

W. S. NEWHALL.
RAIL BRACE.

APPLICATION FILED NOV. 10, 1909.

Patented June 14, 1910.

961,636.

2 SHEETS—SHEET 1.

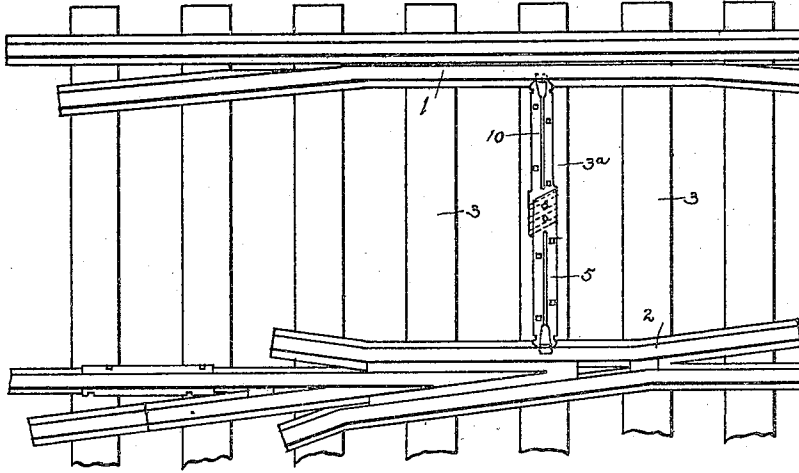


FIG. 1

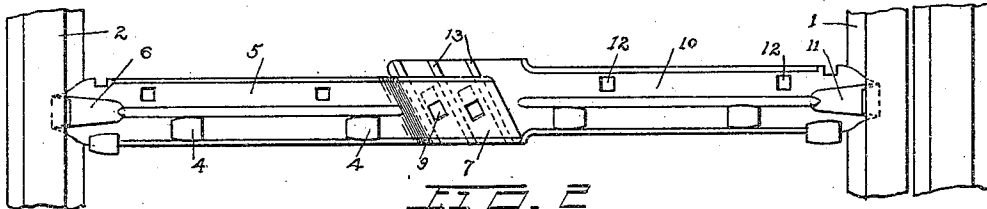


FIG. 2

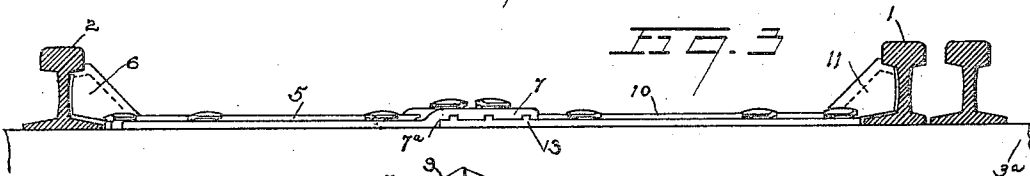


FIG. 3

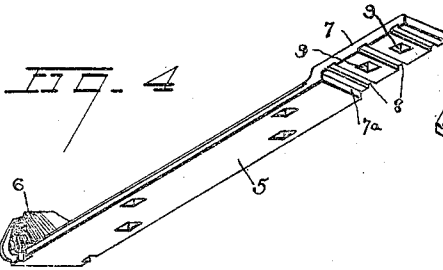


FIG. 4

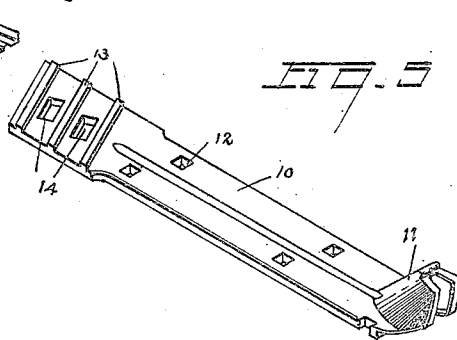


FIG. 5

WITNESSES

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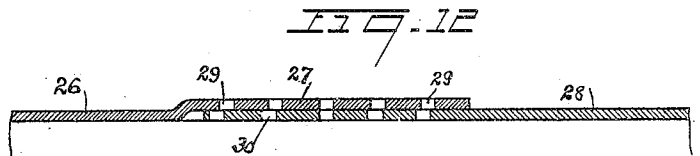
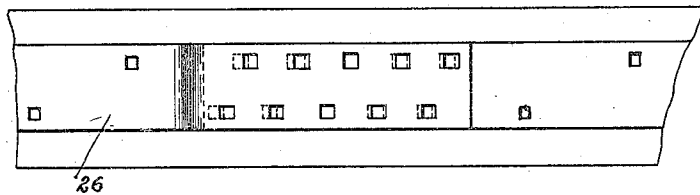
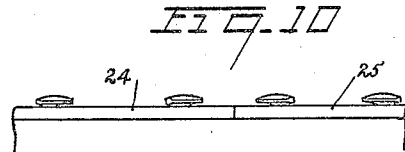
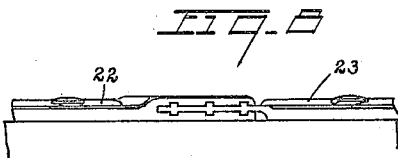
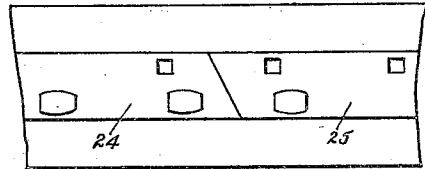
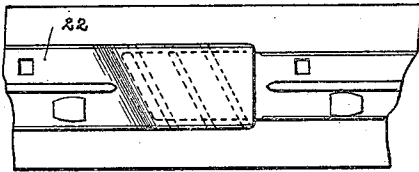
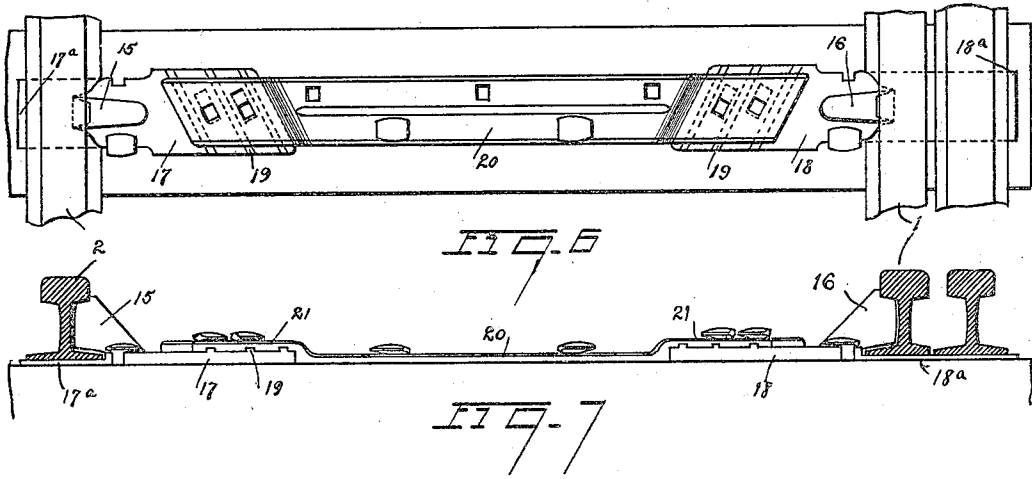
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Witnesses
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UNITED STATES PATENT OFFICE.

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RAIL-BRACE.

961,636.

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Application filed November 10, 1909. Serial No. 527,151.

To all whom it may concern:

Be it known that I, WALTER S. NEWHALL, 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 Rail-Braces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to braces for railway rails, and the same is designed especially for bracing the frog and guard rails, the object of the invention being to produce a brace which shall be adjustable in its length, which shall be strong and efficient in operation, economical in construction and convenient in application to the rails.

In the drawings—Figure 1 is a plan view of a section of a railway track showing a guard rail and a frog rail having one form of my brace applied thereto; Fig. 2 is a plan view of the brace shown in Fig. 1, the same being on a larger scale; Fig. 3 is a side or edge elevation of the brace shown in Fig. 2; Figs. 4 and 5 are perspective views showing respectively the two sections of the brace shown in Figs. 2 and 3; Fig. 6 is a view similar to Fig. 2 showing another form of brace; Fig. 7 is a side or edge elevation of the form of brace shown in Fig. 6; Figs. 8 and 9 are plan and side elevations respectively of another form of brace, said figures showing the adjustable features of the brace; Figs. 10 and 11 are plan and side elevations respectively of the adjustable parts of still another form of brace; Fig. 12 is a plan view showing the adjustable parts of still another form of my invention; and Fig. 13 is a section taken vertically through the form of brace shown in Fig. 12.

In constructing railways, the distance between rails as initially laid may vary slightly and, in the operation of the railway system, such distances may vary from different causes after the rails have been laid. For this reason, it becomes desirable to provide the braces for such rails with adjusting features, whereby a close engagement of the brace extremities with the rails may be secured and maintained. In order to effect this adjustment, therefore, I form my brace in two or more sections, and provide the cooperating parts of said sections

with means whereby the length of the brace may be varied to compensate for the differences in distance between the rails.

Taking up a description of the invention by the use of reference characters, and first directing attention to the form shown in Figs. 1 to 5 inclusive, 1 represents a guard rail and 2 a frog rail, the same being supported by the railway ties 3 and 3^a. To one of the ties, as 3^a, I secure in any suitable manner, as by the spikes 4, the section 5 of my guard rail, said section being shown in detail in Fig. 4 of the drawing. This section is laid with its head 6 in close contact with the rail 2, and it is then securely spiked to the tie. The section 5 extends to substantially the middle of the railway track, and its inner end is elevated at 7 so as to lie above the upper surface of the tie, an inclined shoulder 7^a being formed at the junction of the main and the elevated portions of said section. On the under side of this elevated portion, the section is provided with one or more parallel grooves or slots 8, the drawings showing three of such grooves which are inclined to the longitudinal axis of the section and extend in the same direction as the shoulder 7^a. The elevated part 7 is also provided with spike holes 9 extending vertically therethrough. The other section 10 of the brace is provided with a head 11, which is adapted to engage the rail 1, and with suitable holes 12 through which spikes may be driven into the tie for holding this section in position. The inner end of the section 10 is provided with one or more upwardly extending ribs 13, the number of such ribs corresponding to the number of grooves or slots 8 in the section 5. As shown in Fig. 2, the ribs 13 and the end of section 10 are inclined to the axis of the section at the same angle as the grooves 8. Between the ribs 13, and corresponding in position to the spike holes 9 in the section 5, the section 10 is provided with elongated holes 14.

The brace is applied by first securing the section 5 to the tie with its head 6 abutting against the adjacent rail. The section 10 is then laid upon the tie with its end opposite the shoulder 7^a and with the ribs 13 opposite the grooves 8. Said section 10 is then driven or otherwise forced sidewise, its

end contacting with the shoulder 7^a and the ribs 13 entering the inclined slots 8 of the section 5, such action forcing the section 10 endwise and forcing its head 11 into close contact with the adjacent rail. This driving or forcing action is continued until the desired pressure is secured between the ends of the brace and the rails, when the section 10 is secured in the position to which it has thus been forced by driving spikes through the openings 12. Spikes may also be driven through the openings 9 and 14, the elongated openings 14 receiving such spikes irrespective of the adjustment of the section 10.

Any desired angle of inclination of the ribs 13 and grooves 8 may be adopted, but it is preferable to have the angle such that there will be sufficient friction between the sections to prevent the section 10 from rebounding after a blow has been delivered thereto.

In Figs. 6 and 7 I have shown a form of brace in which the heads 15 and 16 are formed on comparatively short sections 17 and 18, respectively, each of said sections being provided with upwardly extending inclined ribs 19. The ribs on each section are parallel, but the ribs on one section incline with respect to the ribs on the opposite section, as shown in Fig. 6. Each of these sections is provided with an outwardly extending plate, designated, respectively, 17^a and 18^a, upon which the adjacent rails rest. These plates may be omitted if desired. This is a third section of this brace, the same occupying the middle portion of the track. This section has its ends elevated, as shown at 21, and the under sides of said elevated portions are provided with grooves for receiving the ribs 19. In applying this form of brace, the section 20 is spiked securely in position at substantially the center of the track. The end sections 17 and 18 are then driven into position, the ribs 19 entering the grooves of the section 20, and forcing the sections 17 and 18 outwardly with their heads 15 and 16 pressing against the rails. If the plates 17^a and 18^a be present, the rails must be pried up to permit the plates to slide under them. After the desired pressure is secured, the sections 17 and 18 are spiked to the tie. The form shown in Figs. 6 and 7 has the advantage of a double set of inclined engaging members, and the sections 17 and 18 may be independently adjusted. Furthermore, owing to the double adjustment, the angle of the ribs and grooves may be diminished one-half and still permit the brace to be elongated to the same extent as in the form shown in Figs. 1 to 5.

In the form shown in Figs. 8 and 9, one section, 22, has its end adjacent the section 23 slotted in a horizontal plane. The inner faces on the opposite sides of said slot have

inclined grooves preferably arranged in pairs one above the other, as shown. The section 23 has its end adjacent the section 22 diminished in thickness so as to fit said slot, the said end being provided with ribs on its opposite sides which are arranged at an inclination corresponding to the inclination of the grooves in the section 22 so that the section 23 may be driven sidewise into the section 22 and thereby force said sections lengthwise. In applying this form of brace, one of said sections, say the section 22, is spiked in position, after which the section 23 is driven sidewise until the desired adjustment is secured, after which it is also spiked in position.

In the form shown in Figs. 10 and 11, the sections 24 and 25 are provided with beveled or inclined ends lying in the same plane. In applying this form of brace, one of these sections is spiked in position, after which the other member is driven sidewise until the desired adjustment is secured, after which it also is spiked to its tie.

In Figs. 12 and 13 the section 26, which is first spiked to the tie, has its inner end elevated at 27. The section 28 is of substantially the same thickness throughout, and it extends beneath the elevated portion of the section 26. The overlapping portions of these sections are each provided with spike apertures, the apertures 29 in the section 26 being somewhat closer together than are the apertures 30 in the section 28. As shown in Fig. 12, the central apertures 29 and 30 are in alinement, so that a spike may be driven therethrough without moving the sections 26 and 28 endwise. If, however, the spike be driven through any other pair of apertures, the said sections will be forced endwise, the extent of relative movement depending upon just where the spike is driven. By selecting the pair of spike apertures through which the spikes are driven the desired elongation of the brace may be secured. The brace may be made of any suitable material, such as malleable iron.

While I have shown and described several forms in which my invention may be embodied, I do not wish it to be understood that these forms are the only possible ones that may be devised to embrace my invention, and the following claims are not intended to be limited to the specific forms herein shown any further than is rendered necessary by the specific terms therein employed.

Having thus described my invention, what I claim is:

1. In a railway structure, the combination with a pair of rails, of a tie upon which said rails are supported, a pair of overlapping brace sections, one of said sections having a head adapted to fit beneath the head of the rail so as to prevent the latter from tip-

ping, means on said sections whereby a relative longitudinal movement of said sections may be produced for adjusting the length of the brace, said sections being provided with spike apertures through which spikes may be driven into the tie for holding the members in their adjusted position.

2. In a railway structure, the combination with a pair of rails, a tie upon which said rails are supported, a plurality of brace sections, one of said sections having a head adapted to fit beneath the head of the adjacent rail for preventing the latter from tipping, the said sections being provided with cooperating inclined portions whereby by forcing one section of the brace sidewise when in contact with its adjacent section, the length of the brace may be adjusted and means for securing said sections in their adjusted positions.

3. In a railway structure, the combination with a railway tie, of a pair of rails supported by said tie, a plurality of rail brace sections resting on said tie between the rails, one of said sections being provided with inclined grooves, and with a head engaging beneath the head of the adjacent rail inclined ribs on the cooperating section, said ribs being adapted to enter the said grooves in the other section, whereby by forcing one of said sections sidewise the cooperating section is moved lengthwise and the length of the brace is thus regulated, and means for securing said sections to the tie.

4. In a railway brace, the combination with a plurality of brace sections, of a railway tie upon which said sections rest, one of said sections being provided with an inclined groove, an inclined rib on the cooperating section, said rib fitting the groove in the other section whereby, by moving one of said sections sidewise the cooperating section is moved lengthwise, and the length of the brace is thus regulated, and spikes passing through said sections and into the tie for securing the brace in position.

5. In a railway structure, the combination with a pair of rails, of a tie upon which said rails are supported, a brace section having a head engaging one of said rails, said section being provided with inclined ribs on one of its sides, of a second brace section overlapping the first section and having inclined grooves fitting the ribs on the first section whereby, by moving one of said sections sidewise the brace may be lengthened or shortened, and spikes passing through said sections and into the tie for holding the brace in position.

6. In a railway structure, the combination with a pair of railway rails, of a tie upon which said rails are supported, a railway brace resting upon said tie, said brace being formed of a plurality of sections, one of said sections being beveled at one of its ends and

having a head upon its other end which engages beneath the head of the adjacent rail to prevent the latter from tipping, the second section of the brace having an end overlapping the beveled end of the first section, said second section having an inclined shoulder fitting the beveled end of the first section, whereby a sidewise movement of one of said sections lengthens or shortens the brace and spikes passing through said sections into the tie.

7. In a railway structure, the combination with a pair of railway rails, of a tie upon which said rails are supported, a railway brace resting upon said tie and engaging with its ends the respective rails, said brace being formed of a plurality of sections, inclined ribs projecting from one side of one of said sections, an overlapping portion on the adjacent section of the brace, said portion having inclined grooves fitting the said ribs, whereby a sidewise movement of one of said sections lengthens or shortens the brace, and spikes passing through said sections into the tie.

8. In a railway structure, the combination with a railway tie, of a railway brace resting upon said tie, said brace being formed of a plurality of sections, outward extensions on the sections at the ends of the brace, a railway rail resting upon each of the said outward extensions, inclined ribs on one of said sections, inclined grooves on another of said sections, said grooves fitting the ribs on the other section, and spikes passing through said sections for holding the brace in position, the construction being such that when either of said sections is moved sidewise it will also be forced endwise by the engaging ribs and grooves.

9. In a railway structure, the combination with a railway tie, of a railway brace resting upon said tie, said brace being formed of end and central sections, outward extensions on each of the end sections, a railway rail resting upon each of the said outward extensions, upwardly extending inclined ribs on each of said end sections, elevated end portions on the central section extending over the end sections, said elevated portions having inclined grooves on their lower sides fitting the ribs on the end sections, and spikes passing through said sections for holding the brace in position, the construction being such that when either of said end sections is moved sidewise it will also be forced endwise by the engaging ribs and grooves.

10. In a railway structure, the combination with a railway tie, of a railway brace resting upon said tie, said brace being formed of a plurality of engaging and interlocking sections, outwardly extending projections on each of the end sections of the brace, a railway rail resting upon each

of said projections, the inner ends of the end sections being beveled, ribs extending upwardly from the end sections and inclined at the same angle as the beveled ends of the sections, a central section for the brace, said section having an elevated portion at each of its ends overlapping the end sections, the elevated portions forming with the remainder of the central section inclined shoulders fitting the ends of the respective end sections, and the overlapping portions being provided on their lower sides with inclined grooves corresponding to the ribs on the end sections, and spikes passing through the said sections into the tie.

11. In a railway structure, the combination with a railway tie, of a railway brace resting upon said tie, said brace being formed of end and central sections, upwardly extending inclined ribs on each of said end sections, elevated end portions on the central section extending over the end sections, said elevated portions having inclined grooves on their lower sides fitting the ribs on the end sections, and spikes passing through said sections for holding the brace in position, the construction being such that when either of said end sections

is moved sidewise it will be forced endwise by the engaging ribs and grooves.

12. In a railway structure, the combination with a railway tie, of a railway brace resting upon said tie, said brace being formed of a plurality of engaging and interlocking sections, the inner ends of the end sections being beveled, ribs extending upwardly from the end sections and inclined at the same angle as the beveled ends of the sections, a central section for the brace, said section having an elevated portion at each of its ends overlapping the end sections, the elevated portions forming with the remainder of the central section inclined shoulders fitting the ends of the respective end sections, and the overlapping portions being provided on their lower sides with inclined grooves corresponding to the ribs on the end sections, and spikes passing through said sections into the tie.

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

WALTER S. NEWHALL.

Witnesses:

S. E. FOUTS,
S. W. LINN.