No. 850,536. PATENTED APR. 16, 1907.

A. MORRISON.

GUARD RAIL SYSTEM.

APPLICATION FILED MAR. 6, 1906.

Fig. 1.

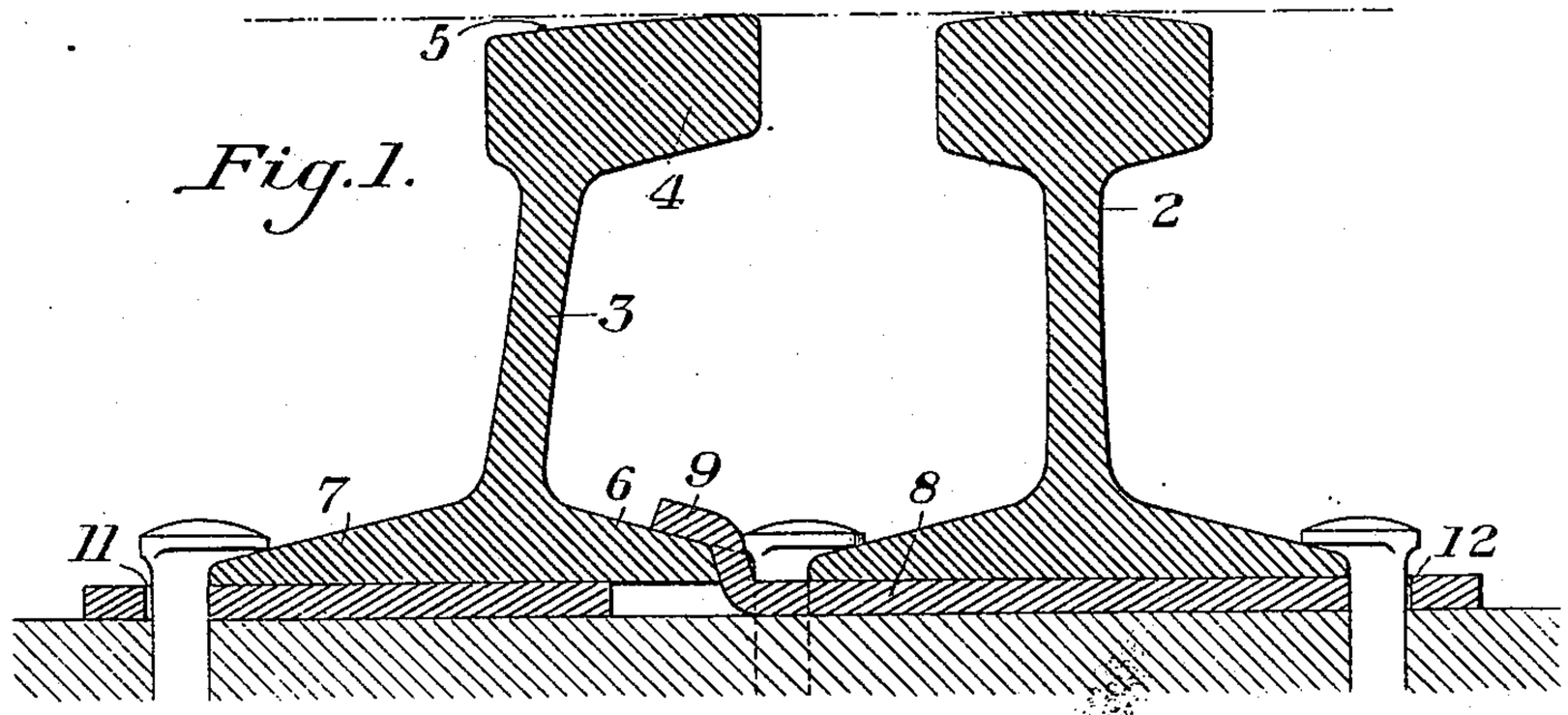


Fig. 2.

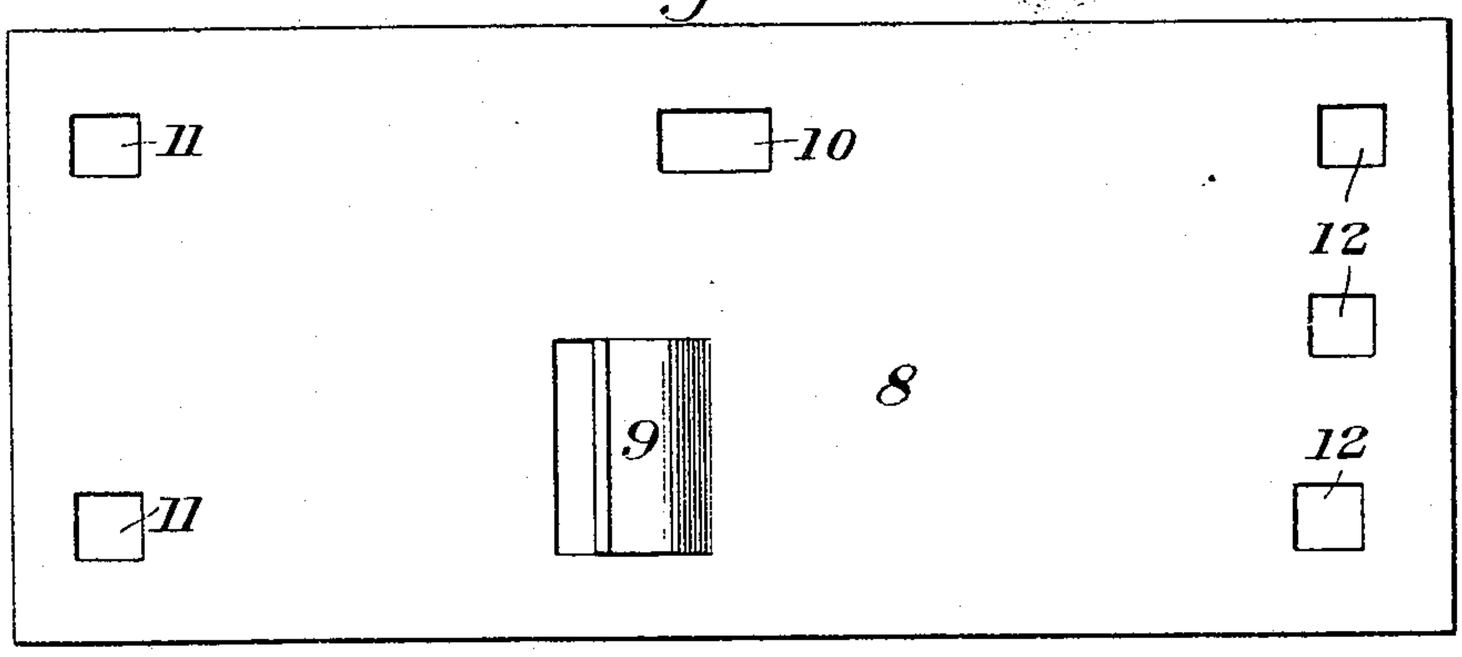


Fig. 3.

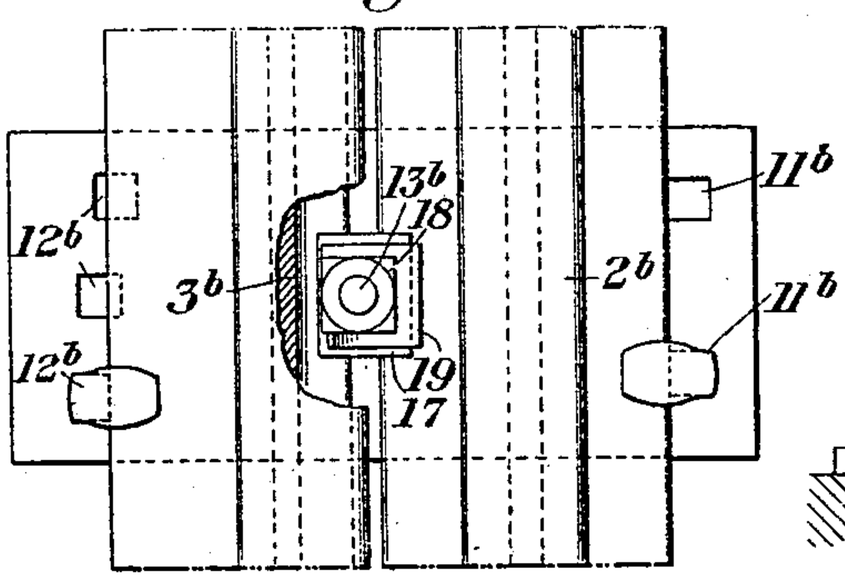


Fig. 4.

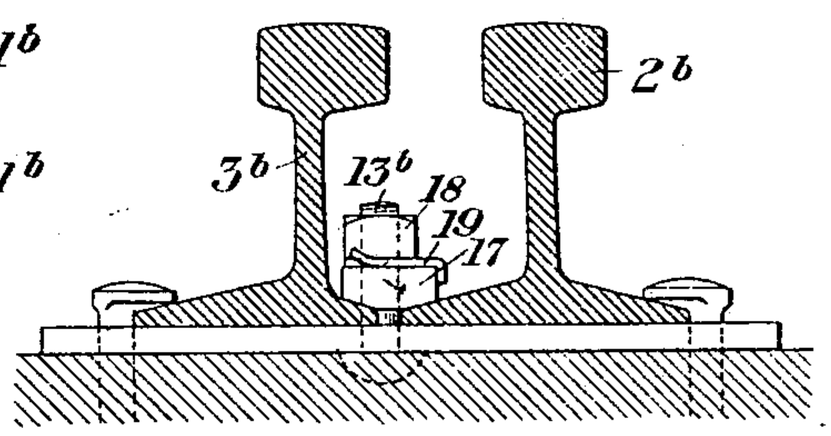
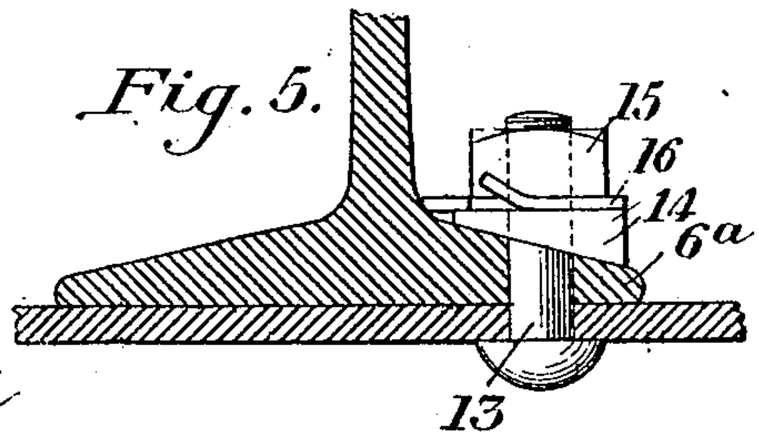


Fig. 5.



WITNESSES

R. A. Balderson

Warren W. Swartz

INVENTOR

Andrew Morrison

by Baldwin & Wyman

his attys

UNITED STATES PATENT OFFICE.

ANDREW MORRISON, OF PITTSBURG, PENNSYLVANIA.

GUARD-RAIL SYSTEM.

No. 850,536. Specification of Letters Patent. Patented April 16, 1907.

Application filed March 6, 1906. Serial No. 304,491.

To all whom it may concern:

Be it known that I, ANDREW MORRISON, of Pittsburg, Allegheny county, Pennsylvania, have invented a new and useful Guard-Rail System, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a cross-section of the guard-rail system constructed in accordance with my invention. Fig. 2 is a plan view of the tie-plate shown in the form of Fig. 1. Fig. 3 is a partial plan view, partly broken away, showing the modified form of the system. Fig. 4 is a cross-section of the form of Fig. 3, and Fig. 5 is a broken detail showing another means for securing the guard-rail.

My invention relates to the guard-rails employed on railroads and is designed to provide a guard-rail system which shall be long-lived and in which the guard-rail may be cheaply made and securely held in position. It is also designed to provide for adjusting of the rails when this becomes desirable through wear.

In the drawings, referring to the form of Figs. 1 and 2, 2 represents the main rail, having the guard-rail extending alongside of it. I have shown the guard-rail as provided with a web 3, which is inclined upwardly and inwardly toward the main rail, the head 4 of the guard-rail being enlarged or extended on its inner side. I also preferably roll this guard-rail, with its top face 5, in an inclined position, so that the highest point of the top will be on the side nearest the main rail and will be approximately at the same level as the top of the main rail. With this formation of the top as the top of the head of the main rail wears away and the side of the head of the guard-rail wears away the tops of both rails will be in substantially the same planes at all periods of their life. I also preferably roll the guard-rail with the inner flange 6 of considerable less width than the outer base-flange 7. This enables the guard-rail head to be brought to the proper distance from the head of the main rail without planing down or machining of one of the guard-rail base-flanges.

The guard-rail may be secured in place by different means; but I preferably employ a tie-plate 8, which extends beneath both rails and is provided with one or more cut and turned-up lips 9, which enter notches or recesses formed in the narrower base-flange of the guard-rail. The upper portion of this lip is arranged to fit neatly on the top of the narrower base-flange, and a spike-hole 10 may be formed in the tie-plate to receive a spike between the rails for holding the main rail. I also show spike-holes 11 to receive spikes for the outer flange of the guard-rail and spike-holes 12 to receive spikes for the outer flange of the main rail. The holes 12 are preferably spaced at different distances from the end of the tie-plate, so that in adjusting the position of the guard-rail relative to the main rail on account of wear one of the holes will be in proper position for spiking the main rail.

Instead of securing the inner narrower flange of the guard-rail by the clip or lip lying in the notch I may provide this flange with an inclosed hole to receive a bolt. Thus in Fig. 5 I show the inner flange 6^a of the guard-rail as provided with an inclosed hole through which extends the bolt 13. This bolt may be provided with an inclined washer 14, which fits on the upper inclined face of the flange 6^a beneath the nut 15 and nut-lock 16. I may also employ bolts within open-ended holes or slots, and I may also use a guard-rail with a vertical web. Thus in Figs. 3 and 4 I show the guard-rail as having a vertical web 3^b and with its inner base-flange having an open notch or hole to receive a part of the shank of the bolt 13^b, which is provided with a washer or clip 17, which rests upon both the inner narrower flange of the guard-rail and the adjacent base-flange of the main rail 2^b. Above this clip I show the nut 18 with the nut-lock 19 between the clip and nut. In this form I show the spike-holes 12^b, which are at different distances from the end edge of the plate, as being arranged on the guard-rail side, the spike-holes 11^b for the main rail being at the same distance from the edge. In this case, again, the holes 12^b will provide for screwing the rails in different positions to adjust them for wear.

The advantages of my invention result from the cheapness of the guard-rail, which is rolled to form and then notched; also, from the long life of the guard-rail, owing to the widening or enlarging of the head on one side; also, from the simple and efficient means for holding the guard-rail in place while allowing adjustment of the rails for wear. The inclining of the upper face of the guard-rail also

provides for keeping the tops of both rails at substantially the same level as they are worn by wheels.

The holes in the narrow flange of the guard-rail may be either open at one end or inclosed, the guard-rail may be used without notching the inner flange, which may be spiked in the ordinary manner, other securing means may be used, and other changes may be made in the form and arrangement of the parts without departing from my invention.

I claim—

1. As a new article of manufacture, a rolled guard-rail having a T-head, an inclined web, and rolled base-flanges, one of said flanges being of less width than the other, the vertical plane of the edge of the narrower flange passing through the head of the rail at a point beyond the juncture of the head and flange; substantially as described.

2. In a guard-rail system, a main rail, and a guard-rail having a T-head whose upper surface is at least as low as the tread-surface of the main rail, the guard-rail also having an inclined web and rolled base-flanges, one of which is of less width than the other the vertical plane of the edge of the narrower flange passing outside of the junction of the head and web; substantially as described.

3. In a guard-rail system, a main rail, and a guard-rail having an inclined web, rolled base-flanges, one of which is of less width than the other, and a T-head having an inclined top surface whose inner edge is higher than its outer edge and is approximately in the plane of the tread-surface of the main rail; substantially as described.

4. In a guard-rail system, a guard-rail having an inclined web, a T-head lying mainly to one side of the web, and rolled base-flanges, one of which is narrower than the other, the narrower flange being below the larger portion of the head, and a tie-plate extending under both the main rail and the guard-rail, said plate having a clip engaging an opening in the narrower flange of the guard-rail; substantially as described.

5. As a new article of manufacture, a rolled guard-rail having a T-head, an inclined web, and rolled base-flanges one of said flanges being of less width than the other and having an opening therein to receive a securing-clip, the vertical plane of the edge of said flange passing outside of the junction of the head and web; substantially as described.

6. In a guard-rail system, a guard-rail having a narrower inner flange provided with an opening therein, and a tie-plate extending under both the main rail and the guard-rail, said plate having a clip lying in the opening of the guard-rail flange and provided with holes to receive spikes for both rails, one set of spike-holes being spaced at different distances from the transverse axis of the tie-plate; substantially as described.

7. In a guard-rail system, a guard-rail having a narrower inner flange provided with a notch, and a tie-plate extending under both the main rail and the guard-rail, said plate having a clip lying in the notch of the guard-rail and provided with holes to receive spikes for both rails; substantially as described.

8. As a new article of manufacture, a rolled guard-rail having a T-head, an inelined web, and rolled base-flanges, one of said flanges being of less width than the other, the vertical plane of the edge of the narrower flange passing through the head of the rail at a point beyond the juncture of the head and flange, and a tie-plate extending under the guard-rail and having a clip engaging the narrower flange of said rail; substantially as described.

In testimony whereof I have hereunto set my hand.

ANDREW MORRISON.

Witnesses:

JOHN MILLER,

H. M. CORWIN