

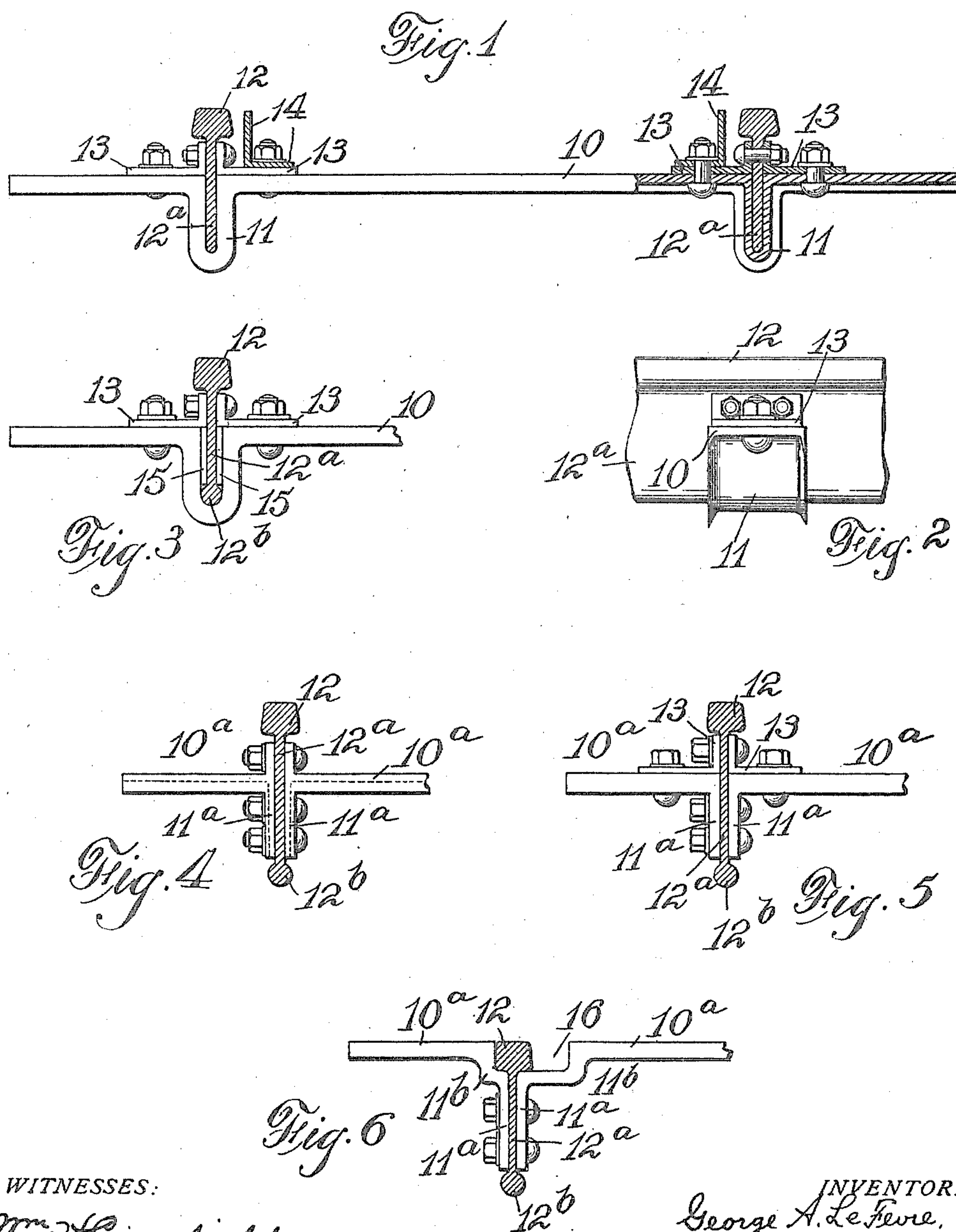
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PATENTED FEB. 6, 1906.

G. A. LE FEVRE.

RAILROAD.

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GEORGE A. LE FEVRE, OF ORANGEBURG, NEW YORK.

RAILROAD.

No. 811,855.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GEORGE A. LE FEVRE, of Orangeburg, in the county of Rockland and State of New York, have invented a new and Improved Railroad, of which the following is a full, clear, and exact description.

My invention relates to improvements in railways; and the object of my invention is to produce a railroad applicable for ordinary surface railways, for street-railways, or for overhead or underground structures.

In the construction of railways it is usual to produce the ordinary form of rail or essentially the ordinary form, in which a base-flange is used, and to attach this flange to some sort of a sleeper or support. My invention dispenses with a flange or flanges of this character, and I produce a rail having the usual or any preferred form of head and having a deep web without a flange, which seats itself in a suitable seat on the sleeper and so the seat of the sleeper and a portion of the web of the rail are embedded in the road-bed in such a way that it is impossible for the rails to spread. Furthermore, by carrying out my invention the parts can be readily rolled and securely held, the rail has the ordinary chance for longitudinal expansion, and can a convenient and cheap form of guard-rail be easily used in connection with it.

My invention provides, therefore, for a railroad which is all metallic, which is far cheaper and simpler than most forms of railroads, and which has all the metallic parts of the road bound together in a way to make a homogeneous and secure structure. Furthermore, the arrangement brings the metal of the rail in a vertical line below the tread, thus insuring great steadiness and stability.

To these ends my invention consists of certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a cross-section of a railroad, showing my improvements, the cross-tie or sleeper being partly in elevation. Fig. 2 is a broken side elevation of the railroad, showing the rail in side elevation and the sleeper in end elevation. Fig. 3 is a cross-section through one rail and shows a slight modification in the form thereof. Figs. 4 and 5 are cross-sectional views showing modifications

of the cross-tie as applied to the rail, and Fig. 6 is a detail cross-section showing another modification of the tie or sleeper which is adapted especially for street-railway construction.

The cross-tie or sleeper 10 can be made of a plain flat bar of iron, or the iron may be of channel-iron, as shown, or it can be of any approved cross-section, and it is bent down to form U-shaped seats 11 at points below the track-rails 12, which rails have the usual form of head, although this may be varied to suit different conditions. Instead of having a base-flange the rail 12 has a deep web 12^a, which fits in the seat 11. It will be seen that this brings a good deal of metal between the tread-surface of the rail and its bottom, that the rail has the ordinary chance for longitudinal expansion, and that it is held against lateral movement. To still further provide against displacement, angle-braces 13 may be used, which can be bolted to the rail-web and also to the top of the sleeper 10. With most metallic structures it is difficult to apply a guard-rail; but a guard-rail 14 of angle-iron can very easily be secured to the sleeper 10 so as to run parallel with the rail 12, as shown clearly in Fig. 1.

In Fig. 3 I have shown the rail 12 thickened a little at the bottom, as at 12^b, to stiffen the rail, and where this is used with the form of sleeper shown in the same figure the metal shims 15 can be used to fill in the space between the web 12^a and the sides of the seat 11.

In Figs. 4 and 5 I have shown the form of rail described above, but instead of having it rest in a bent seat I get the same effect by having the parts 10^a of the sleeper separate, but with flanges 11^a, which fit against the web 12^a and to which they can be securely bolted. In Fig. 4 the flange 11^a extends both above and below the body portion of the sleeper 10^a, whereas in Fig. 5 the flange extends only below the sleeper, and the braces 13 are used above, as already described.

In Fig. 6 the structure is substantially as in Figs. 4 and 5, except that the parts of the sleeper are offset, as at 11^b, so as to form shoulders on which the head of the rail 12 can rest and also form a space 16 for the flange of a car-wheel.

In all forms of the device and in any other modifications which naturally suggest themselves it will be seen that the deep web of the rail is held in a seat of the sleeper and that in

ordinary railway practice the road-bed would be filled up to the body of the sleeper, so that the seats 11 or 11^a, as the case may be, together with the lower portion of the web 12^a of each rail, would be held firmly in the road-bed. In this way the seats and the web serve to anchor the whole railroad construction, so as to prevent any lateral displacement, and it will be observed that spreading
10 of the rails is absolutely prevented. This is especially true because the sleeper is constructed so as to be relatively flat, and the depending seat 11 or 11^a serves as a flange or wing to prevent side motion.

15 It will be understood that if the web of the rail is made to nicely fit the seat of the cross-tie or sleeper the braces above the sleeper can be dispensed with; but where a strong rail is desired the braces either in the form shown
20 at 13 or the prolongation of the parts 11^a are advisable.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

25 1. A railroad comprising rails made plain

and without flanges between the head and bottom portions, and a relatively flat sleeper having depending seats to receive the rails, the said seats forming transverse wings or flanges of substantially the width of the flat
30 part of the sleeper which extend below the general level of the sleeper.

2. The combination of the flangeless rail and the relatively flat sleeper having a seat therein to receive the rail, the seat being
35 formed by bending down the sleeper, thus making a transverse wing of substantially the width of the flat part of the sleeper extending well below the general bottom portion of the sleeper.

40 3. A railroad, comprising a cross-sleeper having depending seats, rails without base-flanges, the said rails having their webs held in the seats of the sleeper, and an angle guard-rail secured to the sleeper.

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