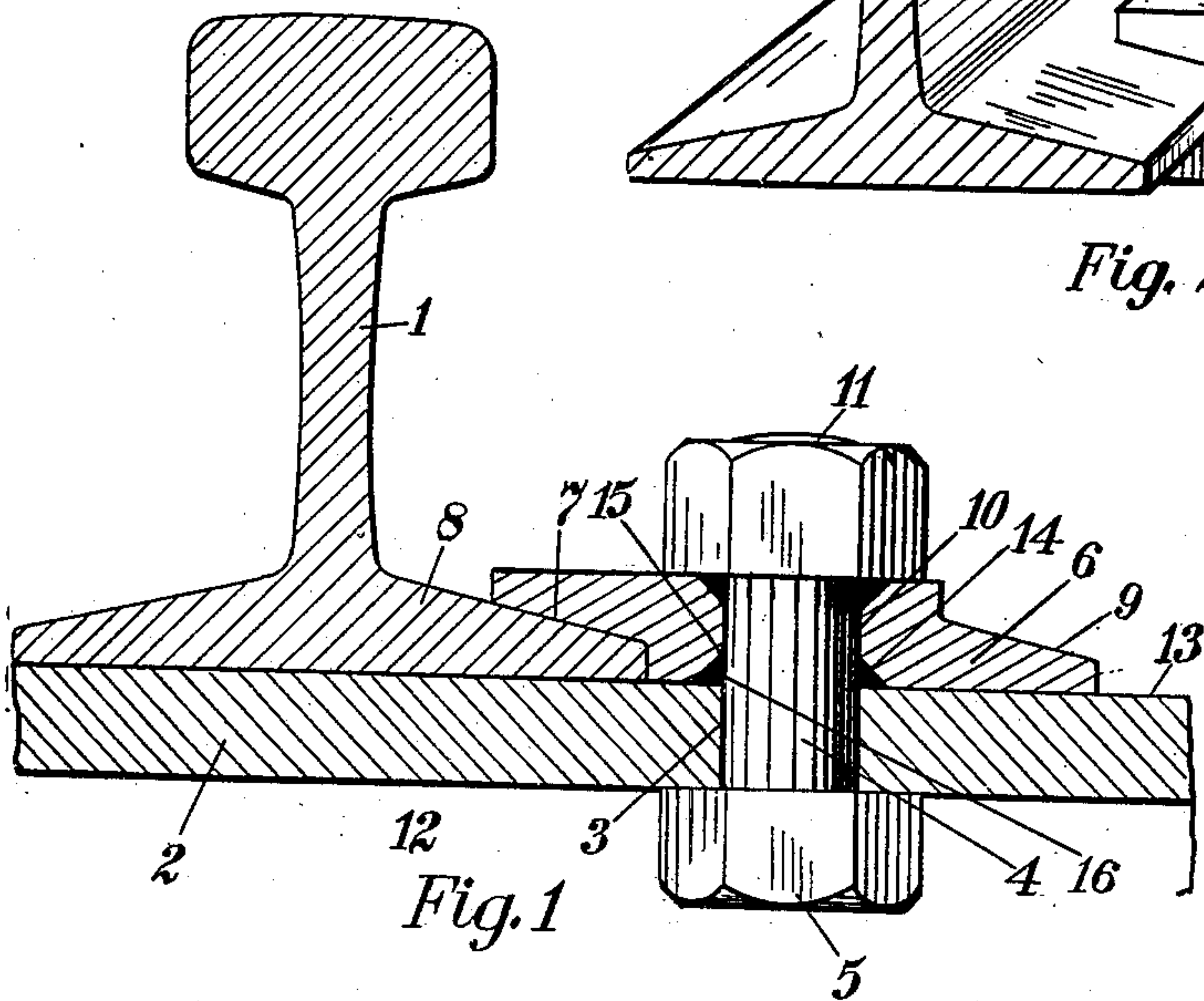
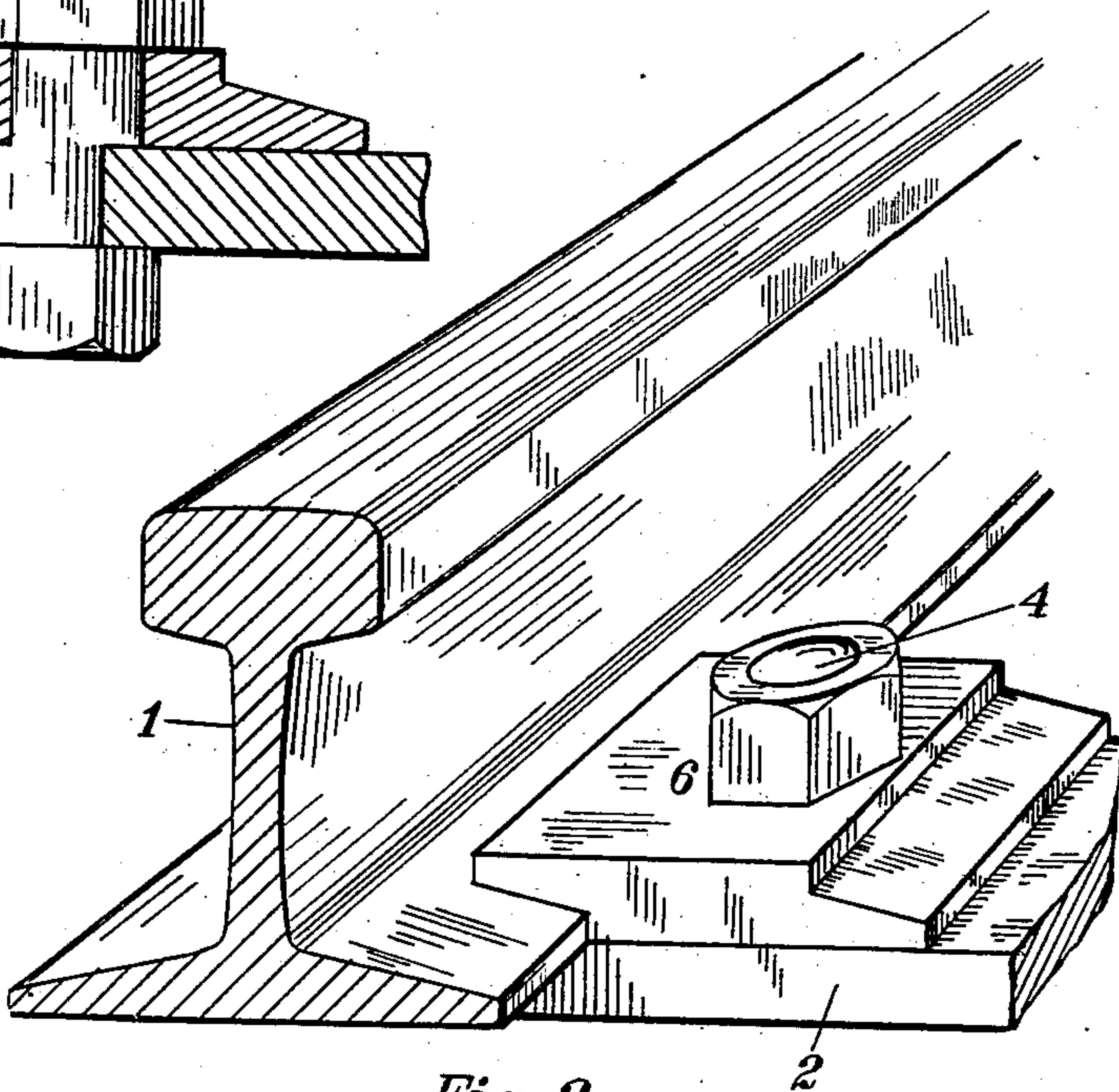
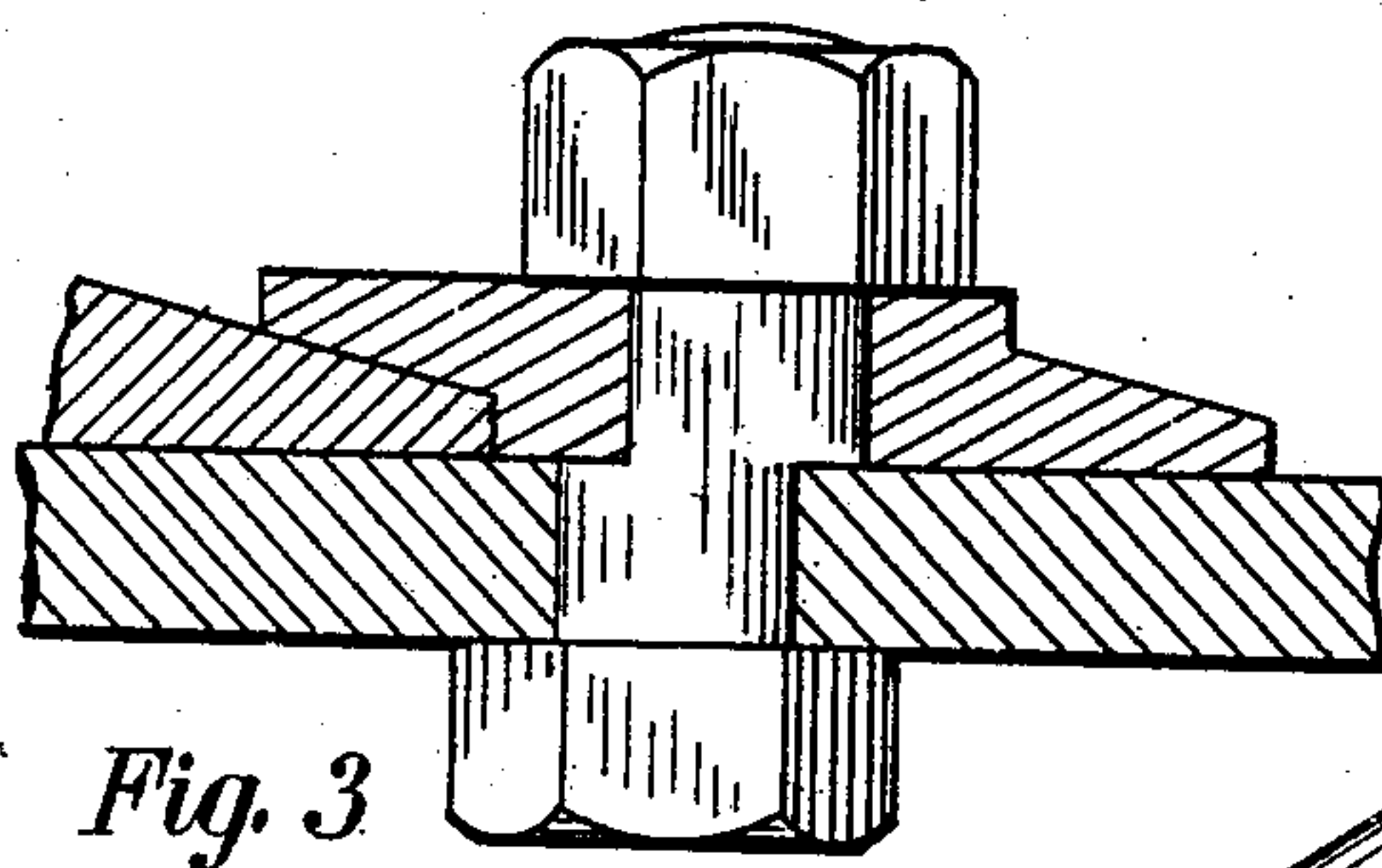


A. M. GAINES.
FASTENING CLIP FOR RAILROAD RAILS.
APPLICATION FILED JUNE 27, 1907.

903,702.

Patented Nov. 10, 1908.



WITNESSES:

R. Rogers
R. Meekly John

Alfred M. Gaines, INVENTOR.

BY

Geo. W. Rightmire
ATTORNEY.

UNITED STATES PATENT OFFICE.

ALFRED M. GAINES, OF COLUMBUS, OHIO.

FASTENING-CLIP FOR RAILROAD-RAILS.

No. 903,702.

Specification of Letters Patent.

Patented Nov. 10, 1908.

Application filed June 27, 1907. Serial No. 381,112.

To all whom it may concern:

Be it known that I, ALFRED M. GAINES, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Fastening-Clips for Railroad-Rails, of which the following is a specification.

My invention relates to improvements in a clip or fastener for securing T-rails to a tie, and is especially adapted for use with a steel tie, the object being to prevent the shearing of the bolt confining the clip in place on account of the outward pressure exerted upon the rail by a train passing thereover.

In the accompanying drawings, Figure 1 is a vertical section through a T-rail and the supporting steel tie and the clip securing the rail in place, the bolt being shown; Fig. 2 shows the T-rail in vertical section and the clip and bolt securing the same to the steel tie, in perspective. Fig. 3 shows a bolt in position partially sheared.

Referring to the drawings in which similar numerals indicate similar parts throughout, 1 designates the rail used in forming a railroad track, resting at its base upon a steel tie 2; through the tie at a point outside of the rail is an opening 3 for the reception of a bolt 4 the fixed head 5 of which is adapted to be underneath the tie and embedded in the foundation upon which the tie rests. The bolt passes upwardly through the said opening 3 and there is positioned thereon from above the clip or fastening member 6, having a beveled portion 7 to engage the foot 8 of the rail from above on one side of the web, and the beveled portion 9 on the opposite side of the opposite end of the fastening member, so that the clip may be reversed whenever desired. Through the clip or fastening member at 10 is an opening for the reception of the bolt 4, and after the clip has been properly placed the nut 11 is turned until the fastening member and T-rail and steel tie are firmly bound together as appears in Fig. 1.

If the opening 10 through the fastening member is made uniform throughout from the upper to the lower edges of the fastening member, it has been found that the bolt will shear on account of the lateral stress upon the clip due to the outward pressure exerted upon the rail head. This pressure tends to force the rail laterally and the foot thereof engaging against the shoulder 12 of the clip

will tend to force the latter outwardly; the bolt acts as an obstruction, but on account of the great pressure exerted thereon in the manner described, the bolt is gradually sheared along the horizontal line 13 forming the upper face of the tie 2. After the shearing has gone on for a time, each subsequent passage of a train increases the shearing and finally the stress thereon becomes so great that the bolt is severed completely. It is shown that the movement of the clip against the bolt which is held immovable, so far as it is enveloped by the steel tie, causes the clip to act as a knife in gradually severing the bolt smoothly along a line lying in the plane of the upper face of the tie, so that when the severing is complete, it is found that the nut and upper portion of the bolt are separated completely from the lower portion, thus leaving the fixed head and lower portion of the bolt in place in the tie. Serious accidents have occurred on account of this shearing of the bolt as described, and to avoid such catastrophe is the object of my invention, which is confined particularly to the provision of a bevel-faced depression 14 surrounding the opening through the clip or fastening member on the face thereof in contact with the steel tie. This rimmed out depression relieves the bolt where it issues from the tie from the cutting effect thereon produced by the fastening member when the lower walls of the opening through the latter register continuously with the walls of the opening through the steel tie.

Outward pressure exerted upon the fastening member through the foot of the rail will, with my improvement, be directed against the bolt at a point above the upper face of the tie, as at 15; consequently on account of the free portion 16 the tendency of such stress thereon will be not to sever the bolt but to bend the same so that the upper portion thereof will after a series of such stresses thereon, stand at an angle with the lower portion embedded in the tie, and the stress thereon will thereafter be exerted at a varying angle along the length of the bolt, exercising a pull outwardly thereon to a much greater extent than it exercises a shearing stress laterally thereon. Therefore, by providing the free area around the bolt as shown at 16, just above the point where it issues from the steel tie, I effectually overcome the tendency of the stress upon the bolt to shear the latter. Consequently by inspection of the track it can be more easily deter-

mined whether the bolt is giving way and also, the bolt, though being somewhat bent by the stress thereon, is nevertheless stronger than if it were being sheared gradually.

5 Experiment has shown that the shearing tendency is practically overcome and that the life of the bolt is greatly prolonged and the safety of passengers and rolling stock is much greater.

10 In the drawings both faces of the fastening member are shown rimmed out, so that said member may be reversed or turned upside down and applied with the bevel face 9 to the foot 8 of the rail; the depth of the
15 beveled portion may be varied as required by the conditions under which the fastening member may be used.

What I claim is:

20 1. A T-rail fastening device for use with metallic ties and adapted to be positioned thereon, comprising a clamp member having a central portion provided with an opening therethrough rimmed out at the end adjacent to the tie, a bolt adapted to be inserted

vertically through said opening to secure 25 said device to said tie, and a flange on said device adapted to overlap said rail, which construction obviates shearing of the bolt by the lateral play of the rail in service.

2. A reversible T-rail fastening device for 30 use with metal ties and adapted to be positioned thereon, comprising a clamp member having a central portion provided with an opening therethrough rimmed out at both 35 ends, a bolt adapted to be inserted through said opening to secure said device to said tie, oppositely turned flanges at the opposite ends of said device, either flange adapted to be brought into overlap relation with a portion of the rail as desired, which construc- 40 tion obviates shearing of the bolt by lateral play of the rail in service.

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

ALFRED M. GAINES.

Witnesses:

GEO. W. RIGHTMIRE,
A. RAGER.