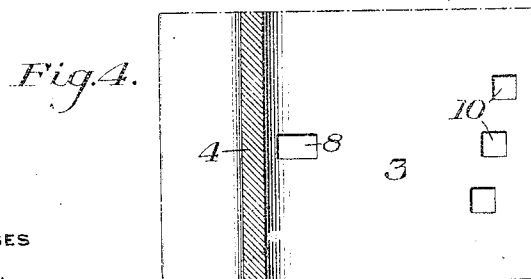
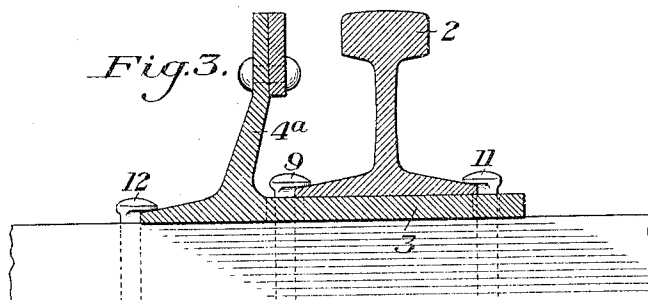
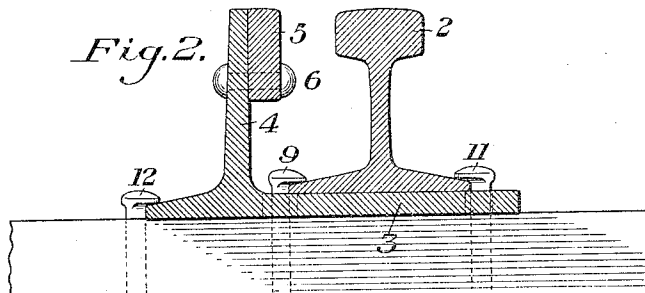
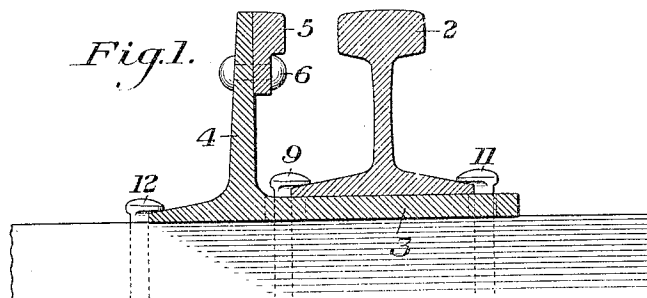


A. MORRISON.
 GUARD RAIL.
 APPLICATION FILED APR. 17, 1911.

1,036,305.

Patented Aug. 20, 1912
 2 SHEETS—SHEET 1.



WITNESSES

R. A. Balderson
Wm. H. Farnsworth

INVENTOR

Andrew Morrison
 by *Bakewell, Dymally & Co.*
 his Attys.

1,036,305.

Fig. 5.

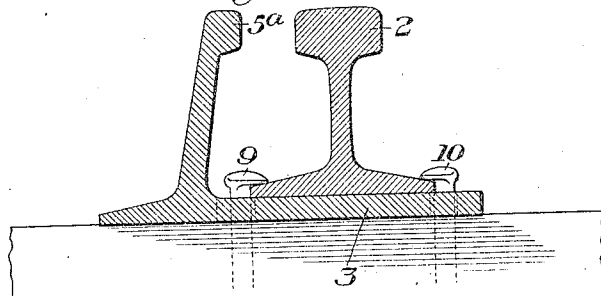


Fig. 6.

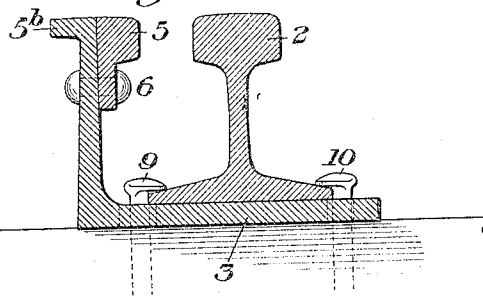


Fig. 7.

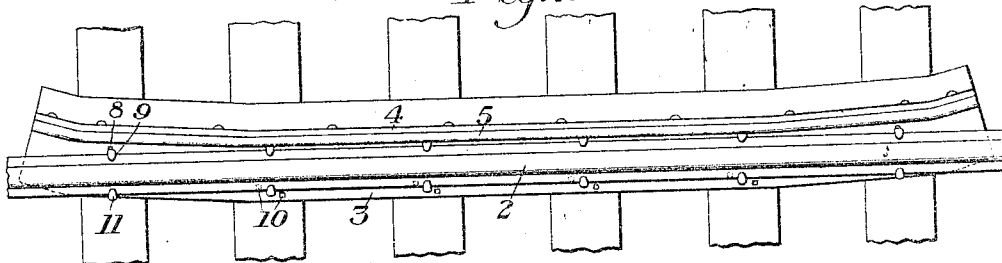
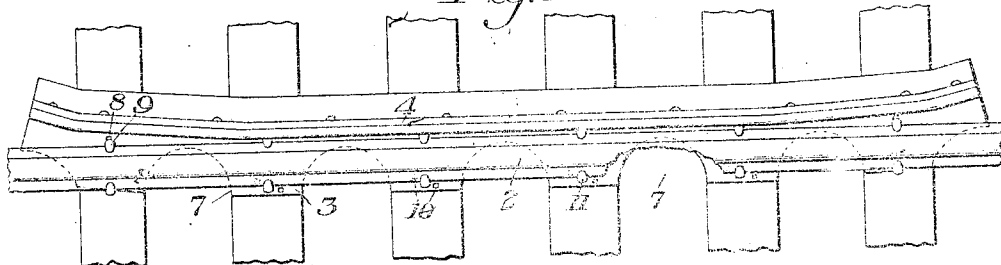


Fig. 8.



R. A. Balderson
Walter Farniss

Andrew Morrison
by Schmeiss, Pyman, Carmichael
his Atty.

UNITED STATES PATENT OFFICE.

ANDREW MORRISON, OF PITTSBURGH, PENNSYLVANIA.

GUARD-RAIL.

1,036,305.

Specification of Letters Patent.

Patented Aug. 20, 1912.

Application filed April 17, 1911. Serial No. 621,717.

To all whom it may concern:

Be it known that I, ANDREW MORRISON, a citizen of the United States, and a resident of Pittsburgh, Allegheny county, Pennsylvania, have invented a new and useful Improvement in Guard-Rails, 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—

Figures 1, 2, 3, 5 and 6 are sectional views showing different forms of my invention; Fig. 4 is a plan view of a portion of a guard rail with the guard member in section; and Figs. 7 and 8 are plan views showing different forms of the guard rail applied to a traffic rail.

My invention has relation to guard rails of that type in which the guard member has an integral base portion extending underneath the base of the adjacent main or traffic rail; and is designed to provide a guard rail of this kind which can be readily rolled preferably from steel sufficiently soft to permit it to be punched to form the necessary spike holes.

In the preferred form of my invention, I secure to the guard member a head or wearing portion of harder metal. My invention also provides a guard rail having provision for its adjustment relatively to the main or traffic rail; and also a guard rail which is so constructed as to have a maximum of strength and efficiency in use.

In the drawings, the numeral 2 wherever seen, designates a main or traffic rail.

Referring first to the form of my invention shown in Fig. 1, the guard rail consists of a base portion 3 which extends outwardly underneath the base of the traffic rail for substantially the full length of the guard rail, and which is formed with an integral upwardly projecting guard member 4. The base portion 3 extends continuously underneath and inside of the guard member 4, the extension to the inside of said member being preferably carried a sufficient distance to form a foot or brace against the leverage exerted by car wheels against the upper inner side of the guard member. In practice it has been found that this leverage sets up strains in the base portions of the guard rails, which cause them to break between the guard member and the main rail. This is effectually prevented by extending the base portion of the guard rail in the manner

described. The guard rail of the section shown can be readily rolled of steel sufficiently soft to permit spike holes to be punched therein. 5 designates a wear strip or head of harder metal, which is secured to the inner side of the upper portion of the guard member 4, preferably by rivets 6. The head or wear plate may be of various forms, some of which are shown in Figs. 1, 2, 3 and 6. The construction shown in Fig. 2 differs from that shown in Fig. 1 only in the form of this wear strip or head.

In the construction shown in Fig. 3, the guard member, instead of extending in a direct vertical direction, has its lower portion 4^a inclined inwardly toward the traffic rail, while its upper portion is in a vertical position.

In the modification shown in Fig. 5, I have shown the head 5^a as formed integral with the upwardly extending guard member, but do not consider this construction as advantageous as those of the other forms described, since if the guard rail is formed of metal sufficiently hard so that the head portion of the guard member will stand the wear to which it is subjected, it is too hard to be punched and may break in service.

In the construction shown in Fig. 6, the upper end of the upright guard member is shown as bent inwardly at 5^b, at substantially right angles. In practice, I prefer to roll the guard member of a height sufficient for the highest section of the main or traffic rail which may be employed; and in using the guard rail with a traffic rail of lower section, the upper portion of this guard member is either bent as shown in Fig. 6, or is sheared off to the proper height. In this manner the number of guard rail sections which it is required to roll is reduced to one standard form for all heights of rails.

Fig. 7 shows the form of guard rail which is illustrated in Fig. 1, as applied to a main or traffic rail. The end portions of the guard rail are bent inwardly, so that the guard member is caused to diverge at its ends in the usual manner from the traffic rail.

Fig. 8 shows a modification in which the base portion of the guard rail instead of being solid throughout its length is partially cut away between the ties, as shown at 7.

Each of the various forms of guard rails illustrated is provided with spike holes 8 intermediate the upwardly projecting guard

member and the inner edge of the base flange of the main rail to receive spikes 9. These holes are preferably transversely elongated. The base portion is also provided with the staggered spike holes 10 through any one of which may be driven spikes 11 engaging the outer edge of the base flange of the traffic rail. The elongation of the hole 8 and the staggered arrangement of the holes 10 provide for a relative adjustment of the main and guard rails.

The inward extension of the base inside of the guard member may or may not be secured by spikes 12.

By reason of the overhang of the wear strip or head 5, I make provision of a sufficient space between the inner edge of the base flange of the traffic rail and the guard member to receive the spike holes 8 of sufficient elongation to provide for the necessary adjustment. The extent of this space may be still further increased by inclining the lower portion of the guard member, as shown in Fig. 3.

While I prefer in all cases to employ the inward extension of the base portion, as above described, this may be omitted as shown in Fig. 6, and still retain the advantage of the other features of my invention.

What I claim is:—

1. A guard rail structure, comprising a base member having an integral guard portion rising therefrom, the said member having a flat main rail-supporting portion of uniform thickness extending inwardly from the base of the guard rail to a point beyond the outer edge of the main rail, said guard portion being set away from the main rail sufficiently to provide clearance between the base of the main rail and the guard portion for an adjustable fastening for the main rail, said fastening directly engaging the

vertical edge of the base of the main rail and holding it in alinement, substantially as described.

2. A guard rail structure, comprising a base and an integral guard member rising from the base, said guard member having a relatively thin upper portion which can be either removed or bent downwardly to vary the height of the guard member, substantially as described.

3. A guard rail structure, comprising a base and an enlarged guard member rising from the base, said guard member tapering upwardly and being relatively thin at its upper portion, whereby such portion may be removed or bent over to thereby vary the height of said member, substantially as described.

4. A guard rail structure, comprising a base and an integral guard member rising from the base, said guard member tapering upwardly and being relatively thin at its upper portion, whereby such portion may be removed or bent over to thereby vary the height of said member, the latter having a vertical inner surface to form a seat for a wear strip, substantially as described.

5. A guard rail structure, comprising an integral rolled section having a base portion and an upstanding guard portion, the latter having a relatively thin upper portion formed with a flat roll-finished face, and a wear and stiffening piece secured to said face, the bottom of said piece being sufficiently high to permit a main rail fastening to be driven through the base portion under said piece, substantially as described.

In testimony whereof, I have hereunto set my hand.

ANDREW MORRISON.

Witnesses:

H. M. CORWIN,
GEO. H. PARMALEE.