

METALLIC TIE AND RAIL FASTENER.

1,031,225.

~~On~~, ~~about~~, or

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UNITED STATES PATENT OFFICE.

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METALLIC TIE AND RAIL-FASTENER.

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To all whom it may concern:

Be it known that I, FRANCISCO ARELLANO, a citizen of Mexico, residing at Ysleta, in the county of El Paso and State of Texas, have invented certain new and useful Improvements in Metallic 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 fasteners, and more especially to ties which are made of metal and include means for fastening the rails thereto; and the object of the same is to produce an extremely simple and durable device of this character which does away entirely with the use of and necessity for bolts or nuts. This and other objects are accomplished by the construction hereinafter more fully described and claimed, and as shown in the drawings wherein—

Figure 1 is a plan view of this improved rail tie and fastener, showing a continuous rail as connected to it at the left end and the meeting extremities of two rails connected to it at the right end of the view; and Fig. 2 is a transverse section on about the line 2—2 of Fig. 1. Fig. 3 is an end elevation taken from the right end of Fig. 1, and Fig. 4 is a similar elevation with one rail and partly in section. Fig. 5 is a perspective detail of the key.

In the drawings the letter R designates the continuous portion of a rail, and E, E are the meeting ends of two rails which are here shown as connected by a tongue-and-groove joint of peculiar formation coacting well with the tie and fastener forming the subject matter of this invention. That is to say, the web W is thickened at the rail-end as at T so that it is of substantially the same thickness as the ball B of the rail, and the extremities of the rail-ends E are provided respectively with a tongue and a groove which interengage as shown at I in Fig. 1. However, for a purpose which will appear below, the tongue-and-groove members extend from the face of the tread or ball B of the rails only part way down, and as shown in Fig. 4 the rail-ends E are cut off straight as at S for the remainder of the distance

and abut closely when the tongue and groove members are in engagement.

Coming now more particularly to the details of the present invention, my improved tie and fastener is made in two principal members whereof the body member 1 has a cross section of substantially the same shape as an ordinary rail, as best seen in Fig. 4, its extremities being beveled off as at 2 and its base having one or more downwardly projecting fins 3 to prevent it from moving transversely of the track. The head 4 of this tie member is made rather thick at its extremities and provided on its upper face with a flat seat 5 whereon the rail or rails rest, and rising from the outer portion of this seat is a hook 6 whose bill is flattened into a bill that is substantially the full width of the head as seen in Fig. 3. This hook projects over the outer base flange 7 of a continuous rail R as seen at the left of Fig. 1, and where the rail ends E meet as seen in Fig. 4 the thickened portions T thereof are provided with recesses 8 into which said hook projects when the extremities abut and are held against each other by the tongue-and-groove connection above described or any equivalent therefor that is employed. The other member of the tie consists of a straight and rather thin body 11 overlying the central portion of the body member 1, and at each end of the body portion 11 is an integral thickened lug 12 continued at its upper outer end into a hook 16 complementing that numbered 6 and having a wide bill engaging over the inner flange 17 of a continuous rail R or with a recess 18 at the inner side of the meeting ends E of two rails similar to the recess 8. For securing the two members of the tie together, the outer end of each lug 12 is further provided with a lip 13 standing below the hook 16 a sufficient distance to permit it to engage a groove 14 which is formed along the inner side of the head 4 of the base member, as seen in Fig. 2.

The parts of this device as thus far described are put into position as follows: The base member 1 of the tie is laid upon or seated in the road bed (or upon the sleepers if they are used), and next the rails are placed in position and the outer flanges of a continuous rail R are engaged under

the hooks 6 or the registering recesses 8 of rail ends E, E, engaged under said hooks as described. The upper member 11 is then brought into position and laid upon the base member obliquely to the length thereof, its lips 13 engaged in the grooves 14 and its hooks 16 engaged over the inner flanges of the rails. In the case of a rail joint occurring opposite a continuous rail as shown in Fig. 1, the hook 16 would first be seated in the registering recesses 18 of the rail joint and then the opposite hook 16 passed over the continuous inner flange 17 of the other rail; but in either case after this member has been put in place, it is forced finally into a position in strict parallelism with the base member 1 so that it alines with the heads 4 thereof as best seen in Fig. 1. At this time its lip 13 will hold it upon the base member and its hooks 16 will hold the rails upon the seats 5, while the outside hooks 6 assist.

In order that the members of this improved tie may not become disconnected, I make use of any suitable fastening means between them, but by preference I employ that which will now be described: Through some portion of the upper member 11 is formed an upright hole 20, and the lug 12 is preferably selected for this hole because it permits the same to have a greater length; and in the base member 1 beneath the hole is formed a pocket 21 opening out the top of said member through a reduced hole 22 which is intended to aline with the hole 20 in the upper member when the two members stand one above the other as seen in Fig. 1. The key best illustrated in Fig. 5 is placed in these holes at that time, and in order that it may not become lost or displaced by the vibration to which the parts are subjected, I make it of tempered metal having a body 23 of a shape to fit said holes and diverging legs 24 with outturned hook-shaped toes 25 at their lower extremities; while the upper end of the body is preferably notched as at 26 to permit the key to be forced out of place if it should become necessary to do so. To insert this key, its legs 24 are pressed toward each other until the outer extremities of the toes 25 may be passed through the hole 20 and downward through the hole 22, after which they will spring apart and engage in the socket 21 as seen in section at the left of Fig. 2. However, it is quite possible to drive an ordinary spike through the registering holes 20 and 22, when its point will strike the rounded bottom of the pocket 21 and clench itself therein. Whatever fastening device is used at this point, I preferably omit all bolts and nuts as first stated above.

I reserve the right to make changes in details such as come within the spirit of the present invention.

Attention is directed to the fact that while I have described the use of a tongue-and-groove connection between the rail ends E, this improved rail tie and fastener could be used on ordinary rails whose extremities abut on a vertical straight line, or on any other form of rail-end joint where the web W is not interrupted, or, if interrupted, has some such recesses as those numbered 8 and 18 herein.

What is claimed as new is:

1. The herein described railway tie comprising a lower member having at each end a raised head provided with a rail-seat and a groove along its inner edge, and a hook rising from said head and overlying the seat; and an upper member mounted upon the lower member and secured thereto and having at each end an enlarged lug with an outwardly projecting lip adapted to engage said groove, and above it an outwardly projecting hook complementing that on the head.

2. The combination with a rail joint comprising the meeting ends of two rails whose webs are thickened at their extremities and provided in both sides with recesses, and a connection between the extremities of the rails holding said recesses in register; of a combined tie and fastener comprising a lower member having at each end an intumed hook adapted to engage the recesses in the outer sides of the rails, an upper member having at each end an outturned hook adapted to engage the recesses in the inner sides of said rail joint, and means for holding the upper member alined with and upon the lower.

3. The combination with two rail-ends whose extremities abut on a straight vertical line across their bases and upward throughout a portion of their webs and have a tongue-and-groove engagement above said portion, and whose webs are thickened where they are cut off straight and provided with registering recesses in their sides; of a combined tie and fastener comprising a lower member having at its extremities intumed hooks with wide bills forming lips entering the outer recesses, an upper member overlying the lower member and having at its extremities similar hooks whose bills form lips projecting outward and entering the inner recesses, and means for holding said members detachably connected.

4. The combination with a rail joint comprising the meeting ends of two rails whose webs are thickened at their extremities and provided in both sides with recesses, and a connection between the extremities of the rails holding said recesses in register; of a combined tie and fastener comprising a lower member having at each end a raised head provided with a rail seat and a groove along its inner edge, and an intumed hook

adapted to engage the recesses in the outer
sides of the rails, an upper member having
at each end an enlarged lug with an out-
wardly projecting lip adapted to engage said
5 groove, and an outturned hook adapted to
engage the recesses in the inner sides of said
rail joint, and means for holding the upper
member alined with and upon the lower.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit- 10
nesses.

FRANCISCO ARELLANO.

Witnesses:

JESSE WALBRIDGE,

E. S. WHITE.