Oct. 29, 1946. E. J. BOLAND 2,410,260

TIE PLATE AND RAIL ANCHOR ASSEMBLY

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Fig. 1.

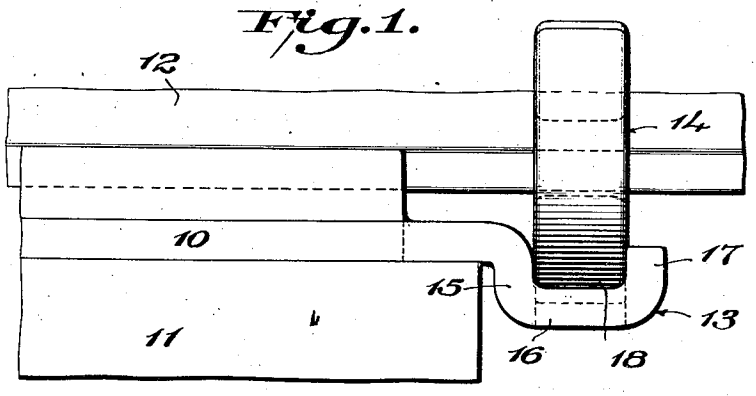


Fig. 2.

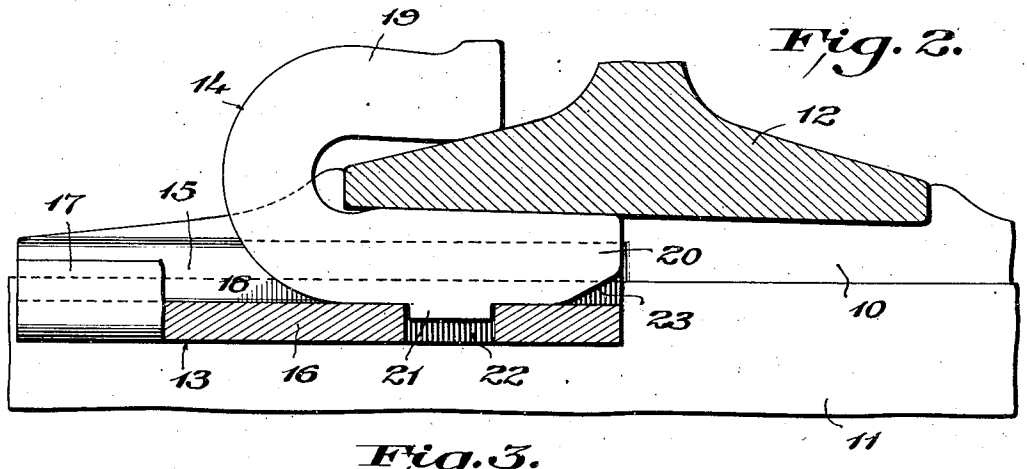
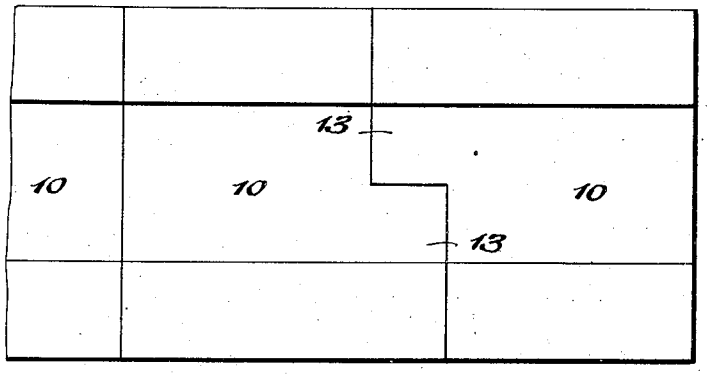


Fig. 3.



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TIE PLATE AND RAIL ANCHOR ASSEMBLY

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6 Claims. (Cl. 238—315)

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This invention relates to railway track structures, and has particular reference to improvements in tie plates and rail anchors.

One special object of the invention is to provide a tie plate having a lip extending from a side thereof for disposition at a side of a tie upon which the tie plate is seated, and to provide said lip with an upwardly opening channel extending longitudinally relative to the tie plate to accommodate the lower portion of a C-shaped rail anchor engaged with a flange of the rail, whereby the rail anchor may be held effectively against sidewise movement relative to the tie plate and thus may be rendered particularly effective to resist longitudinal creeping movements of the rail, the lip, disposed as stated, avoiding any necessity of providing a rail anchor of special form for use with the tie plate and advantageously enabling the use therewith of rail anchors of a known or Standard type.

Another special object of the invention is to provide in the lip of the tie plate a recess to accommodate a lug which may readily be provided on a rail anchor of the type which is to be used in association with the tie plate, thereby to provide for interlocking the rail anchor with the tie plate against any possibility of the same moving outwardly from its applied position upon the rail flange. In this connection dependence may, if desired, be placed in the interlock afforded by said lug and recess to hold the rail anchor against sidewise movement relative to the tie plate, in which event channeling of the lip is unnecessary. It is preferred, however, to employ said lug and recess in association with a channeled lip as thereby a stronger and more dependable structure is afforded.

Another special object of the invention is to provide a tie plate and a rail anchor both of which may readily be formed at comparatively low cost for cooperation with each other in the manner and for the purposes stated.

With the foregoing and other objects in view, which will become more fully apparent as the nature of the invention is better understood, the same consists in a tie plate and a rail anchor embodying the novel features of construction and cooperative assembly with each other as will be hereinafter more fully described, illustrated in the accompanying drawing and defined in the appended claims.

In the accompanying drawing, wherein like characters of reference denote corresponding parts in the different views—

Figure 1 is a side elevation of a portion of a track illustrating a tie plate and a rail anchor constructed and cooperating in accordance with the invention.

Figure 2 is a transverse section through the structure shown in Fig. 1; and

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Figure 3 is a plan view illustrating one practical manner of cutting a rolled tie plate bar to provide individual tie plate sections for forming by forging into individual tie plates embodying the features of the invention.

Referring to the drawing in detail, it will be observed that a tie plate constructed in accordance with the invention includes a main body portion 10 to seat upon a cross tie 11 and to have a rail 12 seated thereon, and a lip 13 extending from a side of said main body portion for cooperation with a rail anchor 14 engaged with a base flange of the rail 12 to hold said rail anchor operatively positioned upon the rail and particularly effective to resist tendency of the rail to creep longitudinally.

The main body portion 10 of the tie plate may be of any usual or any preferred construction and the lip 13, preferably is an integral part thereof, although it may be a part separate therefrom and fastened thereto in any suitable manner. In any event, said lip is of a width to project beyond the side of the tie when the tie plate is operatively positioned upon the tie, and the portion thereof which projects beyond the side of the tie is extended first downwardly, as indicated at 15, then outwardly, as indicated at 16, and then upwardly, as indicated at 17, to provide therein an upwardly opening channel 18 extending longitudinally relative to the tie plate and transversely relative to the rail.

The rail anchor 14 is of C-shape and may be of a known or Standard design. It includes upper and lower legs 19 and 20, respectively, and is adapted to be applied to the base flange of the rail by being driven thereon in the usual manner. Prior to being applied, its lower leg is entered in the channel 18 so that when applied its said lower leg is disposed in said channel. Its lower leg 20 and the channel 18 are of approximately equal widths. Consequently, when it is applied it is held by the lip 13 against any possibility of moving sidewise relative to the tie plate and thus is rendered particularly effective to resist any tendency of the rail to creep longitudinally.

Preferably the upper face of the channel bottom portion 16 of the lip 13 is spaced downwardly from the bottom of the rail a distance at least equal to the depth of the lower leg 20 of the rail anchor to avoid any tendency of said lower leg to flex said lip 13 downwardly when the rail anchor is driven onto the rail flange. In this connection there may be a clearance space between the bottom face of the leg 20 and the upper face of the lip portion 16. Preferably, however, the spacing of the lip portion 16 below the rail is approximately equal to the depth of the leg 20. In any event, the lower leg 20 preferably is provided at its bottom with a downwardly projecting lug 21 and the lip portion 16 preferably is provided with

a recess 22 to snugly accommodate said lug when the rail anchor is applied. An interlock thus is afforded between the lip 13 and the rail anchor which effectively holds the latter against creeping outwardly from its operative, applied position relative to the rail flange. In this connection, the interlock afforded by the lug 21 and the recess 22 may also be depended upon to hold the rail anchor against sidewise as well as against outward movement relative to the tie plate, in which event the lip 13 may be flat and may be devoid of any channel such as the channel 18. Preferably, however, the lug and recess 21, 22 are used in association with a channel such as the channel 18 as thereby a stronger, sturdier and more dependable structure is afforded.

Of course, a Standard rail anchor may be used in lieu of a rail anchor having a lug such as the lug 21. If, however, a rail anchor is used having a lug such as the lug 21, the spacing of the portion 16 of the lip 13 below the rail will be less than the combined depth of the leg 20 and the lug 21 so that as the rail anchor is driven onto the rail flange the lip 13 will be flexed downwardly to spring back to its normal position when the lug and the recess become alined to cause the lug to enter the recess and thus provide the said interlock between the lip and the rail anchor.

Obviously, the disposition of the lip 13 beyond a side of the tie 11 provides for use with the tie plate of rail anchors of either the usual or Standard C-type or of the usual or Standard C-type modified to include a lug such as the lug 21. In either case, the inner end portion of the lower leg 20 of the rail anchor may be and preferably is, beveled, as indicated at 23, to facilitate initial insertion of said lower leg between the lip 13 and the bottom of the rail.

While tie plates including lips in accordance with the invention may be formed in any suitable manner, one practical method of forming them is first to roll an elongated bar to the desired cross sectional shape of the main body portion 10, then to cut said bar into individual tie plate sections along alternate straight and stepped lines as indicated in Fig. 3 to provide the main body portions 10 and the lips 13, and then to forge the lip portions 13 of said sections into the channeled form illustrated in Figs. 1 and 2, the recesses or openings 22 being punched or pressed in the portions 16 either prior to or following the forging operations.

As will be apparent from the foregoing, the present construction affords a simple, inexpensive, practical means of utilizing a tie plate to hold a rail anchor against sidewise movement relative thereto to insure effective functioning of the tie plate in resisting tendency of a rail to creep longitudinally, and also to hold the rail anchor operatively applied to the rail.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

I claim:

1. A tie plate having a lip extending from a side thereof for disposition at a side of a tie upon which the tie plate is to be seated, said lip being directed first downwardly and then outwardly and then upwardly from the side of the tie plate to provide therein an upwardly opening channel extending longitudinally relative to the tie plate to accommodate the lower portion of a C-shaped rail anchor to hold the rail anchor against sidewise movement relative to the tie plate.

2. A tie plate having a lip extending from a side thereof for disposition at a side of a tie upon which the tie plate is to be seated, said lip having therein an upwardly opening channel extending losgitudinally relative to the tie plate to accommodate the lower portion of a C-shaped rail anchor to hold the rail anchor against sidewise movement relative to the tie plate, said lip also having in the bottom of the channeled portion thereof a recess to accommodate a lug on the bottom portion of the rail anchor to hold the rail anchor against longitudinal movement relative to the tie plate.

3. In a railway track structure, a tie plate, a rail seated thereon, a C-shaped rail anchor including upper and lower legs respectively engaging the upper and lower faces of a flange of the rail, the tie plate including a lip extending from a side thereof and having therein a closed bottom upwardly opening channel extending longitudinally relative to the tie plate and accommodating the lower leg of said rail anchor whereby the rail anchor is held against sidewise movement relative to the tie plate, and a lug extending downwardly from the lower leg of said rail anchor and cooperating with said lip to hold said rail anchor against outward movement relative to the rail flange.

4. In a railway track structure, a tie plate, a rail seated thereon, and a C-shaped rail anchor engaging a flange of the rail, the tie plate including a lip extending from a side thereof and having therein an upwardly opening channel extending longitudinally relative to the tie plate and accommodating the lower portion of said rail anchor whereby the rail anchor is held against sidewise movement relative to the tie plate, said lip having a recess in the bottom of its channeled portion and said rail anchor having a lug on its bottom portion disposed in said recess whereby the rail anchor is held by the tie plate against becoming accidentally disengaged from the rail.

5. In a railway track structure, a tie plate, a rail seated thereon, a C-shaped rail anchor engaged with a flange of the rail, the tie plate including a lip extending from a side thereof and having thereon an upwardly opening recess closed at its ends and sides, the rail anchor including an upper leg and a lower leg overlying said leg, and a lug on said lower lip projecting downwardly therefrom into said recess and cooperating with the closed ends and sides of the latter to hold the rail anchor against both transverse and longitudinal movement relative to the tie plate.

6. In a railway track structure, a tie plate, a rail seated thereon, a C-shaped rail anchor engaged with a flange of the rail, the tie plate including a lip extending from a side thereof, the rail anchor including an upper leg and a lower leg interposed between said lip and the rail flange, and inter-engaged formations on the lower leg of said rail anchor and said lip holding the rail anchor against both transverse and longitudinal movement relative to the tie plate.

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