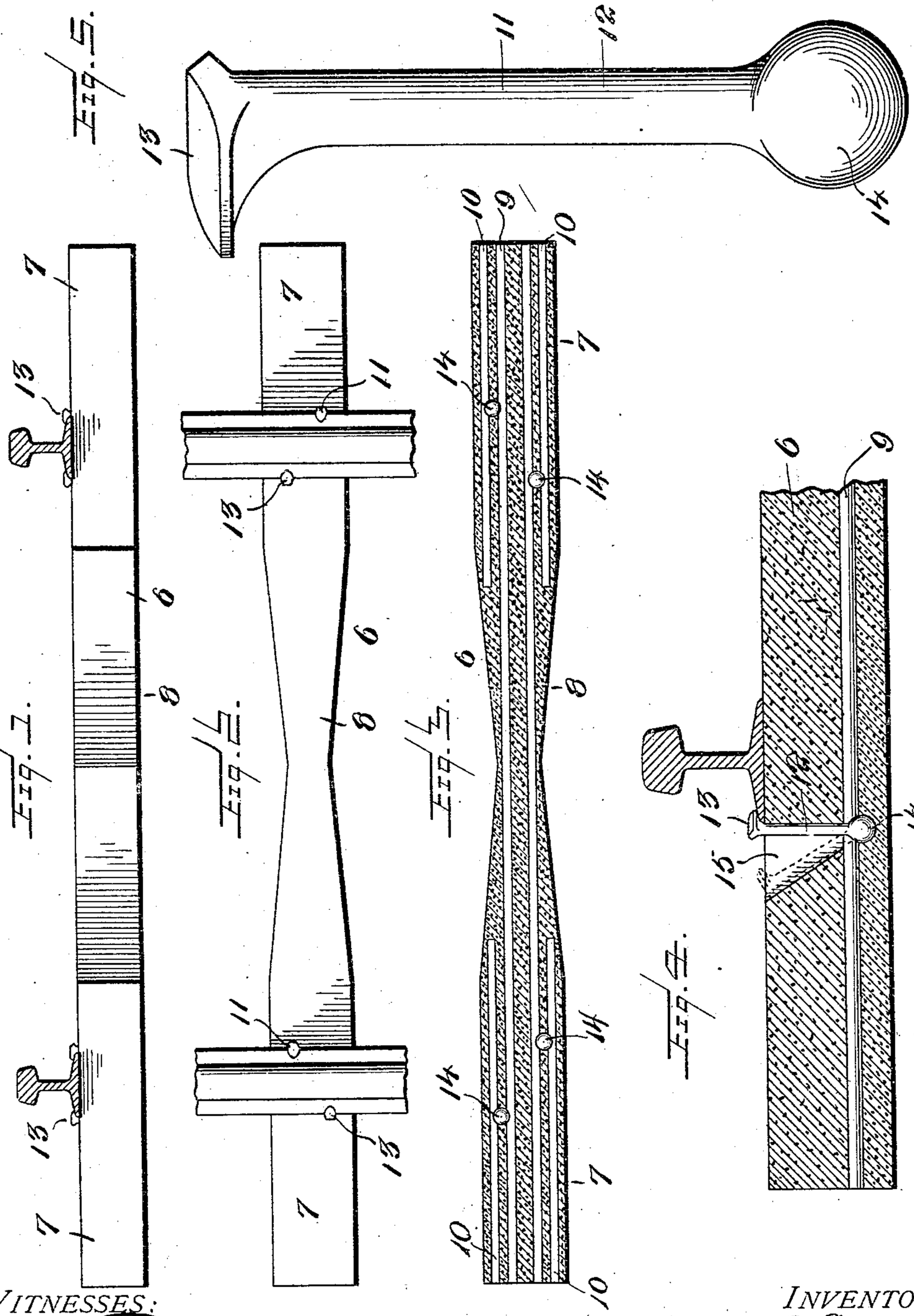

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CONCRETE TIE AND RAIL-FASTENING.

943,519. Specification of Letters Patent. Patented Dec. 14, 1909.

Application filed July 24, 1909. Serial No. 509,415.

To all whom it may concern:

Be it known that I, ARTHUR O. COFFIN, a citizen of the United States, residing at Springfield, in the county of Greene and State of Missouri, have invented certain new and useful Improvements in Concrete Ties and Rail-Fastenings, of which the following is a specification.

The present invention relates to railway ties, and more particularly those of composite character.

The object is to provide a simple structure, which is very durable, which can be employed with the ordinary type of rail, and which will effectively eliminate center binding of the ties.

The preferred form of construction is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the tie. Fig. 2 is a plan view of the same. Fig. 3 is a horizontal sectional view. Fig. 4 is a detail vertical sectional view on an enlarged scale. Fig. 5 is a detail view on an enlarged scale of one of the track-fastening devices.

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

In the embodiment disclosed, the tie comprises a body 6 of concrete or analogous composite material, said body having broad rail-supporting ends 7 and tapering continuously from said ends to the center, as illustrated at 8. This body is reinforced by longitudinally disposed rods or bars 9 and 10 of metal, the rods or bars 9 extending the entire length of the tie, the rods 10 being preferably located only in the rail-supporting ends. These rods are spaced apart, as illustrated clearly in Fig. 3. Rail-fastening devices 11 are also embedded in the tie, these devices comprising stems 12 having heads 13 on their upper ends that engage over the base flanges of the rails. The stems 12 pass downwardly between the reinforcing rods or bars 9 and 10 and have rounded heads 14 at their lower ends, of greater width than the space between the rods, said heads thus being engaged beneath said rods.

When the tie is complete, and before the rails are fastened in place, the fastening devices 11 preferably are capable of swinging movement, operating in longitudinally disposed tapered slots 15. In the preferred manner of constructing these ties, the concrete is molded about the reinforcing rods and the fasteners, and after the said concrete has set sufficiently to maintain its shape, but before it is hardened, the fastening devices are swung back and forth, producing the slots.

In using the tie, the rails are placed in position as with the ordinary tie, and the fasteners are then swung to vertical positions with the heads 13 engaged over the base flanges. The slots are then filled with concrete, which is allowed to set, consequently securely maintaining the fasteners in their operative positions.

It will be observed that the device constitutes simple and durable means for effectively holding in place rails of any size and weight. The concrete if properly mixed furnishes a practically indestructible tie that is impervious to moisture, and is not affected by constant and continued wear and use. Moreover the tapered structure as disclosed, is important. It is a well known fact that the rain will often wash out the supporting material at the ends of the ties, so that said ties bear only on the bed at their centers. The passage of the heavy trains consequently breaks such ties. With the present structure if the ends of the ties become unsupported, the central portion will sink into the earth or road-bed until the broadened end portions are again properly supported, and breakage from this cause is effectively prevented.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. A tie of the class described comprising a body of concrete, reinforcing rods embedded longitudinally therein, and rail fastening devices having rail-flange engaging heads at their upper ends and provided at their lower ends with heads lying within the concrete body and engaged beneath the reinforcing rods.

2. A tie of the character set forth, comprising a body of concrete, reinforcing rods embedded longitudinally therein, said body having longitudinally disposed slots in line with the spaces between certain of the reinforcing rods, and rail-fastening devices capable of swinging movement in the slots and having heads at their upper ends that engage over the base flanges of the rails, said fastening devices also having rounded heads at their lower ends that are engaged beneath the reinforcing rods.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

ARTHUR ORVILLE COFFIN.

Witnesses:

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