

1,016,525.

N. E. SALSICH.
RAILROAD STRUCTURE.
APPLICATION FILED SEPT. 23, 1911.

Patented Feb. 6, 1912.

2 SHEETS—SHEET 1.

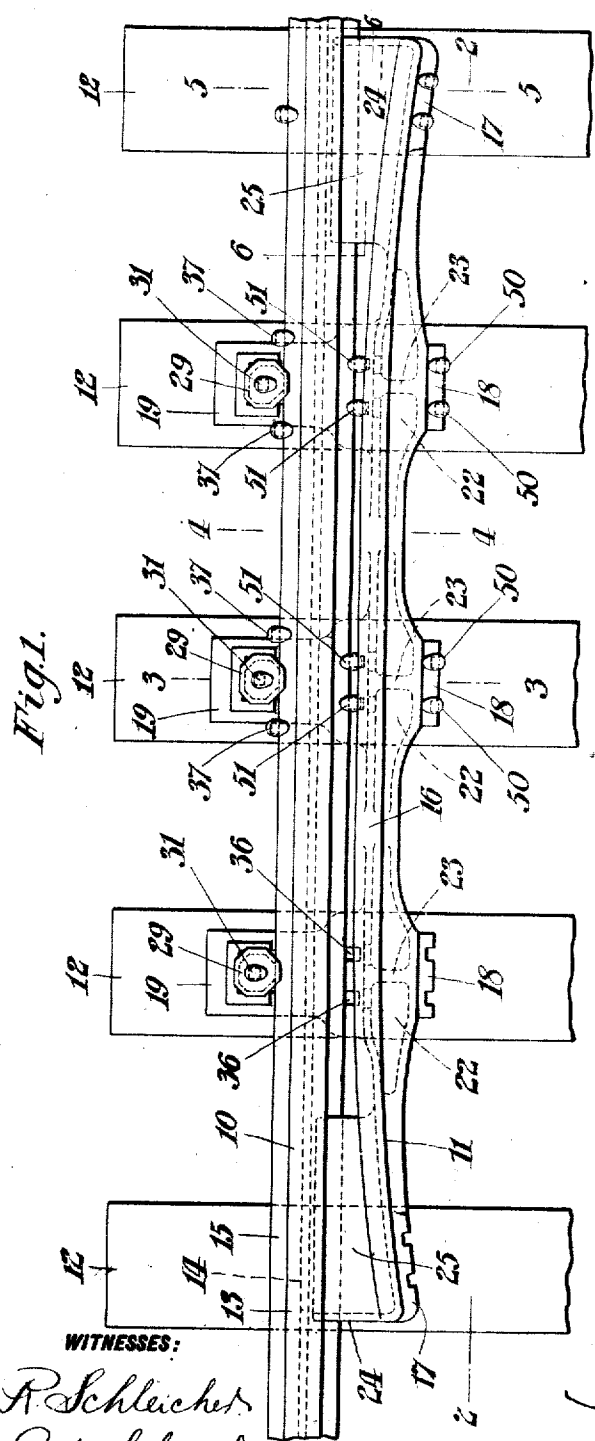


Fig. 1.

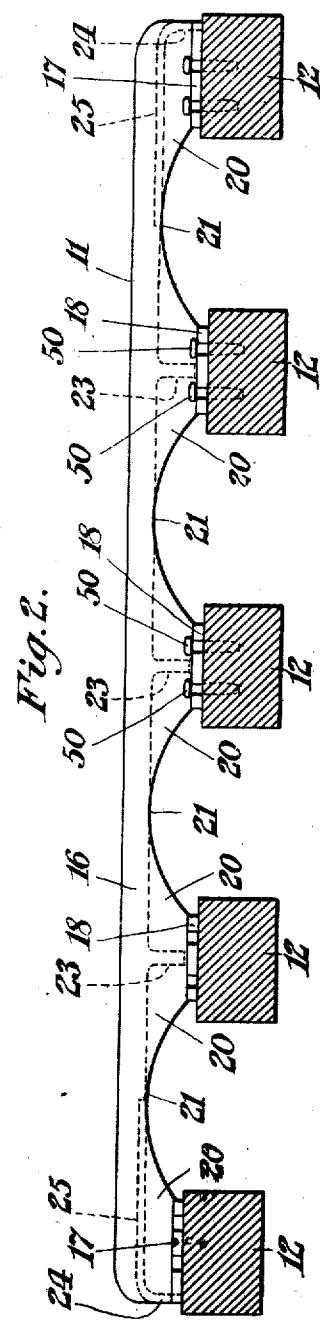


Fig. 2.

WITNESSES:

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G. P. Sharkey.

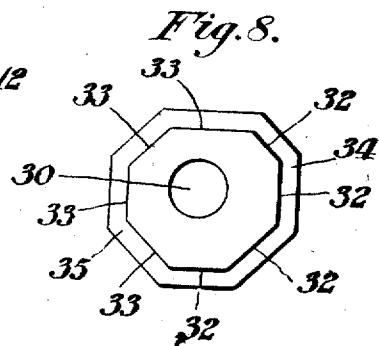
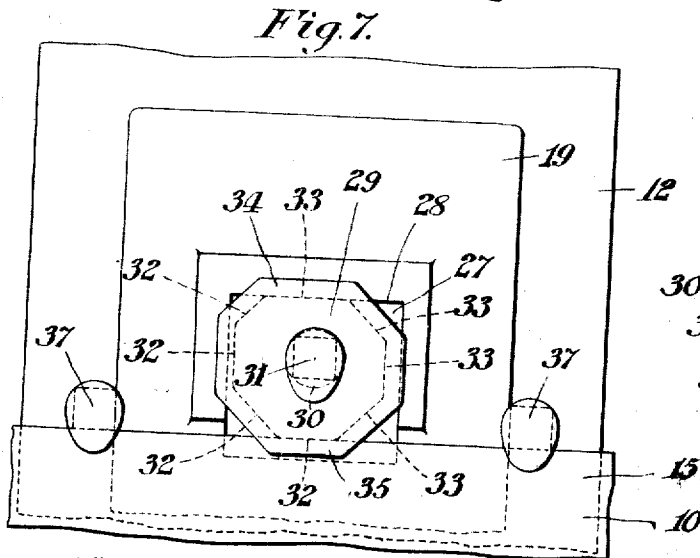
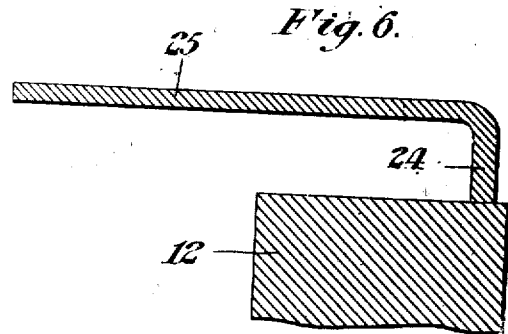
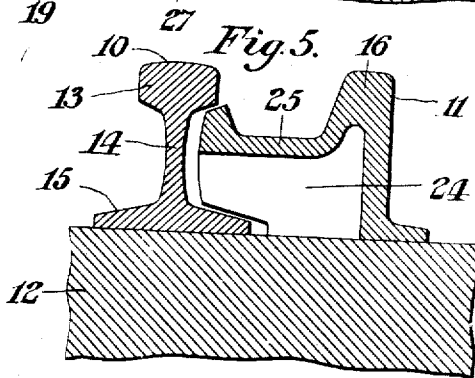
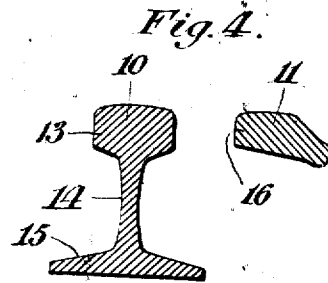
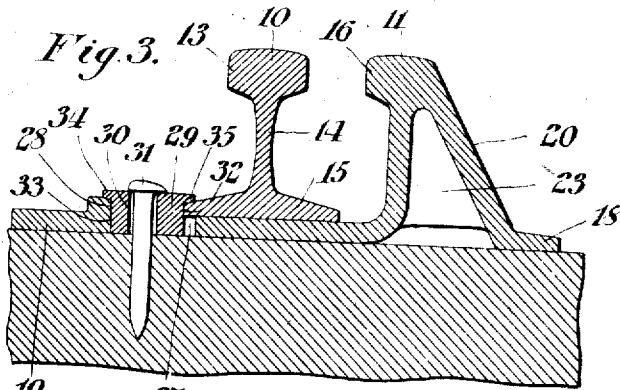
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2 SHEETS—SHEET 2.



WITNESSES:

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RAILROAD STRUCTURE.

1,016,525.

Specification of Letters Patent.

Patented Feb. 6, 1912.

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To all whom it may concern:

Be it known that I, NEIL E. SALSICH, a citizen of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Railroad Structures, of which the following is a specification.

This invention relates to railroad structures in which guard rails are employed adjacent main rails on the inner sides thereof in various locations, such as opposite frog points, for the purpose of engaging wheel flanges and thereby guiding the wheels over the main rails, frog points and the like and preventing derailment.

When car wheel flanges engage and are guided by a guard rail, great lateral pressure is brought to bear against the upper portion or head of the guard rail, which pressure, in time, tilts the guard rail inwardly from its proper guiding position relatively to the main rail. Many attempts have been made to overcome this difficulty by providing a guard rail with an integral base extending beneath and engaging the bottom of the main rail, so that the weight supported by the car wheels engaging the guard rail would bear down upon the main rail and perforce the base of the guard rail and prevent the objectionable tilting. Heretofore such structures have been objectionable for the reason that they have been too weak to withstand the great strain to which they were subjected or for the reason that their cost has been too great, owing to the large amount of metal required to construct them.

The object of my invention is to overcome these two objections and to provide a guard rail of novel construction, having an integral base extending beneath and engaging the bottom of the main rail, the parts of the guard rail being constructed and arranged with relation to the main rail to give the required strength and durability so that only the minimum amount of metal for such purpose may be required.

A further object of my invention is to provide such guard rails with an integral foot guard adjustable within the space between the head and base of the main rail when the guard rail is adjusted toward or from the main rail; and a further object of my invention is to provide a novel, simple and efficient means for securing the main rail and guard rail to the underlying cross ties in different positions relatively to each other, as will be hereinafter fully described and particularly claimed.

In the accompanying drawings, illustrating my invention: Figure 1 is a plan view of a portion of a railroad structure, embodying my invention. Fig. 2 is a longitudinal section, on line 2—2 of Fig. 1, showing the guard rail in elevation and omitting the main rail in the distance. Fig. 3 is a transverse section, on line 3—3 of Fig. 1. Fig. 4 is a transverse section, on line 4—4 of Fig. 1. Fig. 5 is a transverse section, on line 5—5 of Fig. 1. Fig. 6 is a longitudinal section, on line 6—6 of Fig. 1. Fig. 7 is an enlarged plan view of the adjustable means for securing the base of the main rail and the underlying base of the guard rail to a cross tie. Fig. 8 is a bottom view of the rail-securing member.

10 designates the main rail, 11 the guard rail and 12 the cross-ties underlying and extending transversely to the rails 10 and 11 in spaced relation to each other, as is usual in railroad construction. The main rail 10 is of usual well known construction, comprising a head 13, a vertical web 14 and a base 15. The guard rail 11 extends adjacent the inner side of the main rail 10 and is preferably formed of cast steel as follows: 16 designates the upper portion or head of the guard rail 11, the head 16 being arranged adjacent the head 13 of the main rail 10 to provide a flangeway between the rail heads 13 and 16 through which car wheel flanges pass, as the car wheels pass over the main rail 10. The end portions of the guard rail head 16 are flared inwardly from the main rail 10 to insure the entrance of car wheel flanges between the heads of the main and guard rails as the car wheels pass over the main rail.

The guard rail 11 is provided with end base portions 17 and base portions 18 and 19 arranged in spaced relation to each other intermediate the end base portions. These base portions 17, 18 and 19 rest upon the underlying cross-ties and support the guard rail 11 thereon. One base portion 18 and one base portion 19 is provided upon each cross-tie 12 between the cross-tie supporting the end base portions 17, the base portion 18 of each tie being in the same horizontal

plane and in alinement with the base portion 19 thereof.

The head 16 of the guard rail is connected to the different base portions thereof by supports 20 which extend direct to that portion of the head 16 above the base portions and which also extend upwardly toward each other to the head 16 over the spaces between the pairs of base portions 18 and 19 and the spaces between the base portions 17 and adjacent base portions 18 and 19, so that the bottom face of the guard rail will have portions which converge upwardly from the cross ties and provide arches 21 which support the guard rail head 16 above the spaces between the cross ties 12. The supports 20 which connect the head 16 of the guard rail with the base portions 17, 18 and 19 thereof are made hollow, as at 22, in the regions of the spaces between each pair of base portions 18 and 19, the hollow portions 22 extending from the spaces between the base portions 18 and 19 into the arches 21 and decreasing in size as they extend from the base portions until the hollow portions 22 disappear before reaching positions centrally above the spaces between the cross-ties 12. The guard rail is thus provided with alternating hollow and solid portions, the bottoms of the centers of the hollow portions being in the plane of the tops of the ties, and the bottoms of the solid portions being above the plane of the tops of the ties. The centers of the hollow portions 22 are provided with transverse, vertically-arranged strengthening ribs 23, as shown.

The guard rail 11 is provided with vertical end walls 24 which extend from the outer ends of the supports 20 toward the main rail 10 and into the space between the head 13 and base 15 of the main rail; and the tops of the end walls 24 and the adjacent supports 20 are connected by foot-guards 25 which extend from the bottoms of the flaring end portions of the guard rail head 16 to the main rail 10 and into the space between the head 13 and base 15 thereof. The foot-guards 25 also extend toward each other from the end walls 24 a sufficient distance to prevent the foot of a person from being caught between the main rail 10 and flaring ends of the guard rail 11.

The base portions 19 of the guard rail extend beneath and beyond the outer edge of the base 15 of the main rail 10, the base portions 19 supporting the main rail 10 and being in turn supported by the underlying cross-ties 12.

The bottoms of the end base portions are in the same plane with the bottom of the base 15 of the main rail 10 and with the tops of the base portions 19, so that the cross-ties 12 which support the end base portions 17 may also support the main rail 10 directly thereon, there being no part of the guard

rail 11 extending beneath the main rail 10 over the cross-ties 12 supporting the end base portions 17.

The parts of the guard rail 11 thus far described are formed integral with each other, preferably in a steel casting, and the parts are so related to each other that when the rails 10 and 11 are arranged in the relation shown in the drawings, the desired flange-way will be provided between the rails 10 and 11 and that the guard rail 11 may be adjusted toward the main rail 10 to compensate for wear. The foot guards 25 always extend beneath the head 13 of the main rail 10 in the different positions of adjustment of the guard rail 11.

I shall now describe the means of securing the rails 10 and 11 in proper relation to each other to the cross-ties 12.

The base portions 19 of the guard rail 11 are each provided with an opening 27 therein outwardly of the main rail 10, the openings 27 providing a wall 28 facing the outer edge of the base of the main rail 10. Within each opening 27 is an adjustable member 29 having a spike hole 30 therein through which a spike 31 is driven into the underlying cross tie to secure the member 29 thereto. Each member 29 is provided with four straight faces 32 arranged at equal distances from the spike hole 30; and each member 29 is provided with four straight faces 33 opposite the faces 32 and arranged at different distances from the spike hole 30, as shown, the faces 32 being adapted to engage the outer edge of the base of the main rail and the faces 33 being adapted to engage the wall 28 when the member 29 is adjusted around the spike 31, as will be hereinafter explained. As each member 29 is adjusted around the spike 31 and the different faces 32 engaged with the edge of the base of the main rail, the different faces 33 are brought into parallel relation to the wall 28, causing the faces 32 to maintain the main rail the same distance from the spike 31 in different positions of the member 29 and permitting the wall 28 to be moved toward and from the main rail 10, due to the different distances of the faces 33 from the spike 31, thereby permitting the guard rail 11 to be adjusted toward and from the main rail by the adjustment of the members 29.

When the members 29 are secured in place by the spikes 31 and engaged with the walls 28 and the outer edge of the base of the main rail 10, the members serve to prevent the thrust of car wheel flanges against the guard rail 11 from shifting the guard rail inwardly relatively to the main rail.

Each member 29 is provided with parts 34 and 35 extending over the base portion 19 and the base of the main rail 10 to hold them down upon the underlying cross-ties.

The base portions 17 and 18 are provided

with suitable openings to receive spikes 50 which may be driven into the cross ties to secure the inner side of the guard rail 11 thereto; and the base portions 19 are provided with slots 36 adjacent the inner edge of the base of the main rail 10 to receive spikes 51 to secure the main rail 10 and guard rail 11 together and to the cross ties in different positions of adjustment of the guard rail relatively to the main rail and to hold the inner side of the main rail 10 down upon the base portions 19.

When the car-wheel-engaging face of the guard rail becomes worn, it is necessary to adjust the guard rail toward the main rail; and this adjustment is provided for in the members 29 and slots 36.

When it is desired to adjust the guard rail 11 toward the main rail 10, the spikes 31, 37 and 51 are raised, and the members 29 are raised from engagement with the base portions 19, and the base of the main rail 10; whereupon the guard rail 11 may be moved toward the main rail, the base portions 19 sliding under the main rail and over the cross ties. The members 29 are then turned about the spikes 31 to bring the proper faces 33 of the members 29 into parallel relation to the walls 28 for the desired adjustment of the guard rail 11. The members 29 are then lowered into the openings 27 and the walls 28 are engaged with the members 29 and the members 29 are engaged with the base of the main rail 10, whereupon the spikes 31 are again driven into the cross ties to secure the members 29 in place.

Each base portion 19 is substantially the full width of the underlying cross tie beneath the inner portion of the base of the main rail 10, and each base portion 19 is made narrower than the cross tie where it projects from beneath the outer portion of the base of the main rail, providing a space or spaces laterally of the projecting end of the base portion 19 for the reception of a spike or spikes 37 which are driven into the cross tie and engaged with the outer edge of the base of the main rail to hold it in place.

I claim:

1. In a railroad structure, spaced cross ties; a main rail; a guard rail extending adjacent the main rail and having alternating hollow and solid portions, the bottoms of the hollow portions being in the plane of the tops of the ties and the bottoms of the solid portions being above the plane of the tops of the ties, said guard rail having integral base portions resting on ties and extending beneath the main rail from the hollow portions of the guard rail; and means for securing said rails to said ties.

2. In a railroad structure, spaced cross ties; a main rail; a guard rail extending adjacent the main rail and having integral base portions resting upon the ties and ex-

tending beneath the main rail, the lowermost bottom face of the guard rail being in the plane of and resting on the tops of the ties and rising from said plane above the spaces between the ties and forming arches extending longitudinally of the rail; and means for securing said rails to said ties.

3. In a railroad structure, spaced cross ties; a main rail; a guard rail extending adjacent the main rail and having alternating hollow and solid portions and having ribs extending transversely across the hollow portions, said guard rail having integral base portions resting on ties and extending beneath the main rail from the hollow portions of the guard rail; and means for securing said rails to said ties.

4. In a railroad structure, spaced cross ties; a main rail; a guard rail extending adjacent the main rail and having an integral base portion intermediate of its ends resting on a tie and extending beneath and supporting the main rail, said guard rail having integral end base portions resting on ties and having their bottom faces substantially in the plane of the bottom of the main rail and the top of the first named base portion; and means for securing said rails to said ties.

5. In a railroad structure, spaced cross ties; a main rail; a guard rail extending adjacent the main rail and having an integral base portion intermediate of its ends resting on a tie and extending beneath and supporting the main rail, said guard rail having integral end base portions resting on ties and having their bottom faces substantially in the plane of the bottom of the main rail and the top of the first named base portion, said guard rail having integral parts extending over the base of the main rail above the ties supporting said end base portions; and means for securing said rails to said ties.

6. In a railroad structure, spaced cross ties; a main rail; a guard rail extending adjacent the main rail and having an integral base portion intermediate of its ends resting on a tie and extending beneath and supporting the main rail, said guard rail having integral end base portions resting on ties and having their bottom faces substantially in the plane of the bottom of the main rail and the top of the first named base portion, said guard rail having integral end walls extending over the base of the main rail above the ties supporting said end base portions, said guard rail having integral foot guards extending toward each other and beneath the head of the main rail from the upper portions of said end walls; and means for securing said rails to said ties.

7. In a railroad structure, spaced cross ties; a main rail; a guard rail extending adjacent the main rail and having an integral base portion resting on a tie and extending beneath and supporting the main rail, said

guard rail having an integral foot guard extending into the space between the head and base of the main rail and adjustable therein when said rails are adjusted toward and from each other; and means for securing said rails to said ties in different positions of adjustment.

8. In a railroad structure, a cross tie; a main rail; a guard rail adjacent the main rail; a base connected to the guard rail and resting upon the cross tie and extending beneath and supporting the main rail, said base extending beyond the outer side of the base of the main rail and having an opening therein providing a wall facing the outer edge of the base of the main rail; an adjustable member between said wall and the base of the main rail, said member having a spike hole therein and faces arranged at different distances from said spike hole and adapted to engage said wall and the base of the main rail and prevent separation of said rails in

different positions of adjustment of said member; and a spike driven through said spike hole and into said cross tie and securing said member to the cross tie.

9. In a railroad structure, a cross tie; a main rail; a guard rail adjacent the main rail; a base connected to the guard rail and resting upon the cross tie and extending beneath and supporting the main rail, said base extending beyond the outer side of the main rail and being narrower than said cross tie where said base emerges from beneath the main rail; means for securing said base to said cross tie; and a spike driven into the cross tie laterally of said base and engaging the main rail.

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

NEIL E. SALSICH.

Witnesses:

WM. HARRISON SMITH,
A. V. GROUPE.