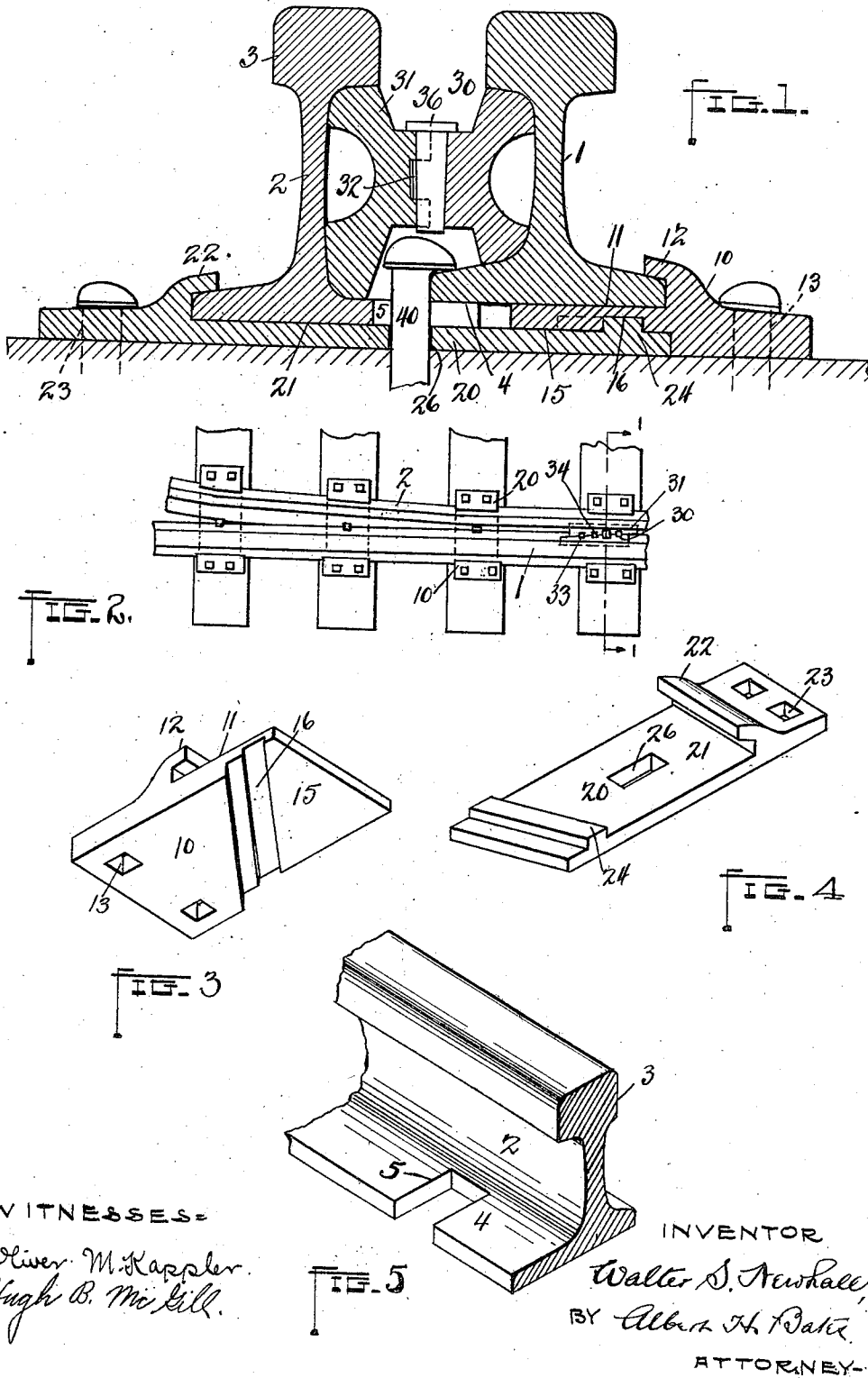


W. S. NEWHALL.
GUARD RAIL FASTENER.
APPLICATION FILED DEC. 26, 1911.

1,041,334.

Patented Oct. 15, 1912.



WITNESSES=

Oliver M. Kappeler.
Hugh B. McKill.

INVENTOR

Walter S. Newhall,
BY Albert H. Baker
ATTORNEY.

UNITED STATES PATENT OFFICE.

WALTER S. NEWHALL, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLEVELAND RAILWAY SUPPLY COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

GUARD-RAIL FASTENER.

1,041,334.

Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed December 26, 1911. Serial No. 667,643.

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 Guard-Rail Fasteners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

One of the objects of this invention is to provide an effective means for fastening a guard rail in proper position relative to a main rail.

Another object is to so arrange the guard rail that the lateral pressure on its flange tending to tip it over is resisted by the downward pressure on the main rail.

A third object is to provide an adjustment enabling the same fastening device to be used with various sizes and shapes of rails.

The invention consists of the means I employ for obtaining the above objects, as herein illustrated and as hereinafter more fully described and summarized in the claims.

In the drawings, Figure 1 is a vertical section through my fastening device and a main rail and a guard rail held thereby; Fig. 2 is a plan on a reduced scale of a portion of such main rail and guard rail and several of my fastening devices; Fig. 3 is a perspective view looking at the bottom of my fastening device having the seat for the main rail; Fig. 4 is a perspective view looking at the top of the cooperating portion of the fastening device; Fig. 5 is a fragmentary perspective of the guard rail.

As shown in the drawing, 1 represents the main rail and 2 the guard rail. The main rail may be of any standard form. The guard rail is a T-rail. The ball 3 thereof need not be as large as a standard rail and may be reduced or omitted on the inner side of the rail. The flange or base of the rail on the inner side is preferably formed of standard shape, while, on the outer side it is flattened and widened, as shown at 4. This flattened portion having its top substantially parallel with its bottom is adapted to extend beneath the flange of the main rail and have that flange rest on it. Accordingly, the tendency of the guard rail to tip inwardly is resisted by the overhanging flange of the main rail.

The tie plate on which the main rail seats is designated 10. It has a seat 11 for the rail with an upwardly extending, inwardly overhanging rib 12, which is adapted to lie along and overhang the outer flange of the main rail. This tie plate is provided with suitable spike holes 13, by which it may be fastened in place. Beneath the seat 11 the under side of the tie plate is recessed, as shown at 15, and into this recess extends the end portion of the cooperating tie plate 20. This tie plate has a seat 21 for receiving the base of the guard rail and an upwardly extending outwardly overhanging rib 22 for engaging the inner edge of the guard rail flange, and spike holes 23. The thickness of the main plate above the recess 15 is the same as the thickness of the flange 4 of the guard rail, so that when the guard rail rests on the plate 20 the top surface of its flange 4 is in alinement with the main seat 11, and accordingly, the main rail in this seat rests conjointly on the seat and on the flange 4. This provides a firm seating for the main rail and a firm holding of the guard rail.

To enable adjustment of the two tie plate portions relative to each other to provide for different sized rails, and to compensate for wear on the head of the guard rail, I provide a diagonal tongue and groove in the two coacting portions of the two plates, so that moving one plate transversely of the other results in drawing them together or forcing them apart. As shown, the tongue or rib is provided on the plate 20 and is designated 24 and rises from the inner portion of the plate, the plate being cut off diagonally parallel with the rib a short distance beyond it. A diagonal groove is made in the under face of the overhanging portion of the plate 10,—it is designated 16. The recess 15 has its end wall diagonally placed parallel with the groove 16 and a short distance outside of it.

The construction described makes a snug connection between the two portions of the tie plate, allowing each portion to obtain a firm hold on the other, and this makes an effective tie preventing either rail spreading from the other. At the same time, by showing either tie plate crosswise of the tie, the effective seat is narrowed or widened, as may be required for different sized rails.

In practice, I deem it desirable to make the tie plate 10 wider (in the direction of the length of the rail) than the tie plate 20 and to first spike the tie plate 10 in place and do the adjusting by means of moving the tie plate 20, after which it is spiked in position by reason of its spikes going through its holes 23.

Figs. 1 and 2 show means for engaging the two rails to prevent either being sprung toward the other, this means cooperating with the tie plates to hold the rails very rigidly. The means referred to consists of a pair of wedges 30 and 31 driven in between the two rails and bearing against the two webs thereof and bearing also against the under shoulders of the balls and against the bases. These wedges may be conveniently hollowed malleable castings of the form shown in Figs. 1 and 2. To prevent accidental displacement of the wedges I provide them with a longitudinal tongue and groove 32 and notches 33 and 34 in their cooperating faces, and in two of these notches, which come opposite, I place a locking pin or key 36. This pin is preferably square in cross section and slightly tapered. When the wedges are driven tightly into place and the key is driven down tight between the wedges, a very firm holding is obtained.

In addition to the locking wedges shown, or in place of them, I may, if desired, secure the rails by means of one or more spikes passing through the flange 4 of the guard rail and through the tie plate 20 and overhanging the flange of the main rail. Such construction is shown in Fig. 1 where the spike is designated 40. It occupies a hole or notch 5 in the base flange 4 and extends through a slot 26 in the tie plate portion 20. These registered openings enable the adjustment of the tie plates, as desired. After the tie plate 10 is secured in place and the plate 20 tentatively located, the rails are put in place and the plate 20 driven to proper position, according to the size or shape of the two rails. Then the spike is driven through the portion of the slot 5 which is directly above the slot 26 with the head of this spike overhanging the flange of the main rail. This makes a cheap and at the same time effective fastening.

The end portions of the guard rail are preferably bent or curved inwardly in the usual manner. To accommodate such portions I provide additional tie plates 20' of greater length than those used at the intermediate portions of the rail. The same plate 10, however, which is used at the intermediate portion may also be used in cooperating with the longer plates 20 at the end portions. These longer plates will be formed with their shoulders diagonal, or otherwise adapted to conform to the flaring position of the rail, as will be well understood.

At the end of the guard rail it is desirable to provide a foot guard, and this may be conveniently secured directly to the tie beyond the end of the guard rail and at the side of the plate 20, which latter, being considerably narrower than the tie, may be secured adjacent to the edge of the tie and leave ample room for securing the foot guard.

Having thus described my invention, what I claim is:

1. In a guard rail fastener, the combination, with a main rail and a guard rail, of a tie plate on which the main rail seats with a portion of one of its flanges overhanging, and a cooperating tie plate on which both flanges of the guard rail seat with a portion of one flange extending beneath the overhanging main rail flange, said cooperating tie plate having its rail seat lower than the seat of the first mentioned plate and being movable relative to that plate.

2. In a guard rail fastener, the combination, with a main rail and a guard rail, of a tie plate on which the main rail seats with a portion of one of its flanges overhanging, a cooperating tie plate on which the guard rail seats with a portion of its outer flange extending beneath the main rail flange, the tie plate first mentioned having a recess beneath the rail seat, and the last mentioned tie plate extending into said recess.

3. In a guard rail fastener, the combination, with a main rail having two base flanges, and a guard rail having two base flanges one of which has its top substantially horizontal, of a tie plate on which the main rail seats with a portion of its flange overhanging, a cooperating tie plate on which both flanges of the guard rail seat with the horizontal flange extending beneath the main rail flange and rested upon by it.

4. In a guard rail fastener, the combination of a tie plate for the main rail having a bottom recess, a tie plate for the guard rail extending into such recess, a guard rail having a flange, the upper surface of which is in the same plane with the top surface of the main plate, and a main rail resting on such top surface and flange.

5. In a guard rail fastener, the combination of a tie plate having a seat for a portion of the main rail and having a bottom recess, a tie plate for the guard rail extending into such recess, a guard rail resting thereon and having a flange which is of the same thickness as the main plate above the recess, and a rail resting on both the main rail seat and the guard rail flange.

6. In a guard rail fastener, the combination of a tie plate having a rail seat and an upwardly projecting shoulder and a downward recess, a cooperating tie plate having a rail seat on a lower plane and an upwardly projecting shoulder, the last mentioned tie

plate extending into said recess and beneath the first plate, and means for preventing said tie plates spreading apart.

7. In a guard rail fastening device, the combination of a tie plate for a portion of the main rail, a tie plate for the whole of the guard rail, and an inclined tongue and groove connecting said plates whereby lateral movement of one plate with reference to the other causes the plates to approach or recede, the parts being so formed that the main rail when on its seat will overhang the flange of the guard rail on its seat.

8. In a rail guard fastening device, the combination of a tie plate having a seat for a portion of the main rail, an upwardly extending inwardly overhanging rib at the outer edge of the seat, and a recess beneath the inner edge of the plate, a cooperating tie plate having a seat for both flanges of the guard rail and an upwardly extending outwardly overhanging rib, said plate extending into said recess, the plate near its free edge being provided with an upwardly extending diagonal rib which occupies a correspondingly positioned downwardly facing groove in the other plate.

9. In a rail guard fastening device, the combination of a tie plate having a seat for the main rail, an upwardly extending inwardly overhanging rib at the outer edge of the seat, a recess beneath the inner edge of the plate, a cooperating tie plate having an upwardly extending outwardly overhanging rib, said plate extending into said recess, the plate near its free edge being provided with an upwardly extending diagonal rib which occupies a correspondingly positioned downwardly facing groove in the other plate, a guard rail resting on the second mentioned plate and having an outward flange which has its top surface flattened and in the same plane with the seat of the

first mentioned tie plate, and a main rail on such seat overhanging and resting upon the flat flange of the guard rail.

10. In a guard rail fastener, the combination of a tie plate having a seat for a portion of the main rail, a tie plate having a seat for both flanges of the guard rail, said plates having a diagonal tongue and groove connection whereby the shifting of one plate relative to the other crosswise of the tie causes the plates to approach or recede, shoulders on the plates for the outer flange of one rail and the inner flange of the other, the opposite flanges of the rails projecting one beneath the other, and means for preventing the rails approaching each other.

11. In a device of the character described, the combination of a tie plate having a rail seat, an overhanging rib at the edge of the seat, spike holes beyond the rib, a recess beneath the tie plate at the other edge, a downwardly facing groove at the top of such recess, said groove and the end wall of the recess being diagonal, a cooperating tie plate having a rail seat and an overhanging rib at the edge thereof, this tie plate at the other end extending into said recess and being provided with an upwardly extended rib occupying the groove, a guard rail resting on the second mentioned tie plate and having the top surface of its outer flange horizontal and in the same plane as the top surface of the first mentioned tie plate, and a main rail resting on the seat of its tie plate and on the flat flange of the guard rail, and means acting intermediately of the rails to further hold them in place.

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

WALTER S. NEWHALL.

Witnesses:

ALBERT H. BATES,
BRENNAN B. WEST.