

APPLICATION FILED MAR. 17, 1909.

Patented Sept. 28, 1909.

Fig. 3.



Attorneys

UNITED STATES PATENT OFFICE.

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GUARD-RAIL-SECURING DEVICE.

935,037.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed March 17, 1909. Serial No. 483,916.

To all whom it may concern:

Be it known that I, GEORGE C. LUCAS, a citizen of the United States of America, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Guard-Rail-Securing Devices; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in guard-rail-securing devices for railway tracks, and pertains more especially to means whereby lateral tipping of the guard-rail by the flange of a wheel rolling on the adjacent rail of a railway track is positively prevented.

The primary object of this invention is to provide a guard-rail-securing device of the character indicated which is simple and durable in construction, readily applied and efficient and reliable in the performance of its function.

With this object in view, this invention consists in certain features of construction, and combinations of parts, hereinafter described, pointed out in the claims, and illustrated in the accompanying drawings.

In the said drawings, Figure 1 is a top plan illustrating a portion of one of the rails of a railway track, and a portion of a guard-rail extending along the inner side of the said track-rail and held in place by my improved guard-rail support. Fig. 2 is a vertical section on line 2—2, Fig. 1, looking in the direction indicated by the arrow, and in dotted lines shows a portion of a wheel running on the track-rail. Fig. 3 is a horizontal section taken centrally through the webs of the rails looking downwardly. Figs. 2 and 3 are drawn on a larger scale than Fig. 1.

Referring to the said drawings, A indicates one of the rails of a railway track, and B, a guard-rail arranged at the inner side of and extending along and being substantially parallel with the track-rail A.

C represents a support for the rails A and B, said support as shown consisting of a wooden railway tie which is arranged under

and transversely of the said rails in the usual manner.

The base *b* of the guard-rail B projects, as at 5, laterally of the track-rail-facing side of the guard-rail only far enough to form an upwardly facing shoulder or surface 6 arranged at and along the bottom of the web 7 of the guard-rail at the said side of the guard-rail. This comparatively slight projection of the base of the guard-rail from the web of the said rail toward the track-rail A also permits of the location of the guard-rail in suitable proximity to the said track-rail.

A metal plate D rests upon the tie or support C and is interposed between the under side of the base *a* of the track-rail A and the said tie or support, which plate extends, as at 8, a suitable distance laterally and outwardly beyond the outer longitudinal edge of the said base, and spikes E are spaced longitudinally of the said edge and extend through the said plate into the tie and have their heads engaging the upper side of the said base and thereby holding or securing the said plate to the tie. Also a spike F is shown extending into the tie through the plate D at the inner longitudinal edge of the said base and has its head engaging the upper side of the said base and thereby participating in holding or securing the said plate to the tie.

The plate D is provided at the inner longitudinal edge of the base of the track-rail A with a flange *d* which projects upwardly at the said edge and between the said rail and the shoulder-forming portion 5 of the base of the guard-rail B and is offset, as at 10, laterally and in the direction of the web of the guard-rail onto the upwardly facing shoulder or surface 6 formed upon the said portion of the base of the guard-rail and thence extends upwardly, as at 12, over and thereby overlaps the track-rail-facing side of the web of the guard-rail to which the said flange is secured as will hereinafter appear.

Another metal plate G is interposed between the base of the guard-rail B and the tie or support C and rests upon the latter. The plate G extends along and is arranged

in suitable proximity to the flange *d* of the plate D. The plate G also extends from adjacent the flange *d* of the plate D at the track-rail-facing side of the guard-rail to 5 and beyond the opposite side of the guard-rail, as at 14, and then returns, as at 15, and extends, as at 16, onto and thereby overlaps the base of the guard-rail at the last-mentioned side of the guard-rail and there,— 10 that is, above the said base at the last-mentioned side of the guard-rail,—terminates in an upwardly projecting flange *g* forming a brace and overlapping the web of the guard-rail at the last-mentioned side of the guard-rail and opposite the flange *d* of the plate 15 D so that the said web is intermediate between the said flanges. The flange or brace *g* preferably snugly fits between the head and the base of the guard-rail and is shown 20 ribbed centrally, as at 13, to strengthen it, and the portions 14 and 15 of the plate G are preferably riveted together, as at J.

Spikes H, which are spaced longitudinally of the guard-rail, extend through the portions 14 and 15 of the plate G into the tie C. 25 The spikes H have their heads overlapping the upper side of the portion 15 of the said plate and operate to hold or secure the said plate in position on the tie.

30 The flanges *d* and *g* of the plates D and G overlap opposite sides respectively of the web of the guard-rail opposite each other as already indicated, and suitably applied bolts K and nuts L secure the said web to the said 35 flanges. Preferably the web of the guard-rail is provided centrally between the head and base of the said rail and between the flanges *d* and *g* with two bolt-holes 17 arranged at opposite sides respectively of the 40 ribbed portion 13 of the flange *g* and extending laterally through and spaced longitudinally of the said web, and the flanges *d* and *g* are provided with bolt-holes 18 which register with the bolt-holes 17. The bolts 45 K have their shanks extending through the registering holes 17 and 18 and are arranged with their heads at the outer side of the flange *d*. The two bolts K shown are arranged therefore at opposite sides respectively of the ribbed portion 13 of the flange 50 *g*. The nuts L are mounted on the shanks of the bolts at the outer side of the flange *g*, and washers *m* are interposed between the said flange and the nuts which are tightened 55 to cause the flanges *d* and *g* to be clamped by the head of the bolt and the nut against opposite sides respectively of the web of the guard-rail.

By the construction hereinbefore described 60 it will be observed that the flange *d* of the plate D is arranged to form an abutment for the guard-rail at the track-rail facing side of the guard-rail; that the flange *g* of the plate G is arranged to form an abutment for

and effectively braces the guard-rail at the 65 opposite side of the guard-rail, and that the guard-rail is positively prevented from tipping by the engagement with the head of the guard-rail of the flange of a wheel running 70 on the adjacent track-rail, as the weight of the load on the track-rail tends to hold down the guard-rail as well, and the greater the load on the track-rail the more firmly the guard-rail is held down.

In dotted lines, Fig. 3, is shown a portion 75 of a wheel R running on the track-rail.

What I claim is:—

1. The combination, with a rail of a railway track, a guard-rail arranged at the inner side and longitudinally of the said track-rail, and a support for the said rails, said support being arranged under the rails, of a plate interposed between the track-rail and the said support and provided with a flange 85 which projects upwardly between the rails and is arranged to form an abutment for the guard-rail at the track-rail-facing side of the guard-rail, and another plate interposed between the guard-rail and the aforesaid support and provided with a flange 90 which is arranged to form an abutment for and brace the guard-rail at the opposite side of the guard-rail.

2. The combination, with a rail of a railway track, a guard-rail arranged at the inner side and longitudinally of the said track-rail, and a support for the said rails, said support being arranged under the rails, of a plate interposed between the track-rail and the said support and provided with a 100 flange which projects upwardly between the rails and overlaps the track-rail-facing side of the web of and is secured to the guard-rail, and another plate interposed between the guard-rail and the aforesaid support and 105 provided with a flange which overlaps the opposite side of the said web and is secured to the guard-rail.

3. The combination, with a rail of a railway track, a guard-rail arranged at the inner side and longitudinally of the said track-rail, and a support for the said rails, said support being arranged under the rails, and the guard-rail having its base projecting laterally beyond both sides of the web of the guard-rail, of a plate interposed between the track-rail and the aforesaid support and secured to the latter and having a member projecting onto the aforesaid base at the track-rail-facing side of the web of the 120 guard-rail, and a brace engaging the opposite side of the said web and secured to the aforesaid support independently of the aforesaid plate.

4. The combination, with a rail of a railway track, a guard-rail arranged at the inner side and longitudinally of the said track-rail, and a support for the said rails, said 125

support being arranged under the rails, of a plate interposed between the track-rail and the aforesaid support and having a flange overlapping the track-rail-facing side of the web of the guard-rail, a brace for the opposite side of the said web, and means whereby the said web, brace and flange are clamped together.

5. The combination, with a rail of a railway track; a guard-rail arranged at the inner side and longitudinally of the said track-rail, and a support for the said rails, said support being arranged under the rails, of a plate interposed between the track-rail and the said support and provided with a flange which projects upwardly between the rails and overlaps and is secured to the track-rail-facing side of the web of the guard-rail, and another plate interposed between the guard-rail and the aforesaid support and extending away from the track-rail-facing side of the guard-rail toward and beyond the opposite side of the guard-rail and thence onto the base of the guard-rail at the last-mentioned side and there terminating in an upwardly projecting flange which overlaps and is secured to the web of the guard-rail.

6. The combination, with a rail of a railway track; a guard-rail arranged at the inner side and longitudinally of the said track-rail, and a support for the said rails, said support being arranged under the rails, of a plate resting upon the said support and having a flange which projects upwardly between the two rails and overlaps the track-rail-facing side of the web of the guard-rail, and another plate resting upon the said support and overlapping the base of the guard-rail at the side opposite to the track-rail-facing side of the guard-rail and terminating in an upwardly projecting flange which braces the web of the guard-rail opposite the flange on the first-mentioned plate, the flanges of both plates being secured to the web of the guard-rail.

7. The combination, with a rail of a railway track; a guard-rail arranged at the inner side and longitudinally of the said track-rail and provided at its track-rail-facing side with an upwardly facing shoulder or surface arranged at the bottom of the web of the guard-rail at the said side of the guard-rail, and a support for the said rails, said support being arranged under the rails, of a plate interposed between the track-rail and said support and provided with a flange which projects upwardly between the two rails and is offset laterally onto the aforesaid shoulder or surface and overlaps the aforesaid side of the web of the guard-rail; another plate interposed between the guard-rail and the aforesaid support and overlapping the base of the guard-rail at the side opposite to the track-rail-facing side of the

web of the guard-rail and terminating in an upwardly projecting flange which overlaps the said web opposite the flange on the first-mentioned plate, and means whereby the said flanges are secured to the said web.

8. The combination, with a rail of a railway track; a guard-rail arranged at the inner side and longitudinally of the said track-rail, and a railway tie arranged under and transversely of the rails, of a plate interposed between the track-rail and the tie and provided with a flange which projects upwardly between the rails and overlaps the track-rail-facing side of and is secured to the guard-rail; spikes extending through the said plate into the tie and having their heads overlapping the upper side of the base of the track-rail; another plate interposed between the guard-rail and the tie and secured to the tie and having a member bracing the guard-rail opposite the flange of the first-mentioned plate and secured to the guard-rail.

9. The combination, with a rail of a railway track, a guard-rail arranged at the inner side and longitudinally of the said track-rail, and a railway tie arranged under and transversely of the rails, said guard-rail having its base projecting laterally beyond both sides of the web of the guard-rail, of a plate interposed between the track-rail and the tie and spiked to the latter and having a member projecting onto the aforesaid base at the track-rail-facing side of the guard-rail, and another plate spiked to the tie and overlapping the base of the guard-rail at the opposite side of the guard-rail and having a member forming a brace for the guard-rail at the last-mentioned side.

10. The combination, with a rail of a railway track; a guard-rail arranged at the inner side and longitudinally of the said track-rail, and a railway tie arranged under and transversely of the rails, said guard-rail having its base projecting laterally beyond both sides of the web of the guard-rail, of a plate interposed between the track-rail and the tie and spiked to the latter and having a flange projecting onto the aforesaid base at the track-rail-facing side of the guard-rail, another plate spiked to the tie and provided at the opposite side of the guard-rail with an upwardly projecting flange forming a brace for the guard-rail at the last-mentioned side, and means whereby the said flanges and the guard-rail are clamped together.

11. The combination, with a rail of a railway track, a guard-rail arranged at the inner side and longitudinally of the said track-rail, and a railway tie arranged under and transversely of the rails, said guard-rail having its base projecting laterally beyond both sides of the web of the guard-rail, of a

plate interposed between the track-rail and the tie and spiked to the latter and having a member projecting onto the aforesaid base at the track-rail-facing side of the web of the guard-rail and clamped to the said web, and a brace engaging the opposite side of the said web and snugly fitting between the head and the base of and clamped to the

guard-rail, said brace being secured to the tie. In testimony whereof, I sign the foregoing specification, in the presence of two witnesses.

GEORGE C. LUCAS.

Witnesses:

C. H. DORER,
B. C. BROWN.