

B. R. SCOTT.
 COMBINED TIE PLATE AND RAIL ANTICREEPER.
 APPLICATION FILED SEPT. 17, 1908.

933,123.

Patented Sept. 7, 1909.
 2 SHEETS—SHEET 1.

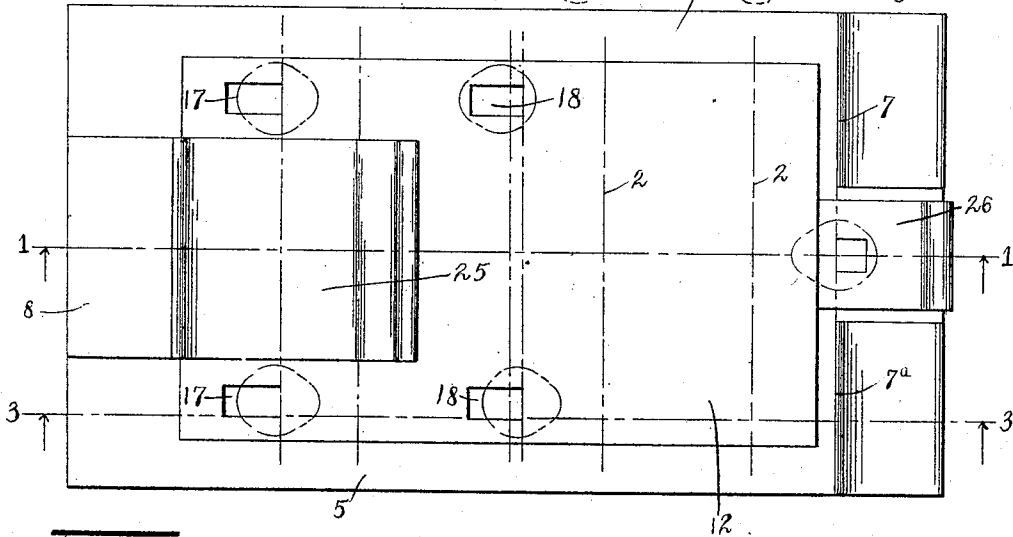
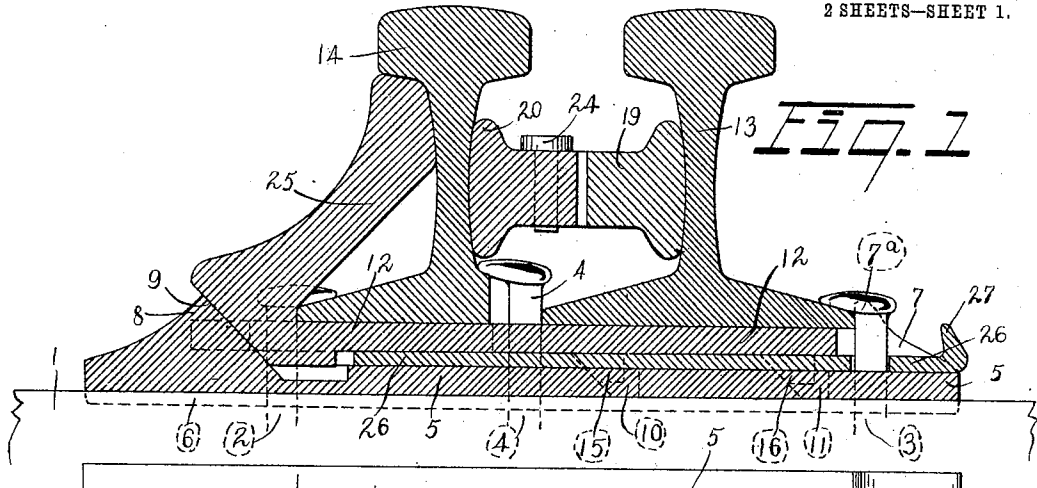


Fig. 2

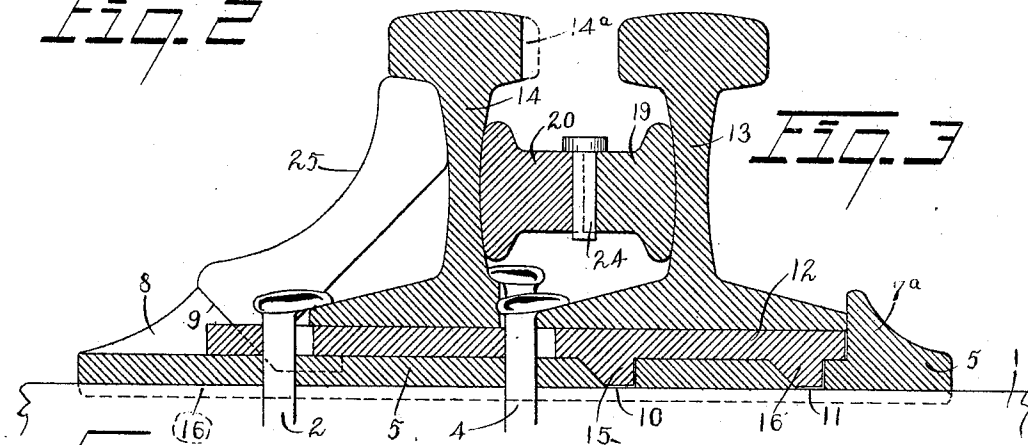


Fig. 3

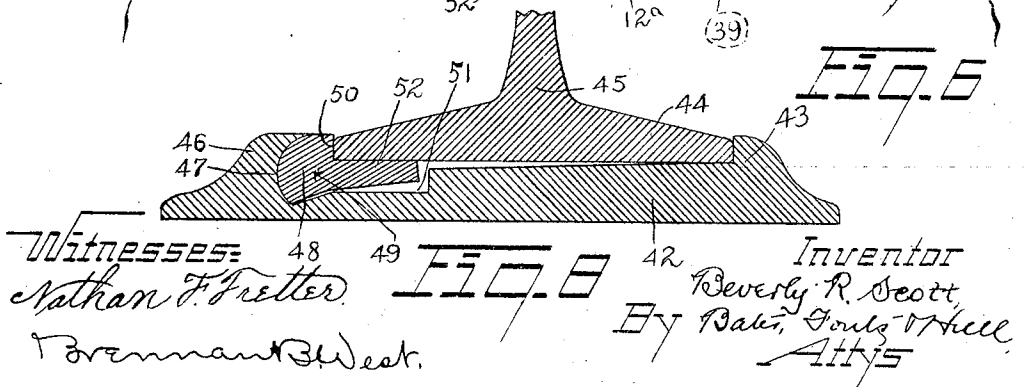
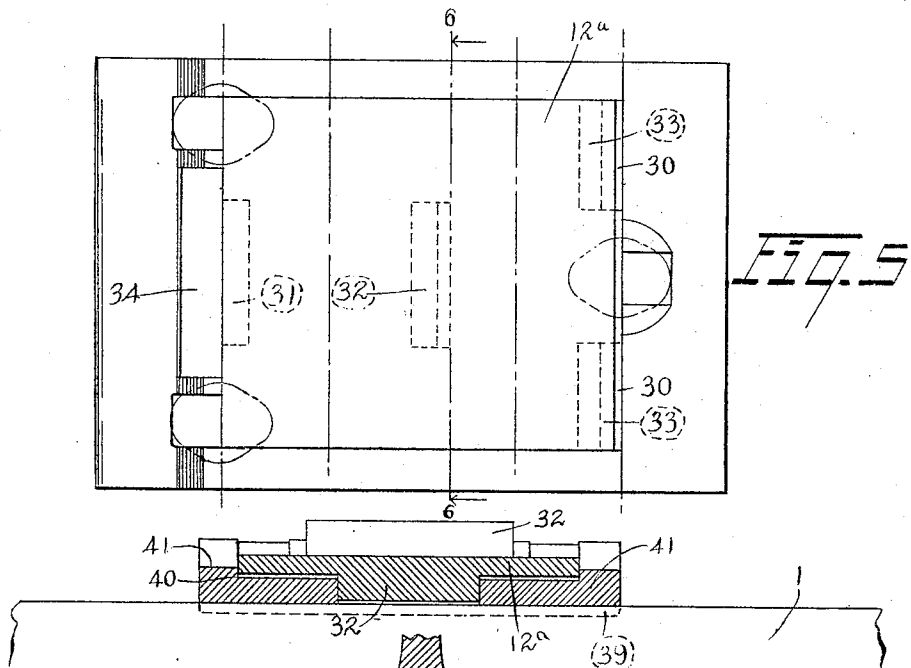
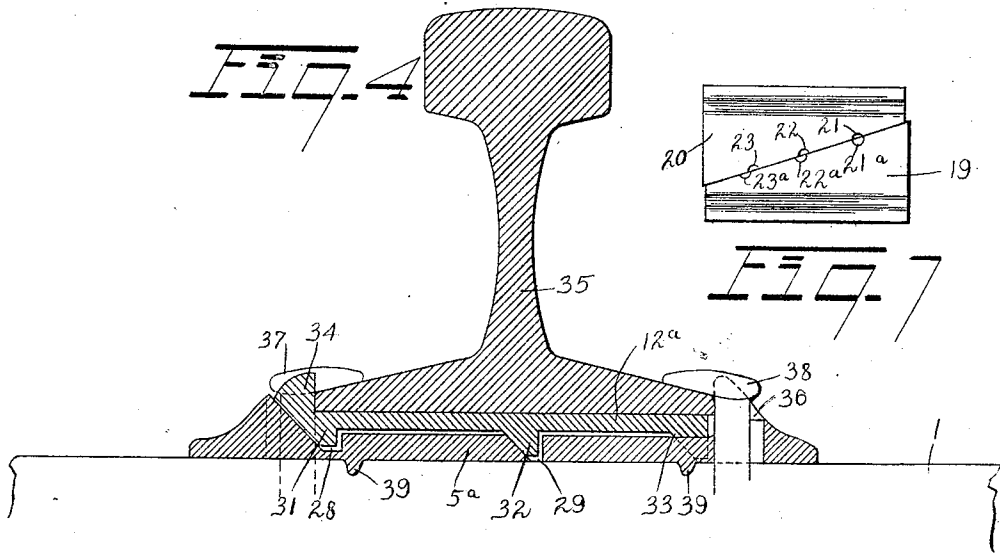
Witnesses:
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UNITED STATES PATENT OFFICE.

BEVERLY R. SCOTT, OF CLEVELAND, OHIO.

COMBINED TIE-PLATE AND RAIL-ANTICREEPER.

933,123.

Specification of Letters Patent.

Patented Sept. 7, 1909.

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To all whom it may concern:

Be it known that I, BEVERLY R. SCOTT, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Combined Tie-Plates and Rail-Anticreepers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates generally to tie plates for railway rails, and relates more specifically to a tie plate having provisions for preventing the rails from creeping in a longitudinal direction.

Another feature of my invention is the provision of means for holding and maintaining a guard rail in proper position with respect to the main rail of the track, and means for maintaining the desired and proper distance between the guard and main rail as the rails wear.

In the drawings forming a part of this application, Figure 1 is a transverse section through the tie plate taken substantially on the line 1—1 of Fig. 2, and through the main and guard rails, the wedges between the rails being also shown in section; Fig. 2 is a plan view of the tie plate shown in Fig. 1, the rails and the wedges being omitted; Fig. 3 is a view similar to Fig. 1, the section being taken on the line 3—3 of Fig. 2, the parts assuming a somewhat different position in order to take up the wear of the guard rail; Fig. 4 is a transverse section through a tie plate, such as I use for a single rail; Fig. 5 is a plan view of the tie plate shown in Fig. 4, the rail being omitted; Fig. 6 is a transverse section through Fig. 5 taken on the line 6—6 thereof and looking in the direction of the arrows; Fig. 7 is a plan view of the wedges for use between the main and guard rail shown in Fig. 1; and Fig. 8 is a transverse section through a modified form of tie plate, said view also showing in section a portion of the rail.

As is well understood, the rails of a railway have a tendency to creep longitudinally along the track, such creeping being especially noticeable in double track railways where one track is usually employed for trains going in one direction, and the other track for trains going in the opposite direction. In my invention I have provided means for clamping the rails to the tie

plates in such a manner as to rigidly hold the same against longitudinal movement, and have also combined with said means provisions for adjustably holding a guard rail in its proper position with respect to the main rail of the track, the adjustment enabling me to always maintain the guard rail at the proper distance from the main rail, thus taking up the wear on the guard rail.

Referring to the drawings for a fuller description of my invention, 1 represents a railway tie to which I secure, by means of spikes 2, 3 and 4, a tie plate 5. This tie plate may have a plain under surface engaging with the tie, or it may be provided with downwardly projecting ribs, the same being indicated in dotted lines at 6 in Figs. 1 and 3 of the drawing, which ribs may extend in any desired direction for securing the best results, the drawing showing the same as extending in the direction of the grain of the tie. At one of its ends, the tie plate is provided with shoulders 7 and 7^a, said shoulders being in alinement, but being separated at the center of the tie plate, the latter being extended between said shoulders in the same plane with the upper part of the plate adjacent the shoulders, as shown in Fig. 1. At the end opposite these shoulders, the tie plate is provided with an angular shoulder 8, said shoulder being located at the center of the end of the tie plate opposite the space between the shoulders 7—7^a, the shoulder 8 being by preference wider than the said space. The inner face of the shoulder 8 is inclined downwardly, as shown at 9, the angle of inclination being varied as desired, the drawing showing the same as of 45 degrees, which is the angle I at present prefer to use. Formed within the tie plate 5 between the shoulders at the ends thereof are openings or depressions 10 and 11, the said openings having that side toward the shoulder 8 inclined at an angle corresponding to the side 9 of said shoulder.

Supported upon the tie plate 5 is a bearing plate 12 for the rails 13 and 14, the rail 13 being the track-rail and 14 being a guard-rail extending alongside the track-rail, said rails lying flush upon the top of the bearing plate. This latter plate has a beveled end contacting with and conforming to the angle 9 of the rib 8, and it also has on its lower side lugs 15 and 16 which pro-

ject into the openings or recesses 10 and 11 respectively of the tie plate, said lugs having inclined sides which rest upon and conform in shape with the inclined sides of the said openings, the angle of inclination of all of the inclined portions of the bearing plate being equal. As shown in Fig. 2, the bearing plate 12 is rectangular in form and is narrower and shorter than the tie plate 5.

10 A single pair of lugs 15 and 16 may be employed extending substantially across the bottom of the bearing plate; but, as such lengthened lugs would require equally lengthened openings in the tie plate, which

15 openings would necessarily weaken the tie plate, I prefer to divide the lugs into two sets separated at the center, this construction greatly strengthening the tie plate. Any number of lugs and their corresponding

20 openings or recesses may be employed, and they may be arranged in any order desired, it being necessary to have a sufficient number of lugs to sustain the strain to which they are subjected, and to so position the

25 lugs as to hold the bearing plate level or parallel with the tie plate. The tie plate and bearing plate are provided with spike holes for the spikes 2 and 4, the spike holes in the bearing plate being somewhat elongated and preferably arranged in pairs near

30 the opposite edges of the plate, as shown at 17 and 18. The spike 3 does not pass through the bearing plate 12, but extends through an aperture in the tie plate between

35 the shoulders 7—7^a.

The rails 13 and 14 are preferably separated by wedge shaped members 19 and 20, the same being shown in plan view in Fig. 7. The adjacent faces of these members are inclined with respect to the direction of the rails, and their outer edges are shaped to conform as nearly as practical with the webs of the rails. The inclined faces of the members are provided with semi-cylindrical

40 recesses 21, 22 and 23, and 21^a, 22^a, and 23^a, the recesses being differently spaced upon the two members so that when the recesses 21 and 21^a register, the other sets of recesses will be slightly out of register, as shown. A

45 pin 24 is adapted to be inserted vertically into the recesses when they are in register, Fig. 7 showing the recesses 21 and 21^a in exact register for the reception of the pin 24. Owing to the wear of the wheels upon

50 the guard rail, the latter is worn away more or less rapidly, as is indicated in dotted lines at 14^a in Fig. 3. It is desirable that the distance between the track and guard rail be maintained practically constant; and, in

55 order to accomplish this result, it is necessary to adjust these rails with respect to each other, which is accomplished by the wedge shaped members 19 and 20. When, therefore, the guard rail is practically unworn,

60 the members take the position shown in Fig.

7, with the pin 24 passing through the recesses 21 and 21^a. As the guard rail becomes worn, the pin 24 may be withdrawn and the members 19 and 20 moved a distance sufficient to bring the recesses 22 and 22^a into

70 register, the pin 24 then being inserted into these recesses. This adjustment of these members narrows the distance between the outer edges thereof which permits the rails 13 and 14 to be moved toward each other.

75 Any desired number of sets of these recesses may be employed. In order to firmly brace the guard rail, an arm 25 is projected from the bearing plate 12, said arm extending under the ball of the guard rail and against

80 the web of the latter.

In assembling the parts thus described, the base flange of the rail 13 is placed in contact with the shoulders 7—7^a, the said rail resting upon the bearing plate 12, and the guard

85 rail 14 is laid against the brace arm 25, the base flange of the guard rail also preferably bearing against the said brace arm at its base. The two rails are then secured in place by the spikes 2, 3 and 4. When the rails are

90 first laid and the guard rail is practically unworn, I prefer to space the tie plate and the bearing plate apart, which result I attain by the use of a key 26, said key being

95 in the shape of a plate with an upturned end 27, said plate extending between the shoulders 7—7^a and between the pairs of the lugs 15 and 16. This key sustains the weight of the rails and the train. After the guard

100 rail becomes worn, as indicated in Fig. 3, the spike 3, which passes through the key is withdrawn, and the key is removed, thus permitting the weight of the rails to be sustained by the inclined faces on the tie plate

105 and the bearing plate, the result being that the bearing plate settles toward the tie plate and also moves toward the shoulders 7—7^a. Inasmuch as the main rail 13 is already in contact with said shoulders, it can not move laterally, but the guard rail moves

110 toward it, being carried transversely with the bearing plate owing to the engagement of the brace arm 25 therewith, it being understood that the wedge shaped members 19 and 20 have been adjusted or removed so as

115 to permit the relative movement between the main and guard rail.

In Figs. 4, 5 and 6 I have shown a tie plate and bearing plate for use with a single rail, said plates being similar to the plates herein-

120 before described, and serving to clamp the rails so as to prevent creeping. The tie plate proper is shown at 5^a, and the bearing plate at 12^a, the tie plate being provided with the recesses 28, 29 and 30 and the bearing plate

125 with correspondingly positioned lugs 31, 32 and 33, the recesses and lugs having one of their sides inclined as and for the purpose stated in connection with the corresponding

130 parts in Figs. 1, 2 and 3. The bearing plate

12^a has at one of its edges a shoulder 34 against which one edge of the base flange of the rail 35 abuts, the other edge of the base flange abutting against shoulders 36 on the tie plate. Spikes 37 and 38 are driven through suitable spike apertures in the tie plate, the heads of the spikes extending over the base flanges of the rail. The bottom of the tie plate may be made perfectly plain, or may be provided with ribs for sinking into the tie, such ribs being shown at 39 as running transversely of the grain of the tie. These ribs may be omitted or may be extended in any direction according to any arrangement desired.

In assembling the parts shown in Figs. 4, 5 and 6, the base flange of the rail is placed between the shoulders 36 on the tie plate 5^a and the shoulder 34 on the bearing plate 12^a, the rail flange being of such width as to hold the bearing plate spaced from the tie plate, as shown in Fig. 4, whereby the weight of the rail and the train causes the bearing plate to slide downwardly and laterally, thus tightly clamping the base flange of the rail between said shoulders. Preferably the upper face of the tie plate 5^a is recessed, as shown at 40, providing side flanges 41 on the tie plate in order to permit the plate 12^a to have side bearings against the flanges 41.

In Fig. 8 I have shown a somewhat modified form of tie plate for preventing creeping of the rails, the same consisting of the tie plate proper 42 having a shoulder 43 for engaging with one edge of the base flange 44 of a rail 45. At its opposite edges the tie plate is provided with a shoulder 46 having a curved inner face 47 within which projects the curved face of a key 48, the center of curvature of the key and the shoulder lying within the key at a point 49. Above the center of curvature the key is provided with an angular shoulder 50 against which the base flange of the rail abuts, and, extending inwardly and resting within a recess 51 of the tie plate, is an arm 52 on the said key, the base of the rail resting upon said arm and against the shoulder 50. The parts are so proportioned that, when the rail is laid in position, the key will be slightly tilted, the arm 52 resting beneath the rail and the latter being slightly tilted with respect to the upper surface of the tie plate. When the load of the train comes upon the rail 45, the arm 52 of the key is depressed and the key is turned slightly about its center of curvature 49, such movement throwing the shoulder 50 toward the rail and compressing the flange of the latter between the said shoulder and the shoulder 43.

Various changes in the details of the invention may be made without departing from the principles thereof, and I desire it to be understood that the following claims are not intended to be limited to such de-

tails any further than is rendered necessary by the specific terms therein employed.

Having thus described my invention, I claim:

1. The combination with a tie plate, of a bearing plate for a rail supported thereby, and means on said plates for causing the bearing plate to move transversely of the rail and to maintain itself parallel with the tie plate as the bearing plate is moved, for the purpose specified.

2. The combination with a tie plate, of a bearing plate for a rail supported thereby, and inclined projections on one of said plates extending into correspondingly inclined depressions in the other plate whereby the bearing plate may have vertical and lateral movement on the tie plate and said plates are maintained parallel, for the purpose specified.

3. The combination with a tie plate having a plurality of depressions therein, a corresponding side of each of said depressions being inclined, of a shoulder on the tie plate, a bearing plate supported by the tie plate and having projections corresponding to the depressions in the tie plate, each of said projections having an inclined side coöperating with the inclined side of the respective depressions, and a rail supported upon the bearing plate and bearing against the shoulder on the tie plate.

4. The combination with a tie plate having a plurality of depressions therein, a corresponding side of each of said depressions being inclined, of a shoulder on said tie plate, a bearing plate above the tie plate, a plurality of projections on the bearing plate corresponding in position and number to the depressions in the tie plate, each of said projections having an inclined side coöperating with the inclined side of its respective depression, a main rail and a guard rail supported on the bearing plate, the base flange of the main rail engaging with the shoulder on the tie plate, adjustable spacing devices between the main and guard rail, and spikes passing through the tie plate and engaging the rails to hold the same in position.

5. The combination with a tie plate having a plurality of depressions therein, a corresponding side of each of said depressions being inclined, of a shoulder on said tie plate, a bearing plate above the tie plate, a plurality of projections on the bearing plate corresponding in position and number to the depressions in the tie plate, each of said projections having an inclined side coöperating with the inclined side of its respective depression, a main rail and a guard rail supported on the bearing plate, the base flange of the main rail engaging with the shoulder on the tie plate, a brace arm on the bearing plate engaging with the guard rail, adjustable spacing devices between the main and

guard rail, and spikes passing through the tie plate and engaging the rails to hold the same in position.

6. The combination with a tie plate, of a shoulder on said plate, said plate having a plurality of depressions, a corresponding side of each of said depressions being inclined, a bearing plate above the tie plate, said bearing plate having a plurality of projections corresponding in position and number to the recesses in the tie plate, each of said projections having an inclined side coöperating with the inclined side of its respective depression in the tie plate, a removable key between the tie plate and the bearing plate, a main rail and a guard rail supported by the bearing plate, the base flange of the main rail engaging with the shoulder on the tie plate, a brace arm on the bearing plate engaging with the side of the guard rail opposite the said shoulder, adjustable spacing devices between the main and guard rail, and spikes passing through the tie plate and engaging the said rails for holding the same in position.

7. The combination with a tie plate, of a shoulder on said plate, said plate having a plurality of depressions, a corresponding side of each of said depressions being inclined, a bearing plate above the tie plate, said bearing plate having a plurality of projections corresponding in position and number to the recesses in the tie plate, each of said projections having an inclined side coöperating with the inclined side of its respective depression in the tie plate, a removable key between the tie plate and the bearing plate, a main rail and a guard rail supported by the bearing plate, the base flange of the main rail engaging with the shoulder on the tie plate, a brace arm on the bearing plate engaging with the side of the guard rail opposite the said shoulder, adjustable spacing devices between the main and guard rail, and spikes passing through the tie plate and the bearing plate and engaging the said rails for holding the same in position.

8. The combination with a tie plate, of a pair of shoulders on one end of the tie plate, said tie plate having a plurality of depressions therein, a corresponding side of each of said depressions being inclined, a bearing plate above the tie plate, a plurality of projections on the bearing plate, said projections corresponding in position and number to the depressions in the tie plate, each of said projections having an inclined side coöperating with the inclined side of its respective depression, a removable key extending between the tie plate and the bearing plate and normally separating said plates, said key extending between the shoulders on the tie plate, a main rail and a guard rail supported upon the bearing plate, the

base flange of the main rail engaging against said shoulders on the tie plate, a brace arm projecting from the bearing plate against the side of the guard rail opposite the said shoulders, and spikes passing through the tie plate and bearing plate and engaging with the said rails to hold the same in position.

9. The combination with a tie plate, of a pair of shoulders on one end of the tie plate, said tie plate having a plurality of depressions therein, a corresponding side of each of said depressions being inclined, a bearing plate above the tie plate, a plurality of projections on the bearing plate, said projections corresponding in position and number to the depressions in the tie plate, each of said projections having an inclined side coöperating with the inclined side of its respective depression, a removable key extending between the tie plate and the bearing plate and normally separating said plates, said key extending between the shoulders on the tie plate, a main rail and a guard rail supported upon the bearing plate, the base flange of the main rail engaging against said shoulders on the tie plate, a brace arm projecting from the bearing plate against the side of the guard rail opposite the said shoulders, spikes passing through the tie plate and bearing plate and engaging with the said rails to hold the same in position, and adjustable spacing devices between the said rails.

10. The combination with a tie plate having a shoulder thereon, said plate having a plurality of depressions, a corresponding side of each of said depressions being inclined, of a bearing plate above the tie plate, a plurality of projections on the bearing plate, said projections corresponding in position and number to the depressions in the tie plate, and each of said projections having an inclined side coöperating with the inclined sides of the respective depressions, a main rail and a guard rail supported by the bearing plate, said main rail bearing against the shoulder on the tie plate, a brace arm on the bearing plate engaging with the guard rail on the side opposite the main rail, a pair of wedge shaped members between the said rails for spacing the latter, the contacting faces of said members being provided with a series of semi-cylindrical recesses, the recesses in one member being spaced differently from the recesses in the other member, and a pin adapted to be inserted into the registering recesses in the two members, the construction being such that, when the guard rail becomes worn, the said pin may be removed and inserted into another set of recesses thereby adjusting the space between the said rails, for the purpose specified.

11. The combination with a tie plate having a shoulder thereon, of a bearing plate above the said tie plate, said plates having

their contacting portions arranged on an incline, a shoulder on the bearing plate opposite the shoulder on the tie plate, a rail resting upon the bearing plate and having its base flange engaging with each of said shoulders, and spikes for holding the rail in position, the construction being such that the weight of the rail and the train causes the bearing plate to settle toward the tie plate and thus clamp the rail between the said shoulders.

12. The combination with a tie plate having a shoulder thereon, said plate having a plurality of depressions in its upper surface and each of said depressions having an inclined side, of a bearing plate above the tie plate and supported thereby, a plurality of projections on the bearing plate corresponding in position and number to the said depressions and each of said projections having an inclined side cooperating with the inclined sides of the said depressions, a shoulder

on the bearing plate opposite the shoulder on the tie plate, said shoulders being adapted to engage with opposite sides of the base flange of a rail, and spikes passing through the tie plate and engaging with the said rail for holding the same in position, the construction being such that the weight of the rail and train depresses the bearing plate toward the tie plate and the inclined sides of the projections and recesses cause the shoulder on the bearing plate to move toward the shoulder on the tie plate and thus clamp the flange of the rail, the bearing plate being maintained parallel with the tie plate, for the purpose specified.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

BEVERLY R. SCOTT.

Witnesses:

S. E. FOUTS,
BRENNAN B. WEST.