J. C. CROWSON.

RAIL CLAMP.

APPLICATION FILED AUG. 31, 1908.

**938,218.** Patented Oct. 26, 1909.

Fig. 1.

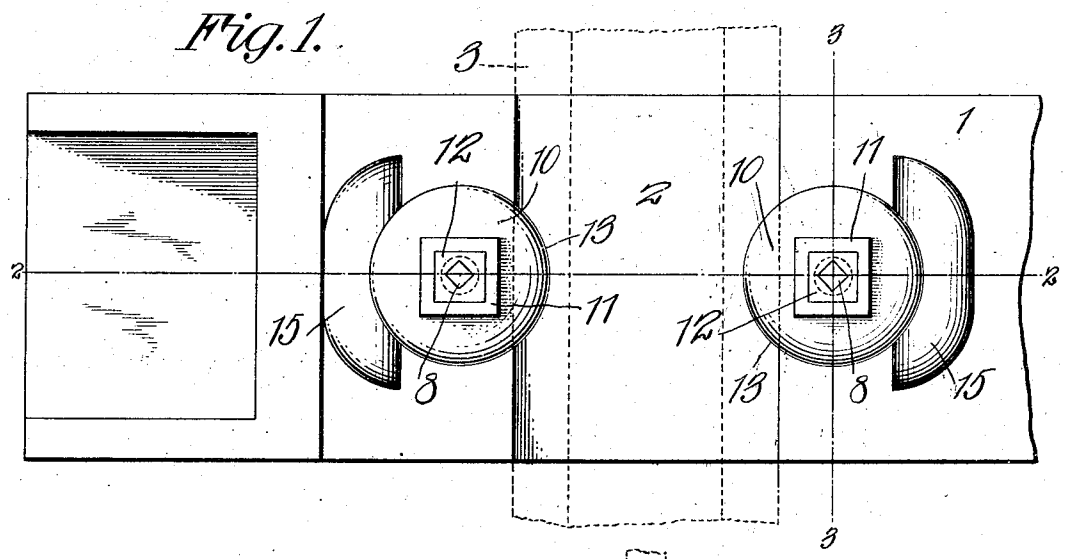



Fig. 2.

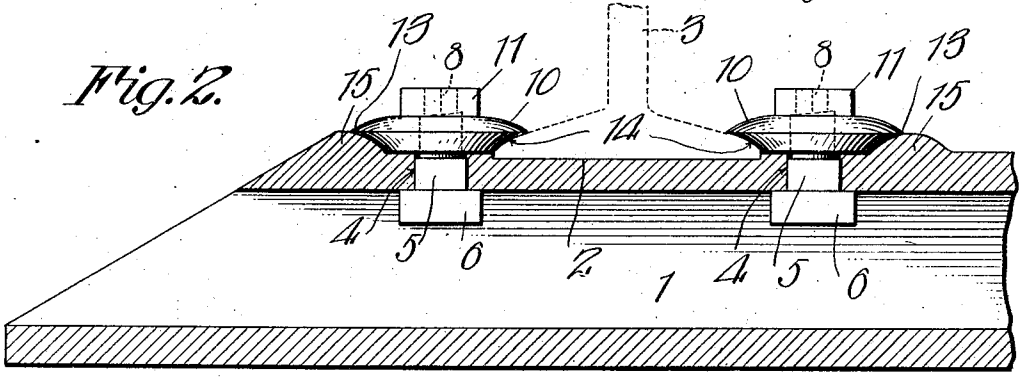



Fig. 3.

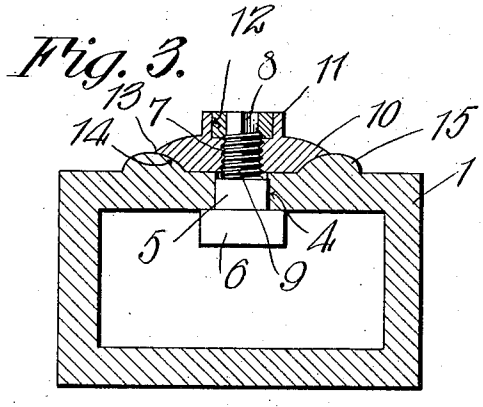
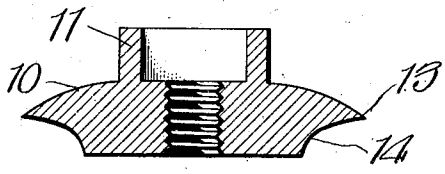



Fig. 4.




Witnesses

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# UNITED STATES PATENT OFFICE.

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## RAIL-CLAMP.

938,218. Specification of Letters Patent. Patented Oct. 26, 1909.

Application filed August 31, 1908. Serial No. 451,002.

*To all whom it may concern:*

Be it known that I, JOHN C. CROWSON, a citizen of the United States, residing at Pensacola, in the county of Escambia, State of Florida, have invented certain new and useful Improvements in Rail-Clamps; and I do hereby 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.

The present invention has relation to improvements in rail clamps, and it aims, primarily, to provide an extremely simple and effective device of that nature arranged for attachment to a hollow steel tie in such a manner as to positively prevent any lateral movement or "spreading" of the rails.

More especially, the invention resides in the provision of a clamp comprising a bolt whose stem projects upwardly through a perforation formed in the top wall of the tie, and a nut threaded upon the bolt stem and arranged to be tightened against the adjacent base flange of the rail, the nut being provided with a seat into which is poured a quantity of molten metal sufficient to fill the same, the filling, on cooling, forming a seal which positively prevents any backward rotation of the nut.

The invention further resides in the particular construction of the bolt and nut above referred to, and in the formation, in spaced relation to and parallel with the outer edge of the rail flange, of a lip against which the nut contacts also when tightened, the provision of this lip preventing any tendency of the nut to rock upon the bolt and strain or bend the latter.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts are designated by the same reference numerals throughout the several views.

Of the said drawings, Figure 1 is a plan view of the complete invention. Fig. 2 is a longitudinal section taken on the line 2—2 of Fig. 1. Fig. 3 is a transverse section taken on the line 3—3 of the same figure. Fig. 4 is an enlarged vertical section taken through one of the nuts.

Referring more particularly to the drawings, 1 designates, generally, a hollow steel tie which is rectangular in cross section and has formed in the outer face of its top wall a transverse seat 2 in which fits the base of the rail 3. Upon opposite sides of this seat, there is formed in said top wall, a pair of openings or bolt holes 4, each of which is arranged to receive the lower portion 5 of the stem of a bolt, whose head 6 is arranged to bear against the inner face of the wall in question. The central portion of the stem of each bolt is threaded, as indicated by the numeral 7, while the extreme upper portion thereof is squared, as indicated by the numeral 8, the last mentioned portion having a reduced diameter with reference to the central portion 7, which latter portion, in turn, has a smaller diameter than that of the portion 5. The height of this portion 5 is slightly less than the thickness of the tie wall, so that the shoulder 9 resulting from the formation of the reduced central portion 7, is disposed below the outer face of the tie wall, as shown in Fig. 3.

Upon the projecting end of each bolt is threaded a nut 10, whose upper face has formed thereupon an upstanding rectangular wall 11, which is arranged concentric with the usual axial opening formed in the body of the nut. The formation of this wall results in the production of a seat 12, as will be apparent. The thickness of the body portion of the nut is such that the uppermost thread of the central portion 7 of the bolt, is disposed within the seat above referred to, when the nut is tightened upon the bolt, the shoulder 9 remaining out of contact with the flat bottom face of the nut. The nut is formed with a circumscribing peripheral flange 13, whose under face 14 is concaved and is arranged to bind against the upper face of the adjacent flange of the rail base, and against a transversely-disposed lip 15, which is likewise formed upon the outer face of the top wall of the tie, the ends of the lip terminating short of the longitudinal edges of the tie. One of the lips is located to the right of the right hand bolt hole, while the other lip is located an equal distance to the left of the left hand bolt hole.

When the nuts have been tightened upon the bolts to the proper extent, there is poured into each of the seats 11, a quantity of molten lead or other suitable material, sufficient to fill the same, the filling, when cooled, forming a solid seal around the squared upper portion 8 of the bolt, and thus positively preventing any backward rotation of the nut. The filling also surrounds the uppermost thread of the portion

7 of the bolt, this thread, as above stated, lying within the seat.

From the foregoing, it will be understood that any movement of the rail, when once properly clamped in the manner above described, is impossible, since the rail base is firmly held in position in its seat by the nuts 10, which latter are themselves held against movement.

Any tendency of the nuts to be rocked inwardly or toward the rail, is checked by the binding engagement of the nuts with the top face of the tie, while any tendency toward movement in the opposite direction is prevented by the formation of the lips 15.

The form of clamp shown and described in this case is preferably designed for use in connection with a hollow tie, since this type of tie permits the bolt to be readily fitted in the bolt holes from within the interior of the tie, the ends of which latter are preferably beveled, as shown, to facilitate the positioning of the bolts.

While molten lead is preferably utilized as the filling for the seats 12, it is to be understood that there is no positive limitation to this material, since cement may be used in place thereof, or any other material which may be found suitable.

What is claimed is:

1. The combination of a tie formed with a bolt hole; a rail extending across the tie adjacent the bolt hole; a bolt having its stem projecting upwardly through the bolt hole; a peripherally flanged nut threaded upon the projecting end of the bolt and arranged to be tightened against the adjacent base flange of the rail; and means carried by the nut for preventing backward rotation thereof.

2. The combination of a hollow tie having a bolt hole formed in its top wall; a rail extending across said wall adjacent the bolt hole; a bolt having its head bearing against the inner face of said wall and its stem projecting through the bolt hole; a peripherally flanged nut threaded upon the projecting end of the bolt and arranged to be tightened against the adjacent base flange of the rail; and means carried by the nut for preventing backward rotation thereof.

3. The combination of a tie formed with a bolt hole; a rail extending across the tie adjacent the bolt hole; a bolt having its stem projecting upwardly through the bolt hole; a peripherally flanged nut threaded upon the projecting end of the bolt and having an axially located seat formed in its top face, said nut being arranged to be tightened against the adjacent base flange of the rail; and a seal filling said seat and surrounding the bolt end to prevent backward rotation of the nut.

4. The combination of a hollow tie having a bolt hole formed in its top wall; a rail extending across said wall adjacent the bolt hole; a bolt having its head bearing against the inner face of said wall and its stem projecting through the bolt hole; a peripherally flanged nut having an axial seat formed in its top face said nut being arranged to be tightened against the adjacent base flange of the rail; and a seal filling said seat and surrounding the bolt and to prevent backward rotation of the nut.

5. The combination of a tie formed with a bolt hole; a rail extending across the tie adjacent the bolt hole; a bolt having its threaded stem projecting upwardly through the bolt hole; a peripherally flanged nut threaded upon the projecting end of the stem and having an axially located seat formed in its top face, said nut being arranged to be tightened against the adjacent base flange of the rail; and a seal filling said seat and surrounding the bolt end, to prevent backward rotation of the nut.

6. The combination of a hollow tie having a bolt hole formed in its upper wall; a rail extending across said wall adjacent the bolt hole; a bolt having its head bearing against the inner face of said wall and its threaded stem projecting upwardly through the bolt hole; a peripherally flanged nut threaded upon the projecting end of the stem and having an axially located seat formed in its top face, said nut being arranged to be tightened against the adjacent base flange of the rail; and a seal filling said seat and surrounding the bolt end, to prevent backward rotation of the nut.

7. The combination of a tie formed with a bolt hole; a rail extending across the tie at one side of the bolt hole; a bolt having its stem projecting upwardly through the bolt hole; a peripherally flanged nut threaded upon the projecting end of the bolt; and a lip provided upon the tie at the other side of the bolt hole, said nut being arranged to be tightened upon said bolt, to bring its flange into binding contact with the adjacent base flange of the rail and with said lip.

8. The combination of a hollow tie having a bolt hole formed in its upper wall; a rail extending across said wall at one side of the bolt hole; a bolt having its head bearing against the inner face of said wall and its stem projecting upwardly through the bolt hole; a peripherally flanged nut threaded upon the projecting end of the bolt; and a lip provided upon the tie at the other side of the bolt hole, said nut being arranged to be tightened upon said bolt, to bring its flange into binding contact with the adjacent base flange of the rail and with said lip.

9. The combination of a tie formed with a bolt hole; a rail extending across the tie at one side of the bolt hole; a bolt having its threaded stem projecting upwardly through the bolt hole; a peripherally flanged nut

threaded upon the projecting end of the stem and having an axially located seat formed in its top face, said nut being arranged to be tightened against the adjacent base flange of the rail; a seal filling said seat and surrounding the bolt end, to prevent backward rotation of the nut; and a lip provided upon the tie at the other side of the bolt hole, said nut being arranged to be tightened upon said bolt, to bring its flange into binding contact with the adjacent base flange of the rail and with said lip.

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

JOHN C. CROWSON.

Witnesses:
B. E. COOKSEY,
H. C. M. CARTENEY.