

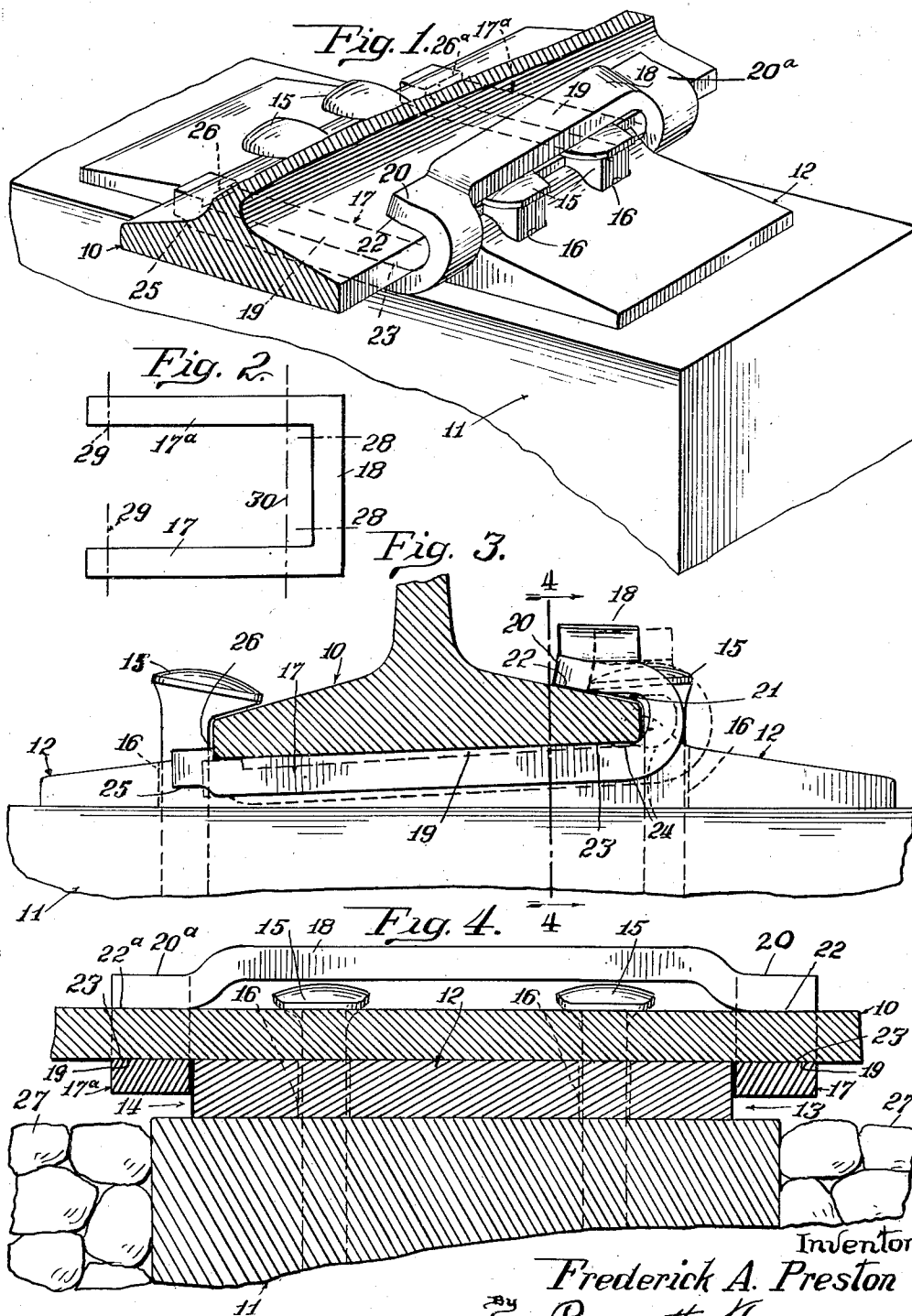
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TWO-WAY RAIL ANCHOR

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TWO-WAY RAIL ANCHOR

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9 Claims. (Cl. 233—327)

This invention relates to an improved rail anchoring device for preventing movement of a railroad rail in either forward or reverse directions relative to a rail supporting structure.

A principal object of the invention is to provide a rail anchoring device of the above character of simplified construction which engages opposite edges of the base portion of a rail at locations closely adjacent the forward and rear faces of a rail supporting structure so as to have abutting engagement with said faces and which, in addition to preventing lengthwise movement of the rail, also functions to prevent the rail spikes from working out of the rail supporting structure.

Another object of the invention is to provide an improved two-way rail anchor device of the general character above mentioned and of a construction which is particularly suitable for use in situations in which the rail supporting structure includes an ordinary wooden cross-tie and a metal tie-plate of less width than the cross-tie interposed between the rail and the top surface of such tie. In this connection the invention contemplates the provision of a unitary device comprising spaced apart but cooperatively connected rail gripping members which maintain their position on the rail by virtue of resilient pressure exerted only on the rail. This construction permits normal vertical movement of the rail relative to the tie-plate or other supporting structure without affecting the grip of the anchor device on the rail and without producing recurrent flexing strains in the anchor device during the said vertical or wave movements of the rail relative to the supporting structure. The rail gripping members are preferably made from metal stock sufficiently thin to permit the under-rail portions thereof to extend into the spaces formed between the rail and the cross-tie adjacent opposite edges of the tie-plate. Thin metal stock may be used with the present improved construction without sacrificing the strength and rigidity required of such devices, since the rail gripping members are so connected that the combined clamping actions of said members function as a unitary device to prevent creeping of the rail. The under-rail portions of the rail gripping members are disposed horizontally beneath the rail so as to bear flat against the rail base, thereby avoiding any possibility of the device being flexed in a manner to reduce its grip on the rail by downward pressure of the device against the ballast of the road-bed.

A further and more specific object of the invention is to provide a two-way anchor device for railroad rails which may be driven transversely of the rail to its applied position and in which a cooperating connecting member assumes a position above the head portion of certain of the rail spikes to prevent them from working out of the cross-tie.

Other objects and advantages of the invention will be readily apparent from the detailed description of the embodiment shown in the accompanying drawing, wherein

Fig. 1 is a fragmentary view in perspective showing a rail anchor device constructed in accordance with the present invention applied to the base portion of a railroad rail.

Fig. 2 is a plan view, on a reduced scale, of a metal blank from which the rail anchor device may be formed.

Fig. 3 is a cross-sectional view taken through the railroad rail and showing the rail anchor device in elevation and illustrating also in dotted line position the partially applied position of the anchor device, and

Fig. 4 is a sectional view taken on lines 4—4 of Fig. 3 looking in the direction indicated by the arrows.

Referring to the drawing, the base portion 10 of a railroad rail is shown supported on a rail supporting structure composed of an ordinary wooden cross-tie 11 and a metal tie-plate 12 interposed between the bottom surface of the rail base 10 and the top surface of the cross-tie 11. The tie-plate 12 may be of any of the constructions now in general use. The said tie-plate, as illustrated herein, is less in width than the top face of the cross-tie, as shown best in Fig. 1 and Fig. 4. With such width tie plate there are spaces 13—14 formed between the bottom surface of the rail 10 and the top surface of the cross-tie at the forward and rear edge portions of the tie-plate. These recesses may vary in size since the width of the cross-tie may vary slightly in width while the tie-plate will ordinarily be cut to a standard or uniform width. The railroad rail is held in proper position on the top seat portion of the tie plate by means of rail spikes 15 which are driven through openings 16 in the tie-plate and into the underlying cross-tie 11. The spacing and number of rail spikes used may be varied in accordance with the track structure desired. However, in the present embodiment four spikes are illustrated so as to provide a firm attachment of the tie-plate 12 to the wooden cross-tie, since the creeping pressure of the rail

exerted against the tie-plate is transmitted to the cross-tie through the said rail spikes.

The improved rail anchor device comprises spaced apart rail gripping members 17—17a and a connecting bar 18. The member 17 comprises an under-rail body portion 19 which extends horizontally across beneath the rail base and bears flat against the bottom surface of the rail. One end is bent into hook form to provide a jaw 20 which overlies the top surface of the rail base. The under rail face of jaw 20 is formed to provide a suitable clearance space 21 between the rail base and the jaw and terminates in a rail bearing surface 22 which bears on the inclined top surface of the rail base at a location spaced inwardly from the longitudinal edge of the rail. The portion of the body 19 adjacent said hook constitutes a lower rail gripping jaw 23. Preferably the curved inner face of the hook extends a short distance beneath the bottom of the rail and provides a small clearance 24 adjacent the lower corner of the rail base. The upper and lower jaws 20—23 are normally spaced apart a distance less than the thickness of the rail base at the locations engaged thereby and are, therefore, spread apart and grip the top and bottom surfaces of the rail base with resilient pressure when the anchor device is forced, in a manner hereinafter described, to its applied position on the rail. The other end of the body 17 is offset upwardly, as shown at 25, to provide a locking shoulder 26. The said shoulder engages the vertical edge face of the rail to lock the anchor device in its applied position.

The rail gripping members 17—17a of the anchor device are preferably identical constructions. The various parts of the member 17a are, therefore, designated with corresponding reference numerals with the addition of the exponent (a).

The anchor device is made preferably of steel having the desired resistance and which is of sufficiently thin material to permit the under-rail portions of members 17—17a to extend into the recesses 13—14 and abut against the forward and rear faces, respectively, of the tie plate 12. The use of sufficiently thin material to permit such arrangement is made practical by virtue of the fact that the members 17—17a are connected by the bar 18 at their hooked ends—that is to say, at locations where their maximum grips are exerted on the rail. The creeping movements of the rail in either forward or reverse directions are, therefore, resisted by the combined gripping actions of both said members 17—17a when either member is pressed against a side face of the rail supporting structure. Furthermore, the under-rail portion of the members 17—17a bear flat against the bottom surface of the rail. The said relatively thin members, therefore, are not subject to any flexing or distortion tending to loosen their grips on the rail when the rail is given sufficient vertical movement to press the said under-rail portions of the device against the ballast 27 of the roadbed.

The connecting bar 18 is preferably bowed upwardly relative to the jaws 20—20a so that the said bar clears the heads of the rail spikes 15—15 when the anchor device is driven to its applied position. The anchor is applied by passing the under-rail portions of members 17—17a beneath the rail in the recesses 13—14 to substantially the position indicated in dotted lines

in Fig. 3. In this position, the bottom surface of the bar 18 will clear the highest point of the rail spike heads. The hook portions of the members 17—17a are then struck with a suitable implement to drive the jaws 20—20a onto the rail flange until the shoulders 26—26a snap into engagement with the opposite edge of the rail base. During this applying movement, the pressure at the ends of the jaws 20—20a on the inclined top surface of the rail base, imparts a slight turning movement to the hook portions of the device about the edge of the rail base and therefore moves the lower outer edge portion of the bar 18 into relatively close relation to the heads of the rail spikes. The said bar 18, therefore, functions to prevent the spikes from working upwardly out of the cross-tie.

In order to simplify the manufacture of the improved two-way anchor device, it is made, preferably, from a metal blank of the configuration shown in Fig. 2. The connecting bar 18 may be offset or bowed upwardly along lines 28—28 of the blank to provide the necessary clearance above the spike head. At this time the other end of the blank may be also offset along the lines 29—29 to form the locking shoulders 26—26a of the device. The members 17—17a are then bent about a line 30 into hook form to provide the rail gripping jaws 20—20a of the device.

While the invention is shown herein in connection with certain specific embodiments, it will be obvious to persons familiar with this art that various modifications in structure may be made without departing from the teachings of the present invention. It will be understood, therefore, that the invention contemplates all such changes in structure that may come within the scope of the appended claims.

I claim:

1. A one-piece two-way rail anchor device comprising a pair of spaced apart rail gripping members adapted to extend across beneath the base portion of a railroad rail in abutting engagement with opposite side faces of a rail supporting structure, each gripping member being formed with a hook-shaped portion for resiliently gripping the top and bottom surfaces, respectively, of one base flange of the rail and with a shoulder for locking engagement with the base flange at the other side of the rail, and a bar extending lengthwise of the rail at a location overlying said rail supporting structure and rigidly connecting said hook-shaped portions, whereby the said gripping members exert their combined gripping force on the rail to resist longitudinal movement thereof when either gripping member is pressed into abutting engagement with said rail supporting structure.

2. A one-piece two-way rail anchor device comprising a pair of spaced apart rail gripping members adapted to extend across beneath the base portion of a railroad rail in abutting engagement with opposite side faces of a rail supporting structure, each gripping member having a relatively thin horizontally disposed body portion which bears flat against the bottom surface of the rail base and formed with a hook-shaped portion for resiliently gripping the top and bottom surfaces, respectively, of one base flange of the rail and with a shoulder for locking engagement with the base flange at the other side of the rail, and a bar extending lengthwise of the rail at a location above a base flange thereof for rigidly connecting the said hook-shaped portions, whereby the said gripping members exert

their combined gripping force on the rail to resist longitudinal movement thereof when either gripping member is pressed into abutting engagement with said rail supporting structure.

3. A one-piece two-way rail anchor device comprising a pair of spaced apart rail gripping members for extending across beneath the base portion of a railroad rail and formed of sufficiently thin metal stock, whereby said members are adapted to overlie the top surface of a cross-tie and abut against the opposite edge faces of a tie plate positioned on the tie, each gripping member being formed at one end with upper and lower jaws for resiliently gripping the top and bottom surfaces of one base flange of the rail and formed at the other end with a shoulder for locking engagement with the other base flange of the rail, and a bar extending lengthwise of the rail for rigidly connecting the upper jaws of said rail gripping members, whereby the longitudinal movement of the rail is resisted by the combined gripping force of both rail gripping members when either gripping member is pressed into abutting engagement with the tie plate.

4. A device for resisting longitudinal movement of a railroad rail relative to the rail supporting structure and for retaining a rail securing spike in the said supporting structure, comprising a rail gripping member for extending across beneath the base portion of the rail into abutting engagement with said rail supporting structure and formed with means for engaging the said base portion of the rail at opposite sides of the rail, and means projecting lengthwise of the rail from one end of said gripping member and overlying the head portion of a rail securing spike positioned in said supporting structure.

5. A unitary device for resisting longitudinal movement of a railroad rail in either direction and for retaining rail fastening spikes in their proper position in a cross-tie, comprising spaced apart rail gripping members for extending across beneath the base portion of the rail and formed of sufficiently thin metal stock to overlie the top surface of an adjacent cross-tie and abut against the opposite edge faces of a tie-plate interposed between the rail and said cross-tie, and a bar extending lengthwise of the rail and rigidly secured to said rail gripping members and overlying the upper ends of the rail fastening spikes at that side of the rail, whereby the said rail spikes are retained in their applied position and longitudinal movements of the rail are resisted by the combined clamping force of said rail gripping members when either gripping member is pressed into abutting engagement with said tie-plate.

6. A unitary device for resisting longitudinal movement of a railroad rail in either direction and for retaining rail fastening spikes in their proper position in a cross-tie, comprising spaced apart rail gripping members adapted to be driven transversely of the rail into resilient clamping engagement with the base portion of the rail and formed of sufficiently thin metal stock to overlie the top surface of an adjacent cross-tie and abut against the opposite edge faces of a tie-plate interposed between the rail and said cross-tie, and a bar extending lengthwise of the rail and rigidly united with said rail gripping members to

transmit rail creeping pressures on the rail from one of said gripping devices to the other, the said bar being bowed upwardly to clear the head portions of the adjacent rail fastening spikes during the application of the device to the rail and overlie the heads of said spikes in close relation when the device is in its applied position, whereby the said rail spikes are retained in their proper position in the said cross-tie.

7. A unitary device for resisting longitudinal movement of a railroad rail in either direction and for retaining rail fastening spikes in their proper position in a cross-tie, comprising spaced apart rail gripping members adapted to be driven transversely of the rail to their gripping positions and formed of sufficiently thin metal stock to overlie the top surface of an adjacent cross-tie and abut against the opposite edge faces of a tie-plate interposed between the rail and said cross-tie, and a bar extending lengthwise of the rail and rigidly united with the said rail gripping members at locations overlying the marginal portion of a rail base flange, whereby the said bar transmits pressure from one to the other of the gripping members and overlies a head portion of a rail spike to retain the said spike in its applied position.

8. A unitary device for resisting longitudinal movement of a railroad rail in either direction and for retaining rail fastening spikes in their proper position in a cross-tie, comprising spaced apart rail gripping members for extending across beneath the base portion of the rail and formed of sufficiently thin metal stock to overlie the top surface of an adjacent cross-tie and abut against the opposite edge faces of a tie-plate interposed between the rail and said cross-tie, there being hook-shaped portions at one end of the gripping members for gripping the top and bottom surfaces of the rail base at one side of the rail and means at their other ends for locking engagement with the other base flange of the rail, and a bar positioned to bridge the tie plate and rigidly connected to each of said gripping members to transmit pressure from one of said gripping members to the other, the said bar being also positioned to overlie the upper ends of the rail fastening spikes at that side of the rail and adapted to prevent the said spikes from working out of the cross-tie.

9. A two-way rail anchor made from a single blank of relatively light metal stock comprising rail gripping members spaced apart and adapted to be driven transversely of the base portion of the rail into gripping engagement with opposite edges of the rail base and means extending from one gripping member to the other at one side of the rail, whereby pressures exerted lengthwise of the rail are transmitted from one gripping member to the other when either gripping member is pressed into abutting engagement with the rail supporting structure, the thickness of said metal blank being less than the thickness of a tie plate member positioned on the rail supporting cross-tie, whereby the said gripping members are adapted to overlie the top surface of the cross-tie and abut against opposite edge portions of the tie plate.

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