

UNITED STATES PATENT OFFICE.

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RAIL-FASTENER FOR METALLIC TIES.

No. 917,255.

Specification of Letters Patent.

Patented April 6, 1909.

Application filed August 31, 1908. Serial No. 450,931.

To all whom it may concern:

Be it known that we, COLUMBUS D. COUSINO and LAWRENCE COUSINO, citizens of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Rail-Fasteners for Metal Ties, of which the following is a specification.

Our invention relates to a rail fastener for metal ties, and has for its object to provide a safe and convenient device for attaching a rail to a metal tie, whereby the rail is directly braced against the tie to resist a spreading stress on the rail, and which, under such stress, operates to produce a downward pull on the inner flange of the rail that more firmly secures the rail against tilting on the tie.

A further object is to provide a device of the kind that is adapted to secure both flanges of the rail to the tie by a single bolt.

We accomplish these objects by the construction and combination of parts as hereinafter described and illustrated in the drawings, in which—

Figure 1 is a top view of a rail secured to a metal tie by our fastener. Fig. 2 is a longitudinal, vertical section of Fig. 1 on line $x-x$, and Fig. 3 is an outer side elevation of a rail mounted on a metal tie,—shown in end elevation,—and secured thereon by a fastener constructed in accordance with our invention.

In the drawings 1 designates a channel shaped metal tie, 2 a T rail transversely mounted on the tie, and 3 a fastener securing the rail to the tie, and comprising a bolt 4, a clip 5, and a truss segment 6.

The top 7 of the tie at each end portion, is provided, adjacent to the edge of the inner flange of each rail, with a bolt hole 8 of suitable size to receive the body of the bolt 4, and adjacent to the edge of the outer flange of each rail, with an elongated hole 9 extending lengthwise of the tie and having its inner end circular and its outer end square.

The body of the bolt 4 is cylindrical, and bent semi-circular from its spike head 10 to its threaded end portion 11, which tangentially extends the main body portion of the bolt.

The clip 5 is a metal block of suitable width and is of a length to extend from the outer edge of the hole 9 of the tie to the web of the rail 2. The under face of the clip is cut away to fit over the outer flange of the rail

and form a shoulder 12 engaging the edge of the flange and the portion extending outside the flange is formed at the under side to so rest on the top of the tie that the upper face of the clip will be parallel with the upper face of the rail flange. The underside of the clip has a lug 13 projecting central of and flush with the outer end of the clip, of dimensions to enter the outer half portion of the elongated hole 9, and abut against the squared end of the hole, and over the inner half portion of the hole 9, the clip is provided with an orifice 14, to receive the threaded end portion 11 of the bolt 4. The clip thus formed, when mounted on the top of the tie, with the lug 13 in the outer end portion of the hole 9, and the inner end of the clip engaging the web of the rail, forms a solid brace for the rail against lateral movement of the rail toward the adjacent end of the tie 1.

The arc of the truss segment 6 is of a radius one half the diameter of the bolt less than the radius of the outer circle to which the bolt is bent, and the arched face of the segment is provided with a groove 15 of a depth to receive the inner half of the bolt.

The spike head 10 of the bolt extends inward of the circle to which the body of the bolt is bent, and is provided with a flattened inner face adapted to engage and coincide with the top face of the inner flange of the T rail.

Thus constructed, when the rail is in its proper position transverse the tie, the parts are assembled by placing the segment 6 below the top 7 of the tie, between the holes 8 and 9, with the base of the segment against the underside of the top of the tie, and then inserting the threaded end portion of the bolt, first downward through the hole 8, and then upward through the hole 9 of the tie, and through the orifice 14 of the clip. Upon the projecting, threaded end portion of the bolt is then run down a nut 17 until the body of the bolt is drawn upward tightly into the groove 15, and the head 10 is drawn tightly down onto the inner flange of the rail 1.

It is apparent that the tightening of the nut on the clip causes equal downward pressure of the bolt head and the clip on the rail flanges, and that any spreading pressure on the rail will be wholly received by the tie and the clip, without producing any shearing stress on the bolt. It is apparent also that lateral pressure applied to the tread of the rail, and tending to tilt the rail outward,

will tend to lift the inner half portion of the clip, and thereby operate it as a lever fulcrumed on the tie to lift the nut of the bolt, and thereby produce a downward pull of the head of the bolt on the inner flange.

The truss segment 6 distributes any breaking stress on the body of the bolt equally throughout its arch, and its base distributes the upward pull of the bolt over a largely increased area of the underside of the top of the tie, whereby the rail is firmly secured to the tie, with equal pressure on the flanges. The nut of the bolt is preferably provided with a suitable lock, whereby it is secured against working loose.

What we claim to be new is—

In a rail fastener for metal ties the combination with a T rail, and a metal tie transversely supporting the rail and having a flat web top provided with an inner bolt hole adjacent to the inner flange of the rail, and an elongated outer bolt hole opposite the inner bolt hole adjacent to the outer flange, of a fastener for the rail, comprising a clip having an inner end portion adapted to fit over the outer flange of the rail and engage

the web of the rail, and an outer end portion having a lug adapted to enter and shoulder against the outer end of the elongated bolt hole, and provided with a bolt orifice registering with the inner end portion of the elongated bolt hole, a bolt bent semicircular, having a head extending inward of the circle of the bolt, and adapted to engage the inner flange of the rail, and a body portion adapted to be inserted downward through the inner bolt hole, and having a threaded end portion adapted to be extended upward through the elongated hole of the tie and the orifice of the clip, a truss segment interposed between the bolt and the tie, and a nut adapted to be run on the threaded end portion of the bolt against the clip.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses, this 11th day of August, 1908.

COLUMBUS D. COUSINO.
LAWRENCE COUSINO.

In presence of—

R. E. HELM,
JOHN SHEPHERD.