

W. I. F. HARDEN.  
RAIL CLAMP.  
APPLICATION FILED NOV. 19, 1908.

934,725.

Patented Sept. 21, 1909

Fig 1

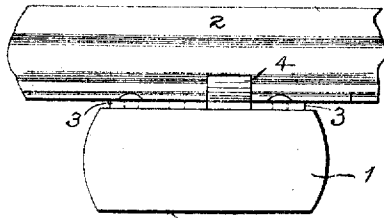


Fig 2

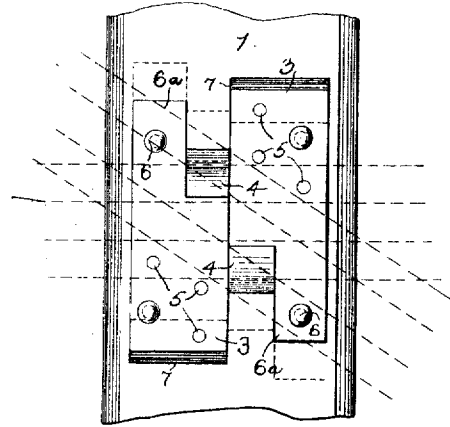


Fig 3

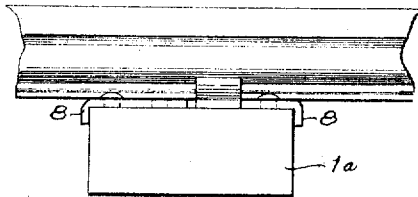


Fig 4

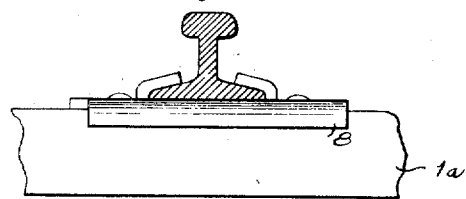


Fig 5

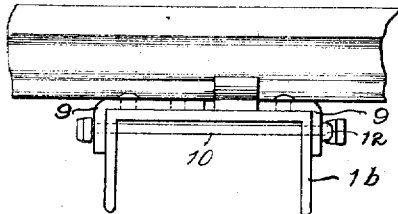


Fig 6

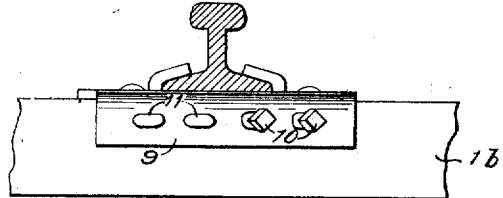


Fig 9

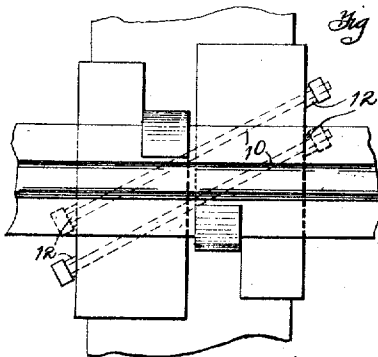
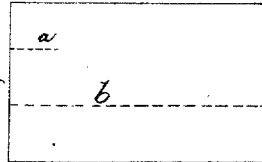


Fig 7



Witnesses  
P. H. Johnson  
M. E. Shook

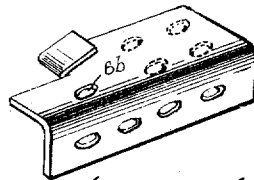


Fig 8

Inventor  
William I. F. Harden,  
By Edern Bros., Attorneys.

# UNITED STATES PATENT OFFICE.

WILLIAM I. F. HARDEN, OF WASHINGTON, DISTRICT OF COLUMBIA.

## RAIL-CLAMP.

934,725.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed November 19, 1908. Serial No. 463,440

*To all whom it may concern:*

Be it known that I, WILLIAM I. F. HARDEN, a citizen of the United States, residing at Washington, in the District of Columbia, 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.

My invention relates to railway ties and fasteners and particularly to devices for fastening the rails to the ties.

It has for its object to protect the ordinary wooden tie and support the rails thereon. The device may also be used on all metal or part metal and part composition ties, and is especially applicable to any of the ties illustrated, described and claimed in my Patents No. 802,450, dated October 24, 1905, No. 807,377, dated December 12, 1905, No. 816,463, dated March 27, 1906, No. 833,048, dated October 9, 1906 and No. 891,164, dated June 16, 1908.

A further object of the invention is to provide for the adjustment of the rail-fastening devices whereby they are adapted to secure rails of different sizes and at different angles, as for instance, at a switch where the rails are arranged obliquely to those of the main track.

The invention consists in the use of two similarly constructed plates arranged in reversed positions on opposite sides of the top of the tie and each having a rail-clamping jaw extending in the opposite direction from that on the other, one or both of said plates being adapted to be moved longitudinally to accommodate said jaws to the width of the foot of the rail or the angle of the rail.

The invention also consists in providing the plates with turned down flanges at their outer edges for protecting the upper corners of wooden ties.

The invention consists further in extending said lateral flanges sufficiently to receive fastening bolts passed through from side to side of metal or other ties.

The invention consists further in arranging said securing bolts obliquely with relation to the tie whereby the two plates are clamped against the rail from opposite sides.

The invention consists further in beveling one end of each plate so that it may be

wedged between the tie and rail by simply driving it in without the necessity of raising the rails or lowering the ties.

The invention also consists in the features of construction and combinations of parts hereinafter described and specified in the claims.

In the accompanying drawing, illustrating the preferred embodiments of my invention: Figure 1 is an end view of an ordinary hewn wood tie with my improved clamping plates applied thereto for fastening the rails. Fig. 2 is a plan view thereof, the positions of the clamping-plates when engaging a rail arranged obliquely, and two positions of the rail being shown in dotted lines. Fig. 3 is the end view of a wooden tie which is rectangular in cross section, showing a modified construction of clamping plates applied thereto. Fig. 4 is a side view of the same. Figs. 5 and 6 are similar views of an inverted U-shaped metallic tie showing another modified form of clamping plates secured to it. Fig. 7 is a plan view of a piece of sheet metal showing in dotted lines how it is cut and bent to form the last modification, and Fig. 8 is a detailed perspective view of one of said plates after it is cut and bent into shape, and Fig. 9 is a plan view of the structure shown in Figs. 5 and 6.

Referring first to Figs. 1 and 2 of the drawing, 1 designates the tie which is hewn from wood in the ordinary manner and provided with flattened top and bottom surfaces. The rail 2 is supported and secured to the tie by my improved clamping plates 3. Each of said plates is generally rectangular in shape, but has a jaw 4 formed at one end by cutting a longitudinal slit inward from one end and bending the inner portion into proper position for engaging the foot of the rail. The two plates which are used together are placed side by side and in reversed positions, that is, the jaw-carrying end of one plate extends in the opposite direction from the jaw-carrying end of the other. One or both of the plates may be adjusted longitudinally to accommodate the width of the foot of the rail and for this purpose is provided with a series of perforations or holes 5 therein at the opposite end from the jaw. A perforation 6 is also formed in the portion 6\* of the jaw-carrying end of the plate which is left flat and extends beyond said jaw. Said plate is secured to the tie by

means of spikes driven through the perforation 6 and one of the perforations 5 which are exposed after the rail is in place.

As illustrated in dotted lines in Fig. 2, my clamping-plates are particularly useful for fastening rails at a switch where they are arranged obliquely to the rails of the main track. The plates may be easily moved longitudinally to increase or lessen the distance between their jaws to accommodate any angle of the rail, and when adjusted to the proper position can be quickly secured by driving the spikes as previously described. This application of my invention is of special practical value because of its simplicity and because none of the clamping-plates now in use are adapted for this purpose. The end of each plate opposite its jaw is beveled off, as at 7, whereby it may be driven between the rail and tie of an old track. When thus driven in the plate wedges itself between said rail and tie thereby doing away with the necessity of raising the rail or removing the ballast and lowering the tie. The practical value of this feature will also be readily appreciated by those skilled in railroad construction.

Referring to Figs. 3 and 4 of the drawing, I have there illustrated the clamping-plates applied to a wooden tie 1<sup>a</sup> which is rectangular in cross section. Said plates are formed similarly to those shown in Figs. 1 and 2 except that they are extended laterally and bent down to form flanges 8 which cover and protect the upper corners of the tie from wearing away below the rail where the greatest pressure is exerted.

The application of my invention to a metal tie is illustrated in Figs. 5 and 6. The tie 1<sup>b</sup> is made in the shape of an inverted U in cross section like that illustrated in my last patent No. 891,164, dated June 16, 1908. The flanges 9 on the clamping-plates are extended far enough down the sides of the tie to permit fastening bolts 10 to be passed horizontally through perforations 11 in said flanges and through other perforations in the sides of the tie just below the top of the latter. A plurality of these perforations are provided for the purpose of adjustment. Said perforations are preferably made in the form of elongated slots, as shown to permit nicer adjustments and provide for the shrinkage and expansion of the rails. The bolts are passed through the tie obliquely thereto as illustrated in Fig. 9 and thereby serve to clamp the plates securely against opposite sides of the rail. Angle washers 12 are used at each end of the bolts. Said bolts will probably be sufficient to secure the plates in place, but if desired, vertical bolts or rivets may be passed through other perforations in the horizontal portion of the plates as shown in dotted lines in Fig. 8. These perforations may also be elongated

slots and one may be placed in lateral alignment with the jaw, as indicated at 6<sup>b</sup> in Fig. 8, for the passage of a rail-engaging spike in the event that said jaw should be broken off.

It will be understood that while I have shown and described the clamping plates as made of sheet metal, they may be cast or forged or formed in any other suitable manner.

In Fig. 7 the dotted line *a* indicates the slit which is cut for forming the jaw, while the dotted line *b* indicates where the plate is bent to form the flange.

I claim:

1. A rail clamp comprising two plates, each having a portion adapted to extend below a rail and a jaw at one end for gripping the foot of a rail, said plates being arranged side by side in reverse order when in use and one being adjustable longitudinally with relation to the other for the purposes specified, the end of each plate opposite its jaw being provided with a plurality of perforations at various distances from said jaw whereby at least one of them is exposed to receive a securing spike at each adjustment, each plate also having a portion extending beyond its jaw and provided with a perforation to receive a securing spike.

2. A rail clamp comprising two plates, each having a portion adapted to extend below a rail and a jaw at one end for gripping the foot of a rail, said plates being arranged side by side in reverse order when in use the free end of each plate being beveled off for the purpose specified, and means for fastening said plates in proper position.

3. A rail clamp comprising two plates each having a portion adapted to extend below a rail and a jaw at one end for gripping the foot of a rail, said plates being arranged side by side in reverse order when in use and each having a downwardly extending flange at its outer edge to cover and protect the upper corners of a tie.

4. A rail clamp comprising two plates each having a portion adapted to extend below a rail and a jaw at one end for gripping the foot of a rail, said plates being arranged side by side in reverse order when in use and each having a downwardly extending flange at its outer edge to cover and protect the upper corner of a tie, each plate also having a flat portion extending beyond its jaw, and means to fasten said flat portion in proper position.

5. A rail clamp comprising two plates each having a portion adapted to extend below a rail and a jaw at one end for gripping the foot of a rail, said plates being arranged side by side in reverse order when in use and each having a downwardly extending flange at its outer edge adapted to extend partially down the side of a tie, said flange having a

series of perforations therein to provide for longitudinal adjustment of said plates, and bolts adapted to be passed through perforations in the flanges of said plates and through a tie.

5 6. A rail clamp comprising two plates, each having a portion adapted to extend below a rail and a jaw at one end for gripping the foot of a rail, said plates being arranged  
10 side by side in reverse order when in use and each having a downwardly extending flange at its outer edge adapted to extend partially down the side of a tie, said flange having a series of perforations therein to provide for longitudinal adjustment of said plates, and  
15 bolts adapted to be passed through perforations in the flanges of said plates and through a tie, each of said plates also having a flat portion extending beyond its jaw, and  
20 means to fasten said flat portion in proper position.

7. The combination, with a metal tie which is shaped generally like an inverted U in cross section, of a rail clamp comprising two  
25 plates, each having a portion adapted to extend below a rail and a jaw at one end for gripping the foot of a rail, said plates being arranged side by side in reverse order when in use and each having a downwardly extending flange at its outer edge adapted to extend partially down the side of the tie, said flanges and the sides of the tie having  
30 a series of perforations therein to provide for longitudinal adjustment of said plates for the purposes specified, and bolts adapted  
35 to be passed through perforations and to be arranged just below the top part of the tie when in place.

40 8. A rail clamp comprising two plates, each having a portion adapted to extend below a rail and a jaw at one end for gripping the foot of a rail, said plates being arranged

side by side in reverse order when in use and each having a downwardly extending flange at its outer edge adapted to extend partially  
45 down the side of a tie, and bolts passed obliquely through said flanges and through a tie.

9. A rail clamp comprising two plates, each having a portion adapted to extend below a rail and a jaw at one end for gripping the foot of a rail, said plates being arranged  
50 side by side in reverse order when in use and each having a downwardly extending flange at its outer edge adapted to extend partially  
55 down the side of a tie, said flanges having elongated slots therein, and bolts passed obliquely through certain ones of said slots and through a tie.

10. A rail clamp comprising two plates, each having a portion adapted to extend below a rail and a jaw at one end for gripping the foot of a rail, said plates being arranged  
60 side by side in reverse order when in use and each having a downwardly extending flange  
65 at its outer edge adapted to extend partially down the side of a tie, bolts passed obliquely through said flanges and a tie, and angle washers arranged at the ends of said bolts.

11. A rail clamp comprising two plates, each having a portion adapted to extend below a rail and a jaw at one end for gripping the foot of a rail, said plates being arranged  
70 side by side in reverse order when in use and means for fastening said plates in proper  
75 position, said plates having perforations arranged in lateral alinement with their jaws for the purpose specified.

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

WILLIAM I. F. HARDEN.

Witnesses:

A. M. PARKINS,

ERNEST P. HUTCHINSON.