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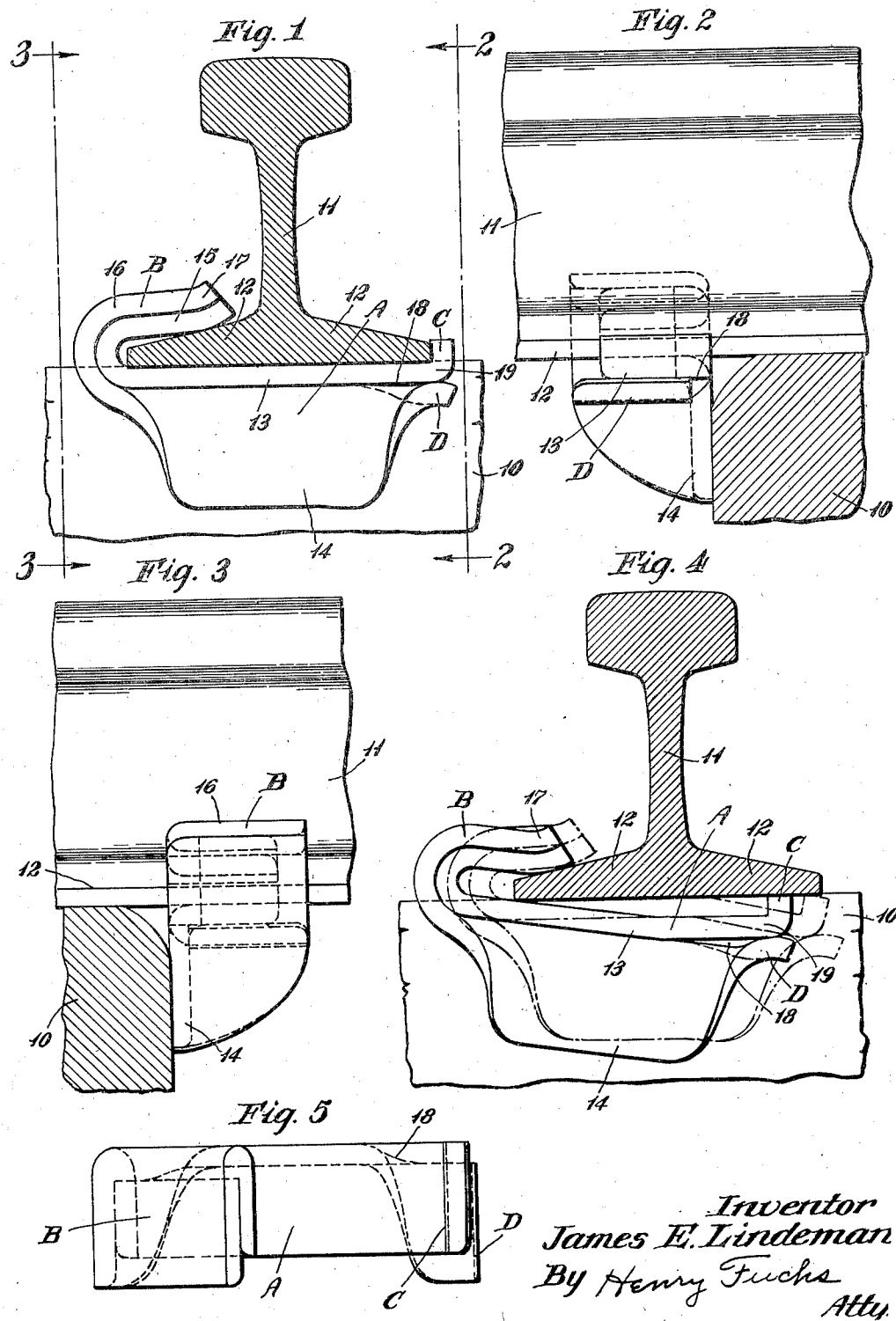
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RAIL ANCHOR

Filed Dec. 24, 1936

2 Sheets-Sheet 1



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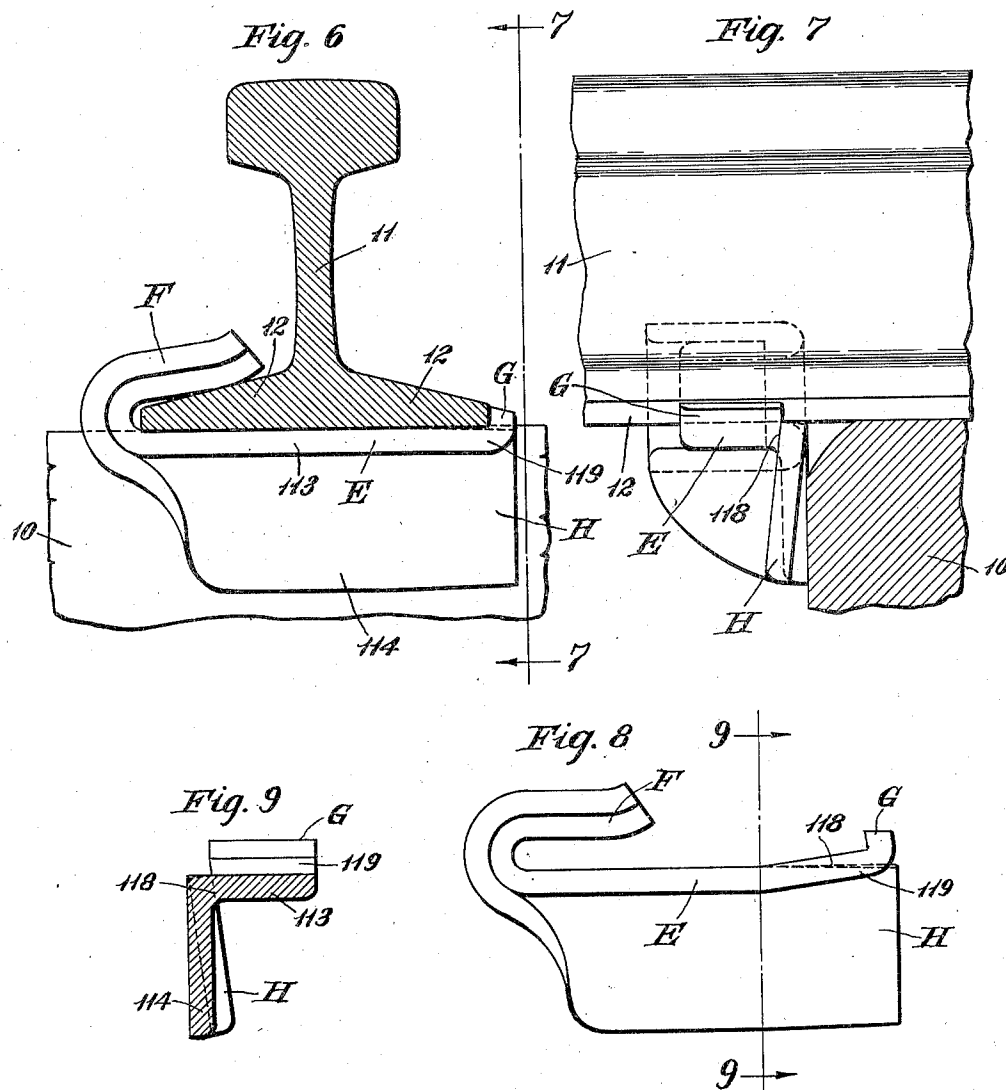
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UNITED STATES PATENT OFFICE

2,136,554

RAIL ANCHOR

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15 Claims. (Cl. 238—330)

This invention relates to improvements in rail anchors.

One object of the invention is to provide a simple and efficient rail anchor which may be readily applied to the rail of a railway track structure and operates to tightly clamp the rail and positively prevent creeping of the latter with respect to the tie of the track.

A further and more specific object of the invention is to provide a rail anchor of the character described in the preceding paragraph made in one piece, and so designed that it is automatically clamped to the rail when assembled therewith.

Other objects of the invention will more clearly appear from the description and claims hereinafter following.

In the drawings forming a part of this specification, Figure 1 is a transverse, vertical, sectional view through the rail member, and an associated tie of a railway track structure, illustrating my improved anchor applied to the rail, the tie being broken away. Figure 2 is a vertical, sectional view, partly broken away, corresponding substantially to the line 2—2 of Figure 1. Figure 3 is a vertical, sectional view, partly broken away, corresponding substantially to the line 3—3 of Figure 1. Figure 4 is a view, similar to Figure 1, showing the improved anchor in two different positions, one position in full and the other in dotted lines. Figure 5 is a top plan view of the rail anchor illustrated in Figure 1, detached from the rail. Figure 6 is a view, similar to Figure 1, illustrating another embodiment of the invention. Figure 7 is a vertical, sectional view, partly broken away, corresponding substantially to the line 7—7 of Figure 6. Figure 8 is a side, elevational view of the rail anchor illustrated in Figure 6, detached from the rail. Figure 9 is a vertical, sectional view, corresponding substantially to the line 9—9 of Figure 8.

In said drawings, 10 indicates the tie and 11 one of the rails of a railway track structure. The rail 11 is of a well-known type having the usual base flanges 12—12 by which it is supported on the ties of the track structure.

Referring first to the embodiment of the invention illustrated in Figures 1 to 5 inclusive, my improved rail anchor, as illustrated, is of one-piece construction and comprises a base portion A having a gripping jaw B at one end and an anchoring lug C at the other end, the anchoring lug being braced by a supporting member D.

The improved anchor is preferably made of carbon spring steel in the form of a one-piece con-

tinuous member. The base portion A comprises a horizontally disposed, flat, barlike section 13 having a depending, substantially vertical, flange-like plate portion 14 at right angles thereto, extending along the edge thereof adjacent the tie 10. The platelike portion 14 is formed integral with the section 13. At the left hand end, as viewed in Figures 1, 3, 4, and 5, the barlike section 13 is bent backwardly upon itself to form a hooklike portion or member 15 which forms a part of the jaw member B. At the same end the depending platelike portion 14 is twisted to provide an arm 16. The arm 16 is bent to hooklike shape to conform to the hooklike portion 15 and overlies and closely fits the latter to brace the same. The hooklike portion of the arm 16, together with the hook 15 provide a unitary member which forms the upper member of the jaw B. The lower member of the jaw B is formed by the adjacent portion of the barlike section 13. The upper arm of the jaw B is curved upwardly at its free end, as indicated by 17 and clearly shown in Figures 1 and 4, thus providing a flaring jaw opening.

At the right hand end of the anchor, as viewed in Figures 1, 2, and 5, the horizontal section 13 is separated from the vertical section 14 by a lengthwise, inwardly extending slit 18, thereby providing a spring arm 19, which forms, in effect, an extension of the barlike section 13. The outer end of the arm 19 is bent upwardly at right angles to provide the upstanding retaining or anchoring lug C.

The lug C is yieldingly braced by the supporting member D, which is in the form of a curved, substantial, horizontally disposed finger underlying the free end of the arm 19. The horizontal finger or supporting member D forms a continuation of the separated end of the section 14 and at the connection thereof with the section 14 the same is twisted, thus disposing the part of the member D which underlies the outer end of the spring arm 19 in horizontal position. As shown in full lines in Figure 4, the spring arm 19 is normally sprung upwardly so that it is inclined with reference to the section 13 and is braced in this position by the supporting finger D which bears thereon.

In applying the improved anchor shown in Figures 1 to 5 inclusive, to the rail, the jaw B is first engaged over one end of the base flange 12 of the rail 11, as shown in full lines in Figure 4. The lug C will thus contact with the underneath face of the rail base. The anchor is then driven onto the rail flange by applying the driving force

to the outer side of the jaw B in a direction toward the rail. Inasmuch as the jaw opening is relatively narrow compared with the tapered base flange of the rail onto which the jaw is driven, the jaw members are forcibly sprung apart by the upper jaw member being driven against the slope of the upper face of said base flange, thereby producing tight gripping action of the jaw and resultant strong binding of the end of the anchor which is provided with the lug C upwardly against the base of the rail while the anchor is being driven onto the rail flange, and forcible locking of the anchor to the rail when it is driven home. In this connection it is pointed out that the two-ply construction of the jaw provides for considerable stiffness against spreading of the jaw members, thus producing relatively great pressure to lock the anchor to the rail. In driving the anchor onto the rail base, the same is moved from the full line position shown in Figure 4, through the dotted line position shown in said figure, to the full line position shown in Figure 1. As will be evident, as the anchor is driven from the full line position in Figure 4 to the dotted line position shown therein, the arm 19 is sprung downwardly with respect to the section 13 of the anchor, forcing the supporting finger D to bend outwardly and downwardly. The spring arm 19 and the bracing finger are thus placed under great stress, and spring upwardly automatically to engage the lug C with the edge of the base flange 12 of the rail when the lug snaps over said edge of the rail flange when the anchor is driven home. Inasmuch as the spring arm 19 is initially bent upwardly with respect to the section 13 of the anchor before the latter is applied to the rail, the arm 19 and the finger D are under stress after the anchor has been fully applied as shown in Figure 1, and the lug C is securely held in locked engagement with the edge of the base flange 12 of the rail.

Referring next to the embodiment of the invention illustrated in Figures 6, 7, 8, and 9, my improved rail anchor comprises a base portion E having a gripping jaw F at one end and an anchoring lug G at the other end, the lug G being braced by a member H.

The base portion E and the jaw F are of substantially the same construction as the corresponding parts A and B of the rail anchor illustrated in Figures 1 to 5 inclusive, the base member comprising a horizontally disposed, barlike section 113 having a depending flangelike plate portion 114 at right angles thereto, at the edge adjacent to the tie 10. The jaw F, which is at the left hand end of the base portion as viewed in Figures 6 and 7, is formed by overlying portions of the section 113 and the flange 114 in the same manner as the jaw B. At the right hand end, as viewed in Figures 6 and 7, the barlike section 113 is separated from the vertical plate-like portion 114 by a lengthwise, inwardly extending slit 112, thereby providing a spring arm 119 which forms a continuation of the barlike section 113. The outer end of the arm 119 is bent upwardly at right angles to provide the upstanding retaining or anchoring lug G. The lug G is yieldingly braced and rigidified by the supporting member H, which is in the form of an inclined end section bent from the vertical platelike portion 114 by giving the latter a slight twist as shown in Figures 7 and 9. As clearly illustrated in Figure 7, this inclined section H engages the inner edge of the arm 119 and yield-

ingly braces the same. Before the anchor is applied to the rail, the spring arm 119 is in the upwardly inclined position as shown in Figure 8 and the inclined section H bears on the edge thereof to yieldingly brace said arm. The member H thus functions in a manner similar to the member D described in connection with the embodiment of the invention illustrated in Figures 1 to 5 inclusive.

In applying the anchor illustrated in Figures 6 to 9 inclusive, to the rail, the procedure is the same as that hereinbefore described in connection with the application of the anchor illustrated in Figures 1 to 5 inclusive.

As will be evident in both forms of the invention illustrated, the anchor is held securely in position on the base of the rail by the jaw which engages one of the base flanges and the lug which engages the other base flange. The lug prevents endwise movement of the anchor and maintains the jaw engaged over the corresponding base flange of the rail. Gripping action of the jaw on the rail is effected by the leverage of the depending flange of the anchor, which flange has bearing engagement with the outer vertical face of the adjacent tie. The rail base is thus tightly clamped by the rocking action of the anchor to prevent creeping of the rail with respect to the tie which abuts the anchor.

I have herein shown and described what I now consider the preferred manner of carrying out my invention, but the same is merely illustrative and I contemplate all changes and modifications that come within the scope of the claims appended hereto.

I claim:

1. In an anchor for rails of a railway track structure including a rail having base flanges and a tie supporting said rail, the combination with a base portion transversely underlying the major portion of the base of the rail and abutting the tie; of a fixed jaw on one end of said base portion and extending therefrom into gripping engagement with one of the base flanges of said rail; a yielding spring arm extending from the other end of said base portion and having a retaining lug thereon in shouldered engagement with the other base flange of said rail; and a yielding supporting member on said base portion engaging said arm near the outer end thereof to brace the same.

2. In an anchor for rails of a railway track structure including a rail having a flanged base and a tie supporting said rail, the combination with a base portion transversely underlying the major portion of the flanged base of the rail and abutting the tie; of a fixed jaw on one end of said base portion and extending therefrom into gripping engagement with one of the base flanges of said rail; a yielding spring arm extending from the other end of said base portion and having shouldered engagement with the edge of the other base flange of the rail; and means on said base portion yieldingly engaging and bracing said arm at the outer end against flexing.

3. In an anchor for rails of a railway track structure including a rail having base flanges and a tie supporting said rail, the combination with a base portion transversely underlying the major portion of said rail-base and abutting the tie; of a fixed jaw on one end of said base portion and extending therefrom; a spring arm extending from the other end of said base portion and having an upstanding lug thereon, said

jaw and lug engaging opposite sides of the base of the rail; and a second spring arm underlying said first named spring arm and yieldingly bracing the latter at the outer end portion thereof.

4. A one-piece rail anchor comprising a horizontally disposed barlike section having a depending vertical flange along one edge, said anchor having a gripping jaw at one end thereof formed by overlying portions of said bar and flange, and having means at the other end for holding said anchor on the rail.

5. A one-piece rail anchor comprising an elongated flat barlike portion provided with a longitudinally extending, right angular flange along one edge, said anchor having a two-ply jaw at one end thereof formed by overlying portions of said barlike portion and flange, and means at the other end for holding said anchor on the rail.

6. A one-piece rail anchor comprising an elongated barlike portion having a longitudinally extending, depending flange along one edge, said anchor having a hookshaped jaw at one end formed by overlying sections of said barlike portion and flange, the end section of said flange being twisted to bring the same into face contact with said end section of the barlike portion, and means at the other end for holding said anchor on the rail.

7. A one-piece rail anchor comprising elongated barlike sections integrally joined along their adjacent edges and angularly disposed with reference to each other, the end portion of one of said sections being twisted to bring the same into face to face engagement with the end portion of the other section, said face to face engaging end portions being bent to hooklike jaw form, said anchor also having means thereon for holding the same engaged with the rail.

8. A one-piece rail anchor comprising a gripping jaw of hookshaped form comprising a two-ply metal structure, an elongated barlike section forming a continuation of one of said plies of metal, a second elongated barlike section forming a continuation of the other of said plies, said elongated barlike sections being joined integrally along adjacent longitudinal edges and being disposed angularly with respect to each other, said anchor also having means thereon for holding it on the rail.

9. A one-piece rail anchor comprising a pair of barlike sections integrally joined along adjacent longitudinal edges, a gripping jaw at one end of said anchor formed integral with said barlike sections, said barlike sections being disposed angularly with respect to each other, a spring arm at the other end of said anchor having a retaining lug thereon, said arm being integral with one of said sections, and a second spring arm bracing said first named arm and formed integral with the other section.

10. A one-piece rail anchor having a gripping jaw at one end and a spring arm at the other end, said arm having a holding lug at its outer end, said anchor having a second spring arm bracing said first named arm, said arms being connected to said jaw by elongated barlike sections formed integral with said jaw and said arms respectively, said barlike sections being integrally joined along adjacent longitudinal edges and being disposed angularly with respect to each other.

11. A one-piece rail anchor comprising an elongated bar of spring material having a longitudinally extending, depending flange along one edge, a spring arm extension on one end of said bar having a retaining lug at the outer end thereof, a spring arm extension at the corresponding end of said flange, underlying said first named spring arm extension and bracing the same, and a gripping jaw formed on said bar at the other end thereof.

12. A one-piece rail anchor comprising an elongated angle bar of spring material having a gripping jaw formed at one end thereof, the opposite end of said bar being slit at the angle thereof to provide a pair of spring arms, one of said arms having the outer end angularly bent to provide a retaining lug, and the other of said arms being bent to provide an inclined yielding bracing support for said arm having the retaining lug.

13. In an anchor for rails of a railway track structure including a rail having base flanges and a tie supporting said rail, the combination with a base portion comprising a horizontally disposed, elongated barlike section underlying the rail base and having a depending flange extending along one edge thereof, formed integral therewith, and abutting the tie; of a gripping jaw at one end of said bar formed integral therewith and with the flange, said jaw engaging over one of the base flanges of the rail; a spring arm extension on the other end of said bar having an anchoring lug at the end thereof engaging the edge of the other base flange of the rail; and a spring arm extension on said flange having its end underlying and yieldingly bracing said first named spring arm.

14. In an anchor for rails of a railway track structure including a rail having base flanges and a tie supporting said rail, the combination with a base portion comprising a horizontally disposed, elongated, barlike section of spring material underlying the rail base, said bar having one end thereof provided with an upstanding lug engaging the edge of one of the base flanges of the rail; a depending elongated flange member along one edge of said bar formed integral therewith and abutting the tie, said flange having an extended tongue portion separate from the barlike section, said tongue portion having a section thereof inclined to the vertical and in yielding bearing engagement with one edge of the bar at the lug end thereof; and a jaw at the other end of said bar section formed integral with said bar section and the flange thereof.

15. In an anchor for rails of a railway track structure including a rail having base flanges and a tie supporting said rail, the combination with a base portion underlying the rail base and having a clamping jaw at one end thereof, engaging one of the base flanges of the rail, said base portion having a horizontally extending spring arm at the other end thereof provided with an upstanding anchoring lug engaging the other base flange of the rail; and a spring arm underlying said first named spring arm and in face to face engagement therewith; said base portion comprising a horizontally disposed, barlike section formed integral with said jaw and first named spring arm, and a depending flange on said bar, extending along one edge thereof and formed integral therewith, said flange being formed integral with said jaw and said second named spring arm.

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