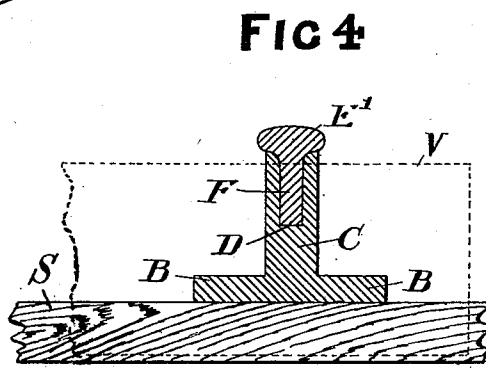
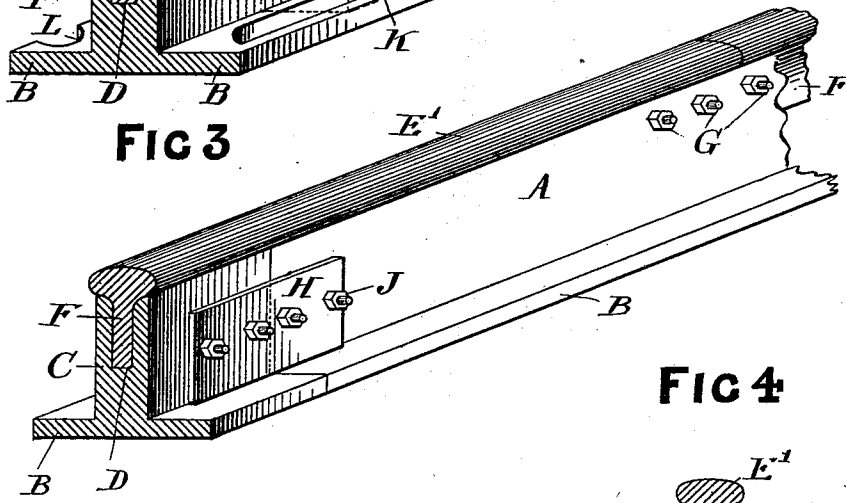
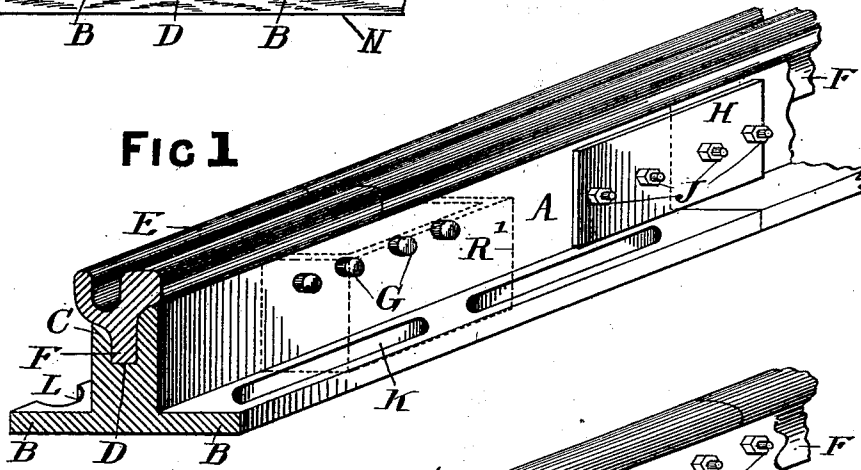
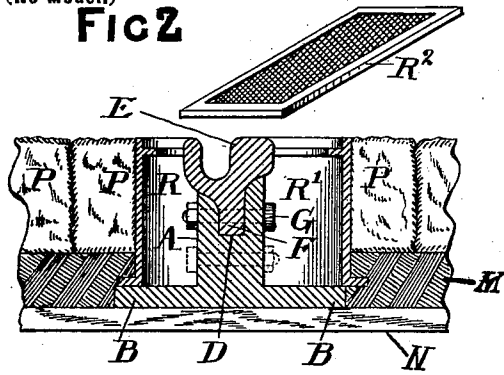


W. J. FOOT.

METHOD OF AND MEANS FOR THE FIXATION OF TRACK RAILS OF TRAMWAY OR RAILWAY LINES.

(Application filed Dec. 10, 1901.)

(No Model.)



WITNESSES:
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UNITED STATES PATENT OFFICE.

WILLIAM JOSHUA FOOT, OF LONDON, ENGLAND.

METHOD OF AND MEANS FOR THE FIXATION OF TRACK-RAILS OF TRAMWAY OR RAILWAY LINES.

SPECIFICATION forming part of Letters Patent No. 714,167, dated November 25, 1902.

Application filed December 19, 1901. Serial No. 86,566. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM JOSHUA FOOT, a subject of His Majesty the King of Great Britain, and a resident of 114 New North road, Islington, London, N., have invented a certain new and useful Improved Method of and Means for the Fixation of the Track - Rails of Tramway or Railway Lines, (for which I have made applications for patents in Great Britain, No. 23,619, dated November 21, 1901; in France, Serial No. 304,765, dated November 19, 1901; in Belgium, Serial No. 12,040, dated November 18, 1901; in Denmark, No. 1,304, dated November 20, 1901; in Spain, dated November 22, 1901, and in Germany, dated November 19, 1901, the numbers of which two latter applications are not yet known,) and of which the following is a specification.

My invention has reference to the fixation of the track-rails of railway and tramway lines; and it consists of certain improvements in methods and means for effecting such fixation whereby a worn or broken rail may be quickly and easily removed and replaced by another without the need of (in the case of tramway-lines) removing the granite cubes, wood blocks, asphalt, or other material forming the road in which the said rails are laid and in the case of railway-lines without the need of removing the seatings upon which the said rails are laid, the objects of my said invention being to provide a more solid and permanent foundation for such rails, in combination with means for more quickly and easily removing such rails and substituting others therefor than obtains with the means of fixation in present use. I have hereunto appended a sheet of drawings in order that my said invention may be the better understood, of which—

Figure 1 is a perspective view of a tramway-rail fixed in its seating according to my invention, Fig. 2 being a cross-section of same and the roadway in which it is laid. Fig. 3 is a perspective view of a railway-rail fixed in its seating according to my invention, Fig. 4 being a cross-section of same and the roadway in which it is laid.

In the case of tramway-lines it has hitherto been customary to form the rails with a broad flange or footing, the said rail being fixed in position upon a wood or concrete founda-

tion by the placing in position of the granite cubes, wood blocks, asphalt, or other material of which the road is made, and to remove any one length of such track-rail and replace by another the said roadway at each side of said length has hitherto had to be removed and replaced, and to remove a length of track-rail upon a railway-line as they are at present fixed means a lot of heavy labor in first driving out the wedges by which the said rails are secured in their chairs (which is not infrequently attended by the rupture and consequent need of renewal of the said chair) and then to disengage them from their fish-plates, the same operation having to be gone through in the fixing of the substituted rail; but my invention is intended to supersede this lengthy, laborious, tedious, and expensive means, as hereinafter explained.

In so far as relates to the track-rails of tramway-lines I provide, of any suitable metal or other material, a base or supporting-carrier A, formed in convenient lengths, approximating to the lengths of the sections of track-rails in present use, the said base or supporting-rail consisting of a broad base-flange B B and vertical center web C, the latter having formed in its upper surface a longitudinal groove D, preferably of rectangular formation in cross-section.

The track-rail E may be of the usual or most approved formation upon its upper surface; but instead of the usual footing at the base of the web F, by which the rails in present use are supported upon their foundations, I arrange the said web of such formation in cross-section as to be easily but rigidly seated in the groove D of the support A, suitable allowance being made for expansion and contraction, and for preference I arrange that the ends and, if necessary, other parts of the length of each track-rail E may be secured in position upon its supports A by the means of suitable bolts G passing horizontally and transversely through both A and F and secured by nuts in the usual way, while the ends of the sections of the said supports may be connected by the means of fish-plates H and bolts and nuts J, as shown. The flanges B B of the supports may be entire or provided with openings, such as K or L, or both, for the saving of material, and may be secured in

position upon a suitably-arranged concrete or other foundation, such as M and N, and be there retained by the laying of the granite cubes, wood blocks, or other means, as suggested by P in Fig. 2.

5 It will thus be understood that while the supporting-rail or base A is a permanent fixture the rails E may be removed for repair or renewal at any time without disturbing
10 the permanent way and in one-half or less time than it takes to effect a like operation by the present system of laying such track-rails, and to further facilitate this operation without removing the said cubes, blocks, or
15 the like I may provide at the junctions of the track-rails suitably-formed metallic or other boxes R and R', set down at each side of the track-rail upon the flange or base B B and secured in position by the setting of the
20 said cubes, blocks, or the like P, the one R' being for preference wider than R and placed at the bolt-head side of the rail, so that while R may be large enough to use therein a spanner to operate the nuts of the bolts G the
25 box R' may be large enough to permit such bolts to be knocked out thereinto, suitable lids or covers R², preferably roughened upon their upper surfaces, being provided for each
30 of the said boxes and provided with any suitable means of fixation, if needed. By this means the removal of the said lids would permit the unbolting of the rail to be removed and the bolting up of the one substituted
35 therefor without the need of removing a single stone, block, or the like P; hence the main object of my invention.

In so far as relates to the track-rails E' of railway-lines I arrange the fixation of these
40 by forming the said rails with one wearing-surface only and with the web F adapted to fit into a groove D in a supporting-rail or base A with flanges B B and secured therein by bolts and nuts G in like manner. The supporting-

rail or base A may be secured upon sleepers S by means of the spikes T; but for preference, and especially in the construction of
45 new lines, I purpose setting the said supporting-rails in a block foundation of concrete, as suggested by dotted outline at V in Fig. 4, as the said supporting-rail will never need
50 removing when once fixed, (unless in cases of alteration of direction of track,) and such foundation, unlike the sleepers in present use, would not need periodical renewal, and
55 creeping of the rails as now experienced would be impossible.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In combination, a supporting-rail having a central web with a channel in its upper edge and horizontally-extending base-flanges, a top or track rail having a contracted lower edge seated in said channel, and side walls
65 at the joints seated upon the base-flanges, and having outwardly-extending horizontal flanges, said side walls forming boxes, substantially as described.

2. In combination, a supporting-rail having a central web with a channel in its upper
70 edge and horizontally-extending base-flanges, a top or track rail having a contracted lower edge seated in said channel, and side walls at the joints seated upon the base-flanges,
75 and having outwardly-extending horizontal flanges, said side walls forming boxes, ribs extending inwardly from the walls of said boxes near their upper ends and covers supported by said ribs, substantially as described.
80

In witness whereof I have hereunto set my hand in presence of two witnesses.

WILLIAM JOSHUA FOOT.

Witnesses:

HENRY CONRAD HEIDE,
GEORGE THOMAS HYDE.