

A. E. WARNER.
RAILWAY TIE AND RAIL FASTENER.
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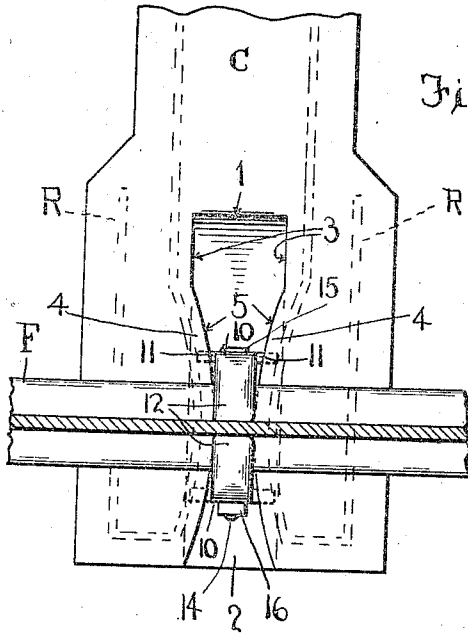


Fig. 1.

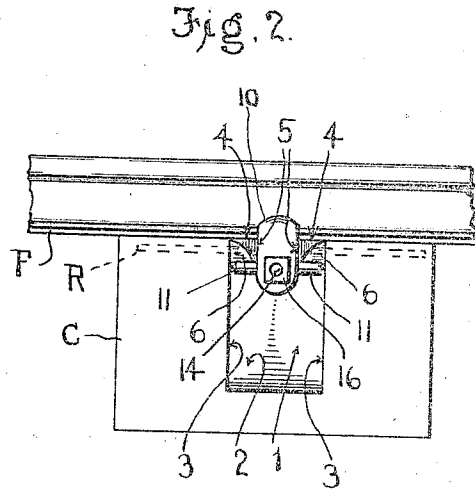


Fig. 2.

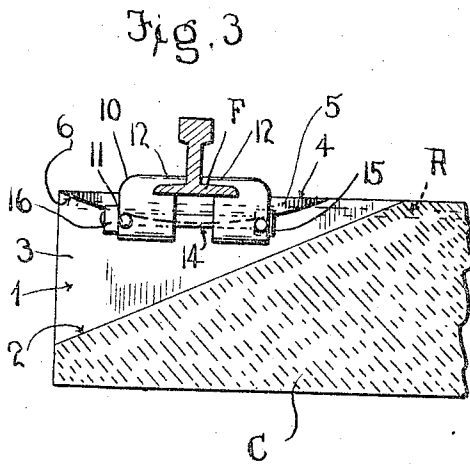
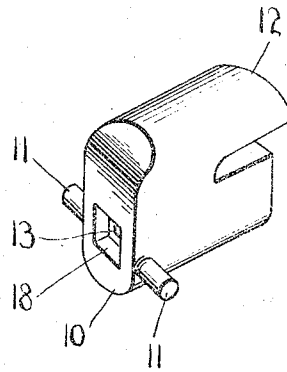


Fig. 3.

Fig. 4.



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ARTHUR E. WARNER, OF VERMILLION, KANSAS.

RAILWAY-TIE AND RAIL-FASTENER.

1,051,037.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR E. WARNER, a citizen of the United States, residing at Vermillion, in the county of Marshall and State of Kansas, have invented certain new and useful Improvements in Railway-Ties and Rail-Fasteners; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to railway ties, and more especially to the devices employed in connection therewith for fastening the rails thereon; and the object of the same is to improve the form of such a fastener when employed in conjunction with a tie made preferably of reinforced concrete or the like.

This and other objects are accomplished by constructing the device in the manner hereinafter more fully described and claimed, and as shown in the drawings, wherein—

Figure 1 is a plan view of one end of a tie, and a horizontal section through the web of a rail showing the base flange thereof connected with the tie by this improved rail fastener; Fig. 2 is an end elevation; Fig. 3 is a central longitudinal section through the end of the tie and a cross section through the rail, showing the fastener in side elevation; Fig. 4 is a perspective detail of one of the members of the fastener proper.

In the drawings the tie by preference has a body composed of concrete C reinforced as at R, although it is quite possible to make the tie of some other material or composition of materials, but I mention reinforced concrete because a tie of that kind is more easy to make in the shape described below so that it works successfully with the rail fastener which is the principal feature of my present invention. Each end of the tie has formed in its upper face a recess 1 disposed by preference about midway between the side edges of the tie, opening out its extremity, and having an inclined bottom 2 out of which the water will run in a manner which will be clear. The side walls 3 of said recess are by preference upright as shown, and at the upper edge of each side wall is formed a lip 4 whose inner edge 5 is by preference struck on a curved line so that the lip is widest at its center where it projects toward the companion lip, and at

either end it merges into the upright wall 3 of the recess, and the centers of the two lips are spaced slightly apart for a purpose to appear below. The lower face 6 of each lip is also by preference rounded downward so that the lip is thickest at its center and thinner near either end; and, as the dotted lines will show, each lip is reinforced as at R if the material of this tie be reinforced concrete.

The fastener proper consists of two like members of metal, one of which is shown in perspective detail in Fig. 4, and a bolt connecting them as will be described. Each member has a substantially cylindrical body 10, studs 11 projecting from opposite sides thereof, and a hook 12 at its upper end projecting parallel with the axis of the bore 13 of said body and slightly beyond one end thereof; and when in place the two body members are placed upon the shank 14 of a bolt whose head 15 stands toward the center of the tie and whose nut 16 may be reached through the outer end of the recess 1 in the end of the tie. In order to prevent the shank of the bolt from rotating when the nut is tightened up, the head 15 is preferably made square or angular, and the inner end of the bore of the innermost fastener member is countersunk as at 18 so as to receive said angular head in a manner which will be clear. The members of the fastener are of course disposed with their tongues or hooks 12 toward each other and overlapping the base flange F of the rail as indicated in the drawings.

In assembling the parts of this improved device, the ties are either laid or molded upon the road-bed in a manner not necessary to amplify in this specification, the innermost fastening member is slipped over the shank of the bolt and against its head (omitting the outermost member and nut for the present), said innermost member dropped into the inner end of the recess beyond the inner extremities of the lips 4 at which point the recess is wide enough to receive this member and both its studs or pins 11, this member and the shank of the bolt then moved forward and outward and during this movement the studs pass down under the inner ends of the lips 4 while the shank of the bolt passes down into the recess, the rail R then laid in place so that its base flange F overlies the two lips and crosses the recess, the hook 12 of the inner-

most fastening member engaged with the inner flange F, the outer fastening member applied to the shank of the bolt and its hook 12 engaged over the outer base flange F while its studs or pins 11 pass under the outer ends of the lips 4 and its bore slipped onto the outer end of the shank 14 of this bolt, and finally the nut applied to the threads of said bolt and tightened up. In tightening up this nut, the head of the bolt draws the inner fastening member outward and the nut presses the outer fastening member inward so that the hooks 12 of both members are forced over the base flange F of the rail R while their cylindrical bodies are moved toward each other along the shank of the bolt and their studs or pins 11 are forced under the thicker central portions of the lips 4. This accounts for making said lips thicker toward the center, because as the members are forced toward each other and the pins or studs 11 ride under said lips the fastener members are bodily drawn downward within the recess 2, and with them moves the base flange F of the rail R until said flange is forced into close contact with the upper surface of the tie.

It is quite possible to apply some nut lock to the outer end of the bolt shank, although it will not be necessary to amplify the same in connection with the present invention.

The parts of this device are entirely of metal properly treated to prevent rust and wear; and of such sizes, shapes, proportions, and specific details of construction as may be consistent with the gist of the entire invention.

What is claimed as new is:—

1. In a rail fastener, the combination with a bolt, and a pair of members each having a cylindrical body whose bore is slidably mounted on said bolt, oppositely projecting studs at the sides of said body, and a hook at the top of said body projecting toward the hook of the other member and adapted to overlie the base flange of the rail; of an element having a recess in which said members and bolt lie, and inwardly projecting lips along the sides of said recesses adapted to overlie said studs.

2. In a rail fastener, the combination with a bolt, and a pair of members each having a body whose bore is slidably mounted on said bolt, oppositely projecting studs at the sides of said body, and a hook at the top of said body projecting toward the hook of the

other member and adapted to overlie the base flange of the rail; of an element having a recess in which said members and bolt lie, and inwardly projecting lips along the sides of said recesses adapted to overlie said studs, the lips having their lower faces rounded so that they are thick at their centers and thinner toward their extremities.

3. In a rail fastener, the combination with a bolt, and a pair of members each having a body whose bore is slidably mounted on said bolt, oppositely projecting studs at the sides of said body, and a hook at the top of said body projecting toward the hook of the other member and adapted to overlie the base flange of the rail; of an element having a recess in which said members and bolt lie, and inwardly projecting lips along the sides of said recess adapted to overlie said studs, the lips being rounded on their inner edges so that they are widest at the centers of their length.

4. In a rail fastener, the combination with a bolt, and a pair of members each having a body whose bore is slidably mounted on said bolt, oppositely projecting studs at the sides of said body, and a hook at the top of said body projecting toward the hook of the other member and adapted to overlie the base flange of the rail; of a tie formed with a recess in its upper face at each end inclining toward and opening out the extremity of the tie, and oppositely disposed lips on the side walls of said recess having their inner edges curved inward and their lower faces curved downward and adapted to engage over the studs on said members, for the purpose set forth.

5. The combination with a bolt, and a pair of members having tubular bodies loosely engaging said bolt, studs projecting from opposite sides of said bodies, and hooks on said bodies adapted to engage over the base flange of a rail; of a reinforced concrete tie having in its upper face a channel opening out its extremity, and reinforced lips projecting inward from both walls of said channel near the end of the tie and adapted to overlie the studs on said members when the fastening device is in place, for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ARTHUR E. WARNER.

Witnesses:

F. F. GOODWIN,
W. H. DE WALT.