July 28, 1931. A. D. PRESTON 1,816,696

RAIL FASTENING MEANS

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Fig. 1.

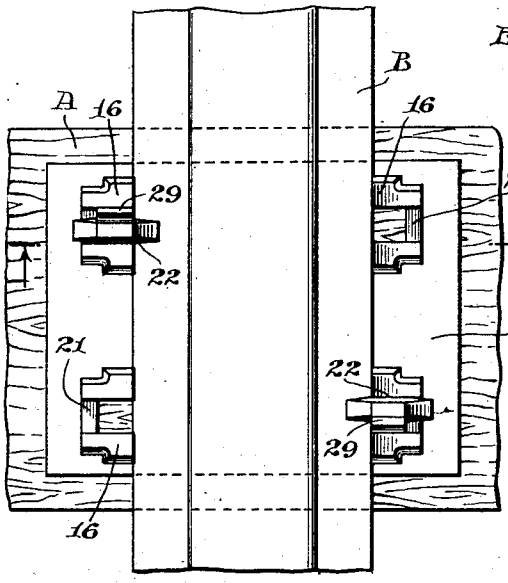


Fig. 3.

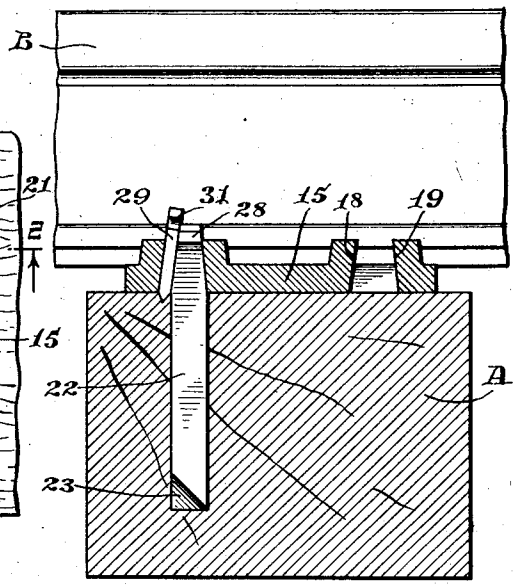


Fig. 2.

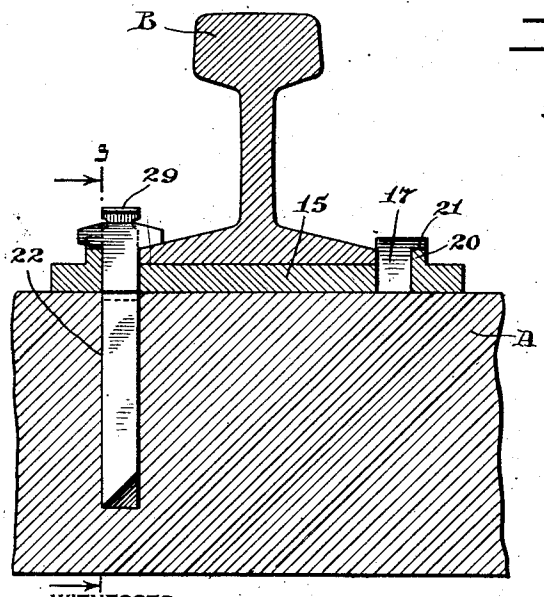


Fig. 5.

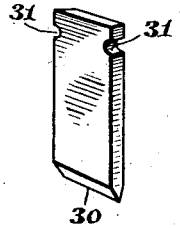
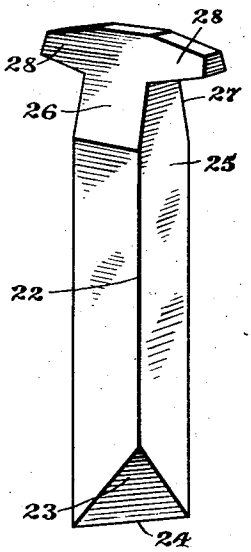


Fig. 4.



WITNESSES

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RAIL FASTENING MEANS

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Fig. 6.

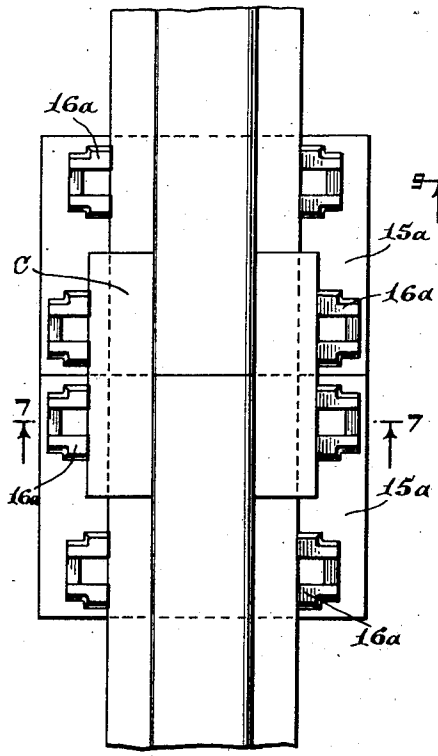


Fig. 8.

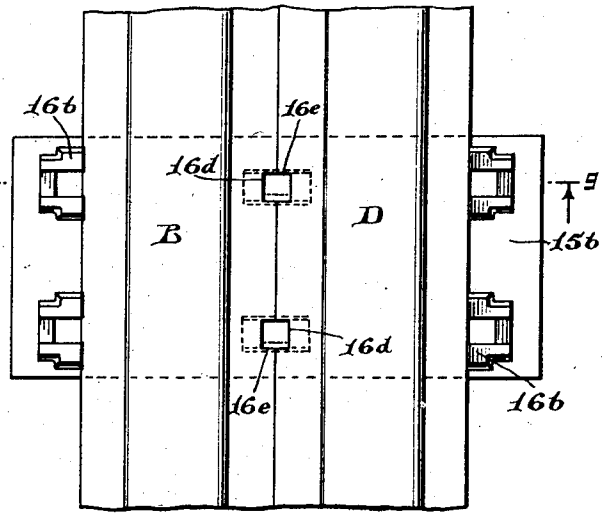


Fig. 9.

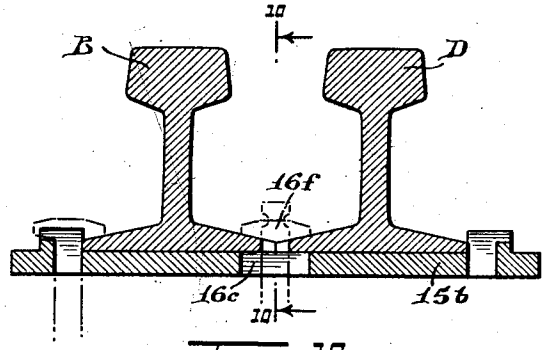


Fig. 7.

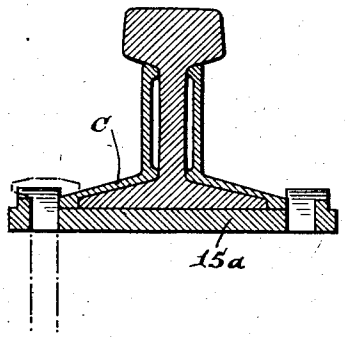
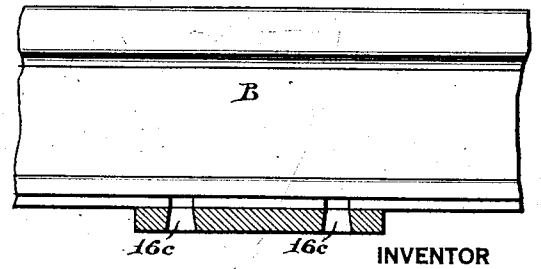


Fig. 10.



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UNITED STATES PATENT OFFICE

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RAIL FASTENING MEANS

Application filed November 10, 1930. Serial No. 494,721.

This invention relates generally to the class of railway equipment, and has more particular reference to an improved means for effectually fastening railway rails to the ties in order to insure against accidental displacement thereof.

Broadly, the invention aims to provide an improved rail fastening means, by virtue of which an efficient and lasting connection is established between the rails and the ties, due to the fact that the spikes are relieved to a great extent of the lateral strains and stresses ordinarily imparted thereto, thereby preventing loosening of the same in the tie and, hence, increasing their resistance to relative upward movement.

The invention more specifically resides in the provision of a rail fastening means which includes an apertured shouldered tie plate through which spikes are driven and anchored in the tie, whereby the said apertured shouldered portions function to relieve the spikes, to a marked degree, of the lateral strains and stresses which would otherwise tend to loosen their anchorage in the ties and to consequently reduce their effectiveness to resist upward strains and stresses.

The invention furthermore comprehends in combination with shouldered tie plates, cooperatively shaped spikes and spike receiving apertures in the said shouldered portions which in addition to facilitating the laying of the rails, affords an effectual lock against accidental upward displacement while readily permitting of intentional removal.

Other objects of the invention reside in the comparative simplicity of construction of the rail fastening means, the economy with which the same may be produced and the trackage laid by employing said means and the general efficiency derived therefrom.

With the above recited and other objects in view, reference is had to the following description and accompanying drawings, in which there is exhibited one example or embodiment of the invention, while the claims define the actual scope of the same.

In the drawings:

Figure 1 is a fragmentary plan view of a rail secured to a tie by a fastening means constructed in accordance with the invention.

Figure 2 is a transverse sectional view therethrough taken approximately on the line indicated at 2—2 in Figure 1.

Figure 3 is a sectional view taken approximately on the line 3—3 of Figure 2.

Figure 4 is a perspective view on an enlarged scale of one of the spikes.

Figure 5 is a perspective view of one of the spike locking keys.

Figure 6 is a fragmentary plan view illustrating a slightly modified form of tie plate used at the rail joints to cooperate with the fish plates.

Figure 7 is a transverse sectional view taken approximately on the line 7—7 of Figure 6.

Figure 8 is a fragmentary plan view illustrating a slightly modified form of tie plate employed in connection with a guard rail.

Figure 9 is a transverse sectional view taken approximately on the line 9—9 of Figure 8.

Figure 10 is a sectional view taken approximately on the line 10—10 of Figure 9.

Referring to the drawings by characters of reference, A designates the usual form of wooden tie, and B the track rail. The rail fastening means constituting the present invention includes a tie plate 15 which is adapted to be superimposed on the tie A and which is preferably of rectangular configuration and of a width exceeding the width of the base flange of the rail B. The tie plate is formed with shouldered portions or bosses 16 spaced apart laterally a distance approximately equal to the width of the base flange of the rail and adapted to receive therebetween said rail base flange, as clearly illustrated in Figures 1 and 2 of the drawings. The shouldered portions or bosses 16, as well as the tie plate proper, are each provided with a vertical spike receiving aperture 17, the opposite front and rear walls 18 and 19 of which converge upwardly. The shouldered portions or bosses 16 have the remaining wall 20 notched or depressed as at 21 at the upper end.

The spikes 22 which constitute an element of the fastening means include a preferably square or non-circular shank corresponding to the size and configuration of the apertures 17 at their uppermost smaller end. The lower end of the spike shank is cut away diagonally as at 23, to provide a wedge shaped point having a lower entering edge 24 extending from diagonally opposed corners of the spike shank. This provides a self centering spike which avoids displacement of the tie plate from its correct position when the spike is being driven through the tie plate into the tie. The upper end or head 25 of the spike is provided with oppositely converging forward and rear faces 26 and 27 which correspond to the upwardly converging front and rear walls 18 and 19 of the spike receiving aperture 17. The spike head is provided with laterally projecting arms 28, one of which is designed to overlie the rail base flange and the other of which is received in the notched or depressed portion 21 of the wall 20 of the shouldered portion or base 16. After the spike is driven home to the position illustrated in Figures 2 and 3, a spike locking key 29 having a wedge shaped lower end 30 is driven through the aperture 17 alongside the spike head between one of the converging faces 26 and 27 of the spike head and one of the converging walls 18 and 19 of the spike opening. Adjacent its upper end, the spike locking key 29 is formed with notches 31 in its opposite edges to facilitate gripping engagement of a removing tool therewith. Where the rail joints occur and the usual fish plates C are installed, a pair of tie plates 15*a* are employed, in which one pair of shouldered portions or bosses 16*a* are spaced apart a sufficient distance in excess of the width of the rail base flange to accommodate the fish plates, as clearly illustrated in Figures 6 and 7 of the drawings.

Where a guard rail D is installed alongside of a track rail B, as illustrated in Figures 8 and 9 of the drawings, tie plates 15*b* of a greater width are employed having the shouldered portions or bosses 16*b* spaced apart laterally an appropriate distance to accommodate the base flanges of both of said rails. In this instance also, the tie plate 15*b* is provided with additional apertures 16*c* at the transverse center, with which mating notched portions 16*d* and 16*e* of the adjacent edges of the base flanges of the rails B and D register to receive therethrough the retaining spikes 16*f*.

While there has been illustrated and described certain preferred embodiments of the invention, it is to be clearly understood that no limitation is necessarily made to the precise structural details, and the right is reserved to variations and modifications which properly fall within the scope of the appended claims.

What is claimed is:

1. A rail fastening including a tie plate having a transversely spaced pair of apertured shouldered portions between which the rail base flange is fitted and spikes driven through the apertures of said shouldered portions and anchored in the tie, said shouldered portions each having a notched upper end.

2. A rail fastening including a tie plate having a transversely spaced pair of apertured shouldered portions between which the rail base flange is fitted and spikes driven through the apertures of said shouldered portions and anchored in the tie, said shouldered portions each having a notched upper end and laterally projecting arms on the spike head respectively overlying the rail base flange and engaging in the notched upper end of the shouldered portions.

3. A rail fastening including a tie plate having a transversely spaced pair of shouldered portions between which the rail base flange is fitted, said shouldered portions each having an upwardly tapering aperture therethrough, spikes having correspondingly tapered heads at the upper end adapted to be driven through the apertures and anchored in the tie and a locking key frictionally driven into the apertures between the spike heads and one of the walls thereof.

4. A railway track including a rail and cross ties, a tie plate superimposed on each tie and underlying the rail base flange, said tie plate having pairs of apertured bosses spaced apart a distance equal to the width of said rail base flange, the bossed apertures each having upwardly converging front and rear walls and an outer side wall notched at its upper end.

5. A railway track including a rail and cross ties, a tie plate superimposed on each tie and underlying the rail base flange, said tie plate having pairs of apertured bosses spaced apart a distance equal to the width of said rail base flange, the bossed apertures each having upwardly converging front and rear walls and an outer side wall notched at its upper end and a spike of a cross sectional size equal to the restricted upper end of the apertures and formed with upwardly converging opposite faces at its upper end corresponding to the upwardly converging front and rear walls of the aperture and a locking key adapted to frictionally fit between one of the converging walls of the aperture and one of the converging faces of the spike.

6. A railway track including a rail and cross ties, a tie plate superimposed on each tie and underlying the rail base flange, said tie plate having pairs of apertured bosses spaced apart a distance equal to the width of said rail base flange, the bossed apertures each having upwardly converging front and rear walls and an outer side wall notched at its upper end and a spike of a cross sectional size

equal to the restricted upper end of the apertures and formed with upwardly converging opposite faces at its upper end corresponding to the upwardly converging front and rear walls of the aperture and a locking key adapted to frictionally fit between one of the converging walls of the aperture and one of the converging faces of the spike, said spike having laterally projecting arms respectively overlying the rail base flange and engaging in the notched wall of the boss.

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