Sept. 8, 1942. G. E. JOHNSON 2,294,987

COMBINED TIE PLATE AND RAIL ANCHOR HOLDER

Filed June 19, 1941 2 Sheets-Sheet 1

Fig. 1

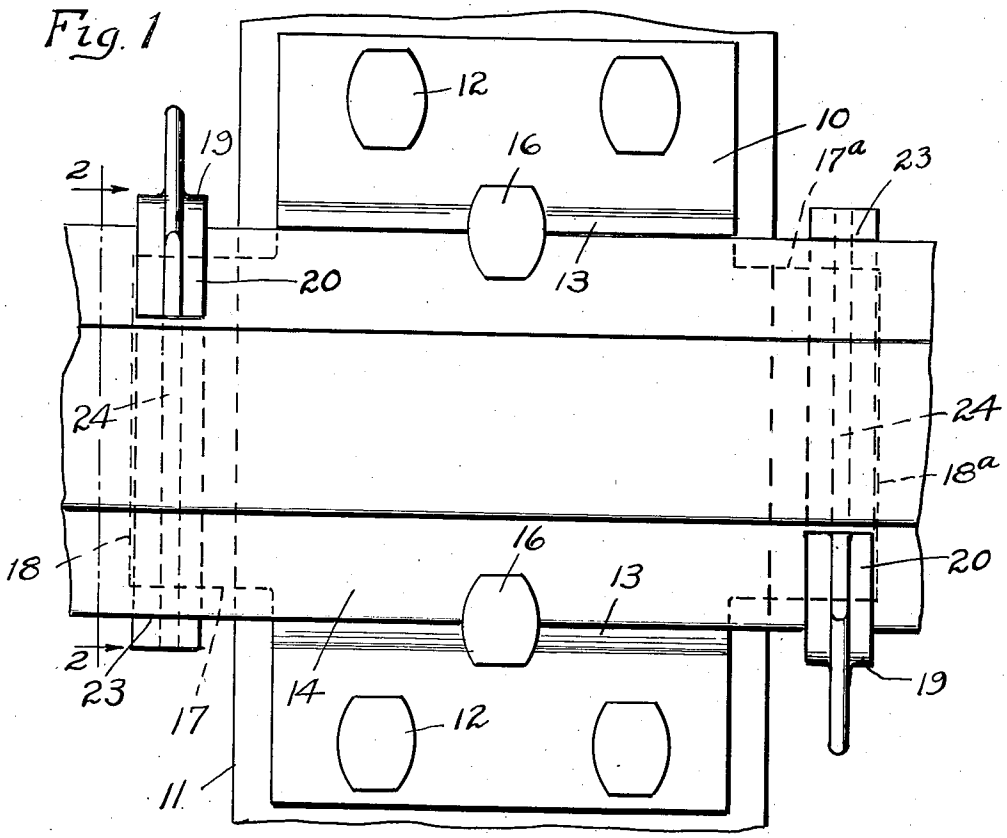
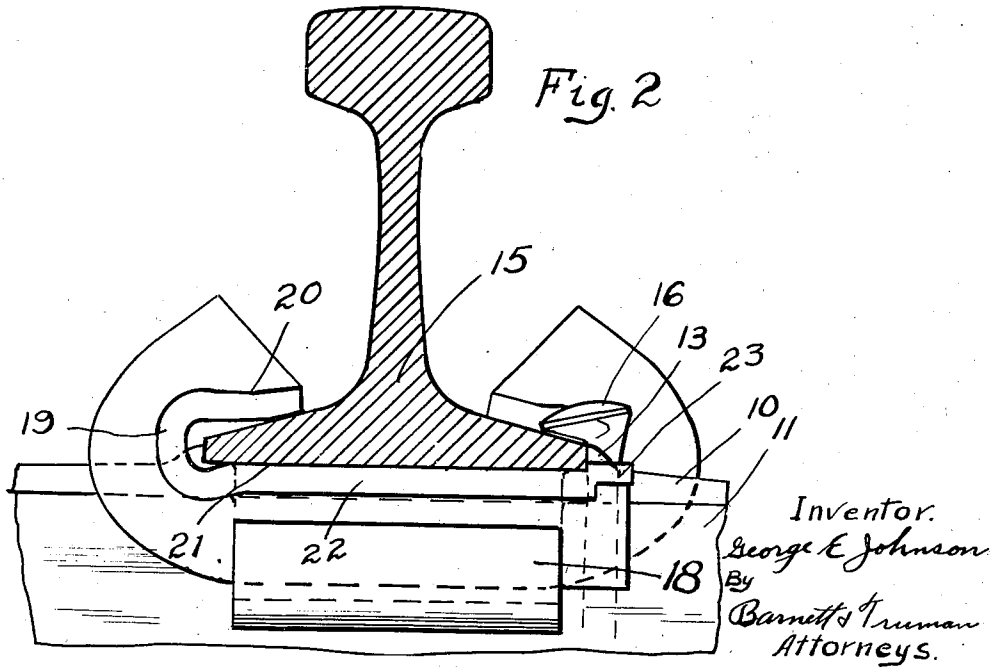


Fig. 2



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Filed June 19, 1941 2 Sheets-Sheet 2

Fig. 3

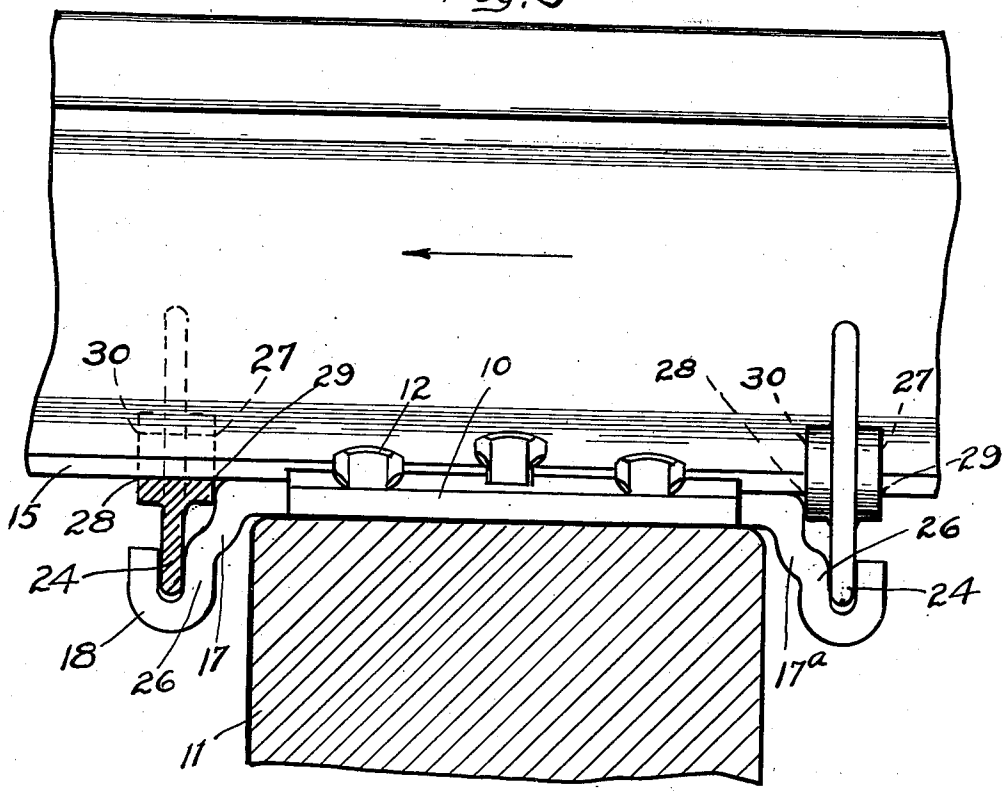
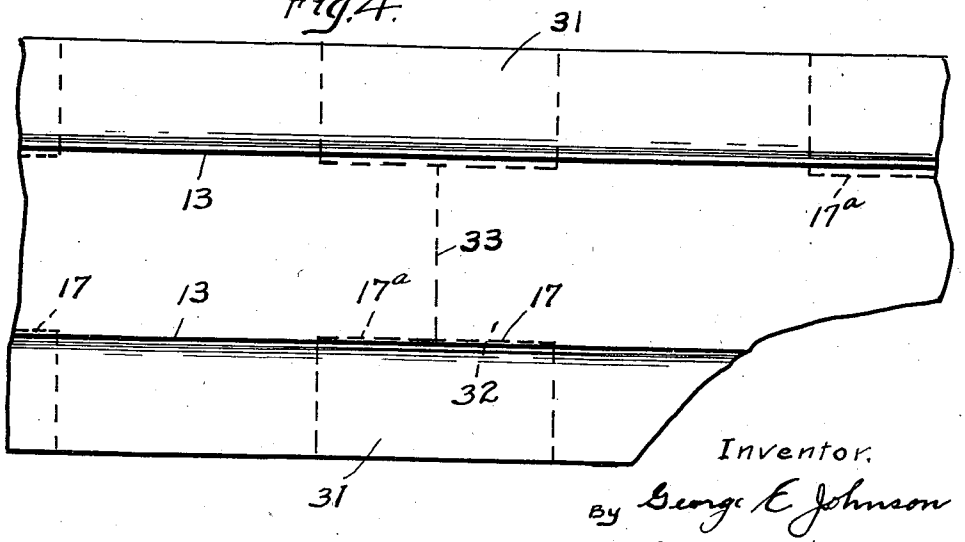


Fig. 4.



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COMBINED TIE PLATE AND RAIL ANCHOR HOLDER

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Application June 19, 1941, Serial No. 398,802

4 Claims. (Cl. 238—327)

This invention relates to a combined tie plate and rail anchor holder.

A principal object of the invention is to provide a combination structure of the above character which is particularly suitable for use in connection with rail anchors of the general type adapted to be applied to the base portion of a railroad rail by driving or otherwise forcing the anchor device transversely of the rail. In this connection the invention includes the provision of improved features whereby the anchor holding device will receive and hold the anchor in its proper position on the rail when it is applied from either side of the rail.

Another object is to provide a suitable engagement between the rail anchor and the holding member, whereby the anchor, being clamped to the rail, may move vertically relative to the holding member in response to the vertical wave movement of the rail during the passing of trains over the rail.

Another object is to provide a combination structure of the above character in which the anchor holding member engages opposite faces of the under rail portion of the anchor device in a manner to resist both forward and reverse creeping movement of the rail. Preferably, the holding member engages the under rail portion of the anchor at a location spaced a substantial distance downwardly from the base portion of the rail so that pressure exerted lengthwise of the rail, in either forward or reverse direction will exert maximum lever force on the anchor device and thereby tend to tilt it about an axis transversely of the rail to increase its grip on the rail.

Another object is to provide in a combination structure of the above character a rail anchor holder which may be readily formed to engage a rail anchor device at either side of a cross-tie.

Other objects and advantages of the invention will be apparent from the detail description of the structure embodied in the form of the invention illustrated in the accompanying drawings.

In the drawings:

Fig. 1 is a fragmentary plan view of a railroad rail and an underlying cross-tie, showing the combination structure of this invention secured to the cross-tie and engaging a rail anchor device clamped to the base portion of the rail.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a view in elevation of the combination structure looking at the right-hand side of the railroad rail shown in Fig. 2; and

Fig. 4 is a fragmentary plan view of a tie plate bar as it comes from the forming rolls and showing in dotted lines the manner in which the tie plate bar is sheared into separate blanks from which the tie plate and holding member of the present invention is formed.

The device herein shown comprises a tie plate body 10 which is secured to the top face of a cross-tie 11 by means of suitable attaching devices such as the rail spikes 12. Spaced ribs 13—13, preferably, though not necessarily, extend upwardly from the top face of the plate and define a seat 14 for receiving the base portion 15 of a railroad rail. The said shoulders 13—13 of the tie plate body serve as lateral abutments for the opposite edges of the rail base flanges. The rail may be secured in its proper position on the tie plate body by means of any suitable attaching means. The railway spikes 16 shown herein for the purpose of securing the rail in position on the plate are used merely as illustrative of one suitable means for accomplishing this purpose. A tongue 17 of metal, preferably of the same thickness as the rail seat, extends outwardly from one edge of the tie plate body and is bent downwardly from the rail base. The lower end of the tongue is bent into hook form to provide a channel portion extending transversely of the rail and adapted to engage opposite faces of a rail anchor device when the said anchor is applied in its operative position on the rail base.

If the rail holding member is to engage only one rail anchor device it will be provided with only one tongue such as above described. However, when the anchor holding device is intended to engage anchor devices at opposite sides of a cross-tie both forward and rear edges of the tie plate body are formed with similar tongues 17—17a. The said hooked portions 18—18a of the said tongues 17—17a are formed to provide a channel corresponding substantially to the thickness of the under-rail body portion of the anchor device. In the present embodiment the channel portions of the hooks 18—18a are relatively narrow, since they engage only the thin rigidifying flanges of their cooperating anchor devices.

As previously pointed out in the specification, the rail anchor holding member herein shown is particularly suitable for use in connection with rail anchors of the general type adapted to be driven to their applied positions on a rail by movement of the anchor transversely of the rail. This particular advantage is due to the fact that such types of rail anchors may be applied to the base portions of the rail in their normal manner without disturbing the position of the holding member on the cross-tie. In the present embodiment the anchor is made from a bar T-shaped in cross section. The bar is bent at one end to form a hook-shaped portion 19 providing an upper jaw 20 and a lower jaw 21 which together grip one base flange of the rail. The

lower jaw **21** is formed integral with an under-rail body portion **22** which extends across beneath the rail base **15**. The end **23** of the bar is offset upwardly to provide a locking shoulder adapted to snap over the lower corner portion of the rail base flange when the anchor is driven to its applied position. The central rigidifying rib **24** of the anchor slidably fits, as indicated in Fig. 3, in the channel formed by the hook portion **18** or **18***a*, as the case may be. Preferably there is sufficient clearance between the lower edge of the rigidifying flange **24** and the bottom of the channel to accommodate ribs of different heights and to also permit such downward movement of the under rail portion **22** of the anchor device as may be necessary during the application of the anchor to the rail because of the height of the shoulder **23** or other constructions at this end of the anchor device.

The tongues **17**—**17***a* are preferably of a width slightly less than the width of the rail base and are bent downwardly at points **25**—**25** so as to normally provide a slight clearance between the downturned portions of the tongues and the vertical faces of the cross tie. The said tongues are then bent laterally as indicated at **26**—**26**.

The type of rail anchor device herein shown grips the upper and lower surfaces of a rail base flange with sufficient resilient force to hold the anchor on the rail. However, the grip for resisting the creeping movement of the rail is obtained principally by means of a lever force exerted on the anchor device tending to turn it about an axis extending transversely of the rail. In this way, the diagonally opposite edges of jaws **20**—**21** are forced into increasing gripping engagement with the top and bottom surfaces respectively of the rail base. For example when the rail ends to creep in the direction indicated by the arrow in Fig. 3. The forward lower corner **27** of the upper jaw and the rear corner **28** of the lower jaw will be turned into maximum gripping engagement with the top and bottom surfaces of the rail base flange. When the rail is moved in the reverse direction the forward upper corner **29** of the lower jaw and the rear edge **30** of the upper jaw are forced into increasing gripping engagement on the rail to prevent such creeping movement.

In the manufacture of the combined tie plate and rail anchor holding member, the metal is passed through suitable rolls to form a tie plate bar of the desired thickness and cross section. Such bar may be flat or formed with suitable tapers and/or cambers. In the form illustrated, the bar is formed with tapered edges and with spaced ribs **13**—**13**. At suitable locations the opposite edges of the tie plate are cut away as indicated by the reference numerals **31**—**31**. The narrow strip **32** connecting adjacent tie plate portions of the bar is then sheared along line **33** to provide the tie plate bodies with the projecting tongues **17**—**17***a*. These tongues are then bent by any suitable means into the configuration shown in Fig. 3 to provide a channel-shaped hook extending transversely of the rail for embracing the lower portion of the under-rail part of the anchor device.

While the invention is described herein in connection with certain specific embodiments, it should be understood that the invention is not confined to the specific arrangements and constructions shown except insofar as the appended claims are specifically so limited.

I claim:

1. A combination structure for resisting longitudinal creeping movements of a railroad rail in both forward and reverse directions comprising a rail anchor device of a type adapted to be driven transversely of a rail from either side thereof into clamping engagement with a base portion of the rail and having a vertically disposed under rail portion, and a tie plate member including a tie plate body secured to the top face of a cross tie and formed with a tongue bent into vertical hook form to provide a channel opening upwardly for receiving said vertically disposed portion of the rail anchor during the application of the anchor device to the rail whereby said rail anchor device has a vertical and transverse sliding engagement in said channel to permit lateral and vertical movements of said rail and said anchor device relative to the tie plate, but resists movement of the rail in either forward or reverse directions.

2. A combination structure for resisting longitudinal creeping movements of a railroad rail in both directions comprising a rail anchor device of a type adapted to be driven transversely of a rail from either side thereof into clamping engagement with the base portion of the rail, and a tie plate member including a tie plate body interposed between a cross tie and the rail base and formed with means at opposite sides of the cross tie for defining channels opening upwardly and extending transversely of the rail for loosely receiving separately applied rail anchor devices with capacity for vertical movement of the anchor devices relative to the tie plate; the said engagement between the rail anchor and the channel defining means serving to resist forward and reverse movements of the rail relative to the cross tie.

3. A combination structure for resisting longitudinal creeping movements of a railroad rail in both directions comprising a rail anchor device of a type adapted to be driven transversely of a rail from either side thereof into clamping engagement with the base portion of the rail, and a tie plate member including a tie plate body interposed between a cross tie and the rail base and formed with means bent downwardly and upwardly at opposite sides of the cross tie to form upwardly opening channels extending transversely of the rail for loosely receiving separately applied rail anchor devices with capacity for vertical movement relative to the tie plate; the said engagement between the rail anchor and the channel defining means serving to resist forward and reverse movements of the rail relative to the cross tie, whereby movements of the rail in either forward or reverse direction are resisted by the engagement of each rail anchor device with its associated channel forming means of the tie plate.

4. A combination structure for resisting longitudinal creeping movements of a railroad rail in both forward and reverse directions comprising a rail clamp of a type adapted to be driven transversely of the rail from either side thereof into clamping engagement with the base portion of the rail, and a tie plate member including a tie plate body interposed between the cross tie and the rail base and formed with means for receiving and embracing the lower edge portion of the rail clamp, whereby the connection between said clamp and said tie plate member exerts a lever gripping action of said clamp on the rail during any forward or reverse movements of the rail.

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