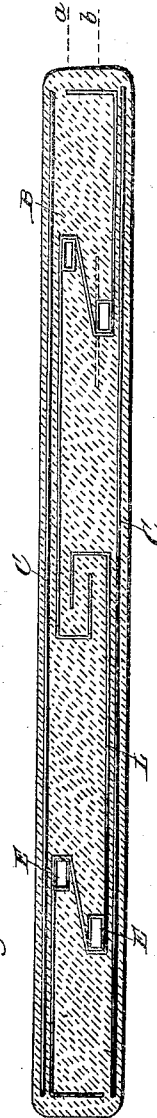
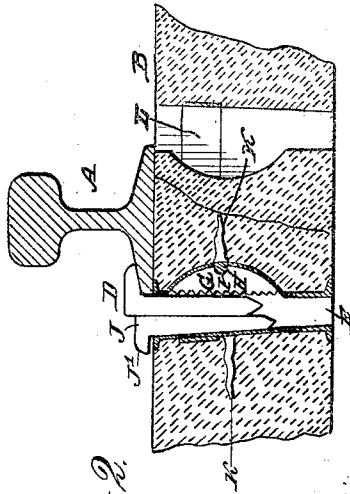
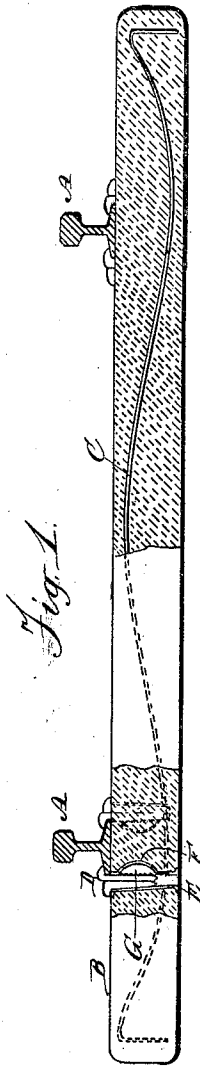


F. H. MILLER.
RAILWAY TIE.
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955,419.

Patented Apr. 19, 1910.



Witnesses
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UNITED STATES PATENT OFFICE.

FRANK H. MILLER, OF STANWOOD, IOWA.

RAILWAY-TIE.

935,419.

Specification of Letters Patent.

Patented Apr. 19, 1910.

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To all whom it may concern:

Be it known that I, FRANK H. MILLER, a citizen of the United States, residing at Stanwood, in the county of Cedar and State of Iowa, have invented certain new and useful Improvements in Railway-Ties, of which the following is a specification.

The object of this invention is to produce a strong and durable railway tie of steel and cement or concrete, and so constructed as to permit the attachment to it of the rails in a simple, but strong and permanent manner, which will also allow for the detachment of the rails as easily as though the ties were made of wood.

In the accompanying drawing, forming a part of this specification, Figure 1 is a side elevation, partly in section, illustrating my improved tie. Fig. 2 is an enlarged section in two planes, *a* and *b* of Fig. 3, showing the rail connecting devices, and related parts. Fig. 3 is a conventional section, showing in a general way the application of steel reinforcement to the tie.

In the drawing, A A denote two tee-rails of the usual type. These rest in the usual way on a tie, the construction of which is as follows:

B is the body of the tie, and is molded of concrete or cementitious material in a familiar way. To give it the requisite resistance to deflecting strains it is reinforced with steel rods C, which in practice are preferably curved down as shown, where they pass under the rails, and bent abruptly down at each end. They thus not only serve to bind the whole tie together endwise, normally, but the curvature is such as to truss the tie directly under each rail, since it will be evident that any superimposed weight on the down-curved rods will only intensify this binding action of the rods endwise.

The rails are held in position by means of the usual spikes D, instead of bolts and nuts, clamps, or other means commonly employed in connection with ties of this class. The use of spikes is peculiar, however, as will be clear by reference to Figs. 2 and 3.

In the body of the tie, near each end, is molded a pair of housings, one for each side of the rail. These housings E are preferably rectangular in cross section, and of a suitable width to take an ordinary spike.

On the rail sides the housings are provided with an enlargement F, preferably curved, to take a serrated plate G, which is

held from slipping out of position while the spike is being inserted, by a lug H fitting in a notch I in the back of the serrated plate. In practice it is desirable that the teeth of this plate be hard, so as to grip the face of the opposed spike when forced against it, and hold it securely in position. It is also desirable that the hardened plate may be removable, so that in case of its being broken or mutilated it may be replaced by another. If it were not for these considerations the inner wall of the housing itself might be serrated, as will be evident. The outer wall of the housing is inclined to the inner one, which is practically vertical, and room is allowed between the outer wall and the holding spike, when in position, for a wedge J, having a gib head J¹, by means of which it may be withdrawn by the use of an ordinary spike claw. When driven home this wedge holds the spike immovably against the serrated plate. On the release of the wedge the spike may of course, be easily removed.

In Fig. 2 are shown lateral prolongations of the housing, K, designed to the more firmly anchor the housing to the body of the tie, and prevent any possible loosening of it by reason of the vibration or crowding action of the rolling stock.

It is to be noted that the outwardly curved pocket for the serrated plate lies directly under the rail flange, and any lift of the rail on either side will act on this underlying part of the housing and the intervening mass of cement. It is thus made practically impossible to strip the rail from the tie by any less power than would be required to completely wreck the tie.

To prevent the pair of opposite housings from being forced away from each other in any way, they are tied together by zig-zag bands of steel L, molded into the body of the tie, as shown. These should not be continuous from one end to the other, since when used on electric roads this would carry the current from one rail to another. The inner ends, at the middle of the tie, are accordingly bent so as to interlock, but not touch each other. They of course serve as a powerful reinforcement of the tie, as well as a binder for the housings.

Having thus described my invention, I claim:

1. A railway tie of cementitious material, having spike housings at opposite sides of the rail, with flat serrated walls to engage

the plane inner faces of the spikes, and opposite walls adapted to hold a wedge between them and the rail-holding spikes.

2. A railway tie of cementitious material, having spike housings formed therein at opposite sides of the rail, cavities formed in said housings to take an insertible plate, a hardened, serrated plate in said cavity, and an inclined wall opposite thereto, substantially as described.

3. Combined with a railway tie of cementitious material, a rail-fastening device, comprising a housing at each side of the rail, serrated along its flat inner wall, a plane-faced rail-holding spike, and a wedge inserted between it and the opposite wall of the housing.

4. Combined with a railway tie of cementitious material, a rail fastening device,

comprising a housing each side of the rail, with an inwardly projecting pocket to take a serrated plate, a spike-holding, serrated plate inserted in said pocket, a rail-holding spike, and a wedge between said spike and the opposite wall of the housing.

5. In a railway rail, the combination of a cementitious body with spike housings formed therein at opposite sides of the rail, and interlocking, but discontinuous tie-bands of steel embracing said housings, substantially as and for the purpose set forth.

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

FRANK H. MILLER.

Witnesses:

F. L. MILTON,
JAS. G. McKERRON.