

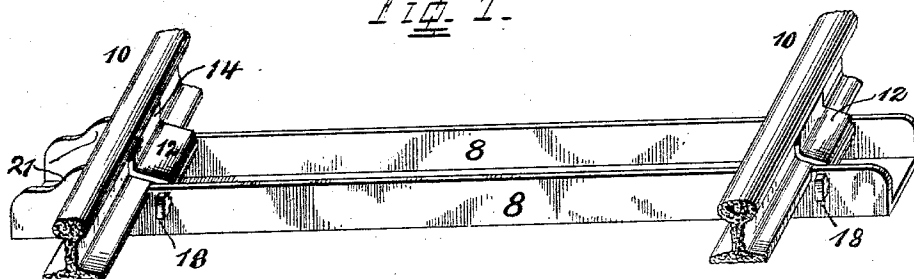
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T. CLIFTON.  
TRACK CONSTRUCTION AND FITTINGS.

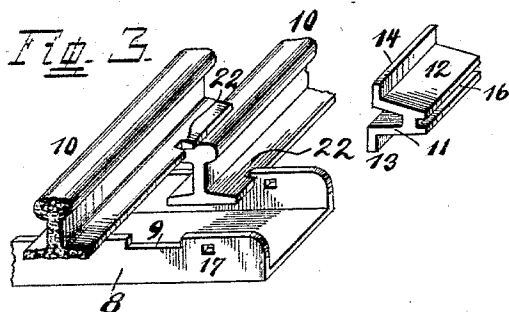
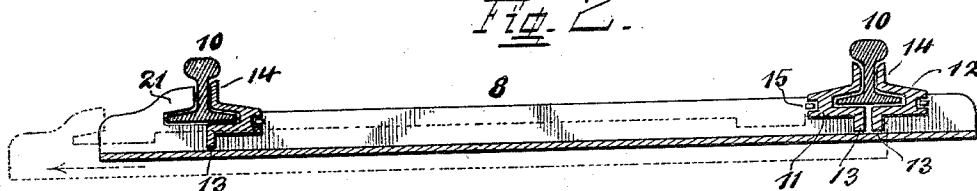
No. 563,744.

Patented July 14, 1896.

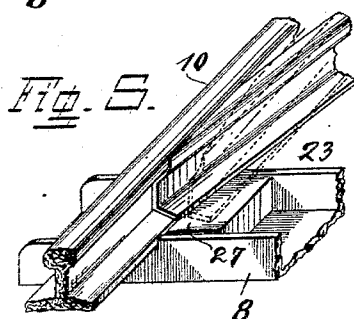
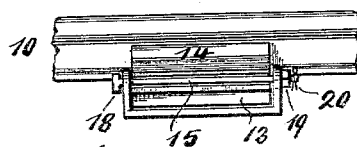
*Fig. 1.*



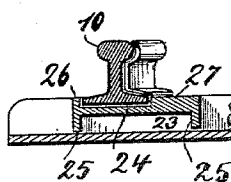
*Fig. 2.*



*Fig. 4.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

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## TRACK CONSTRUCTION AND FITTINGS.

SPECIFICATION forming part of Letters Patent No. 563,744, dated July 14, 1896.

Application filed February 17, 1896. Serial No. 579,508. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS CLIFTON, a citizen of the United States, and a resident of Cincinnati, Hamilton county, and State of Ohio, have invented certain new and useful Improvements in Track Construction and Fittings; and I do 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 appertains to make and use the same, attention being called to the accompanying drawings, with the reference-numerals thereon, which form a part of this specification.

This invention relates to an improved construction of railway-tracks and to certain fittings required in connection therewith. It relates particularly to such tracks where metallic cross-ties with special fittings are used to secure and connect the rails without the use of bolts, fish-plates, and spikes.

The special features of this invention comprise, therefore, an improved tie on which the rails rest, fittings whereby they are connected thereto, and special fittings to support the rails which form the switches. In general all parts and fittings of the construction are greatly simplified to cheapen their manufacture and reduced in number as much as possible, whereby the laying of tracks is greatly facilitated and removal for repair of any of the parts, ties, or rails is readily accomplished without disturbance of the unaffected parts of the track.

In the following specification and particularly pointed out in the claims is found a full description of the invention, its parts and manner of construction, which latter is also illustrated in the accompanying drawings, in which—

Figure 1 shows in a perspective view part of a railway-track constructed after my improved plan, and comprises a tie with portions of the rails supported thereon. Fig. 2 in a longitudinal section of the tie shows the parts illustrated in Fig. 1. Fig. 3 in a perspective view of one end of a tie shows certain special requirements at junctions of rails, one of the latter being about to be placed in position. The same view shows also one

of the fittings before put in place. Fig. 4 is an end view of one of the ties with a rail thereon. Fig. 5 in a perspective view shows manner of supporting the end of a movable rail or switch-point. Fig. 6 in a sectional view shows the fitting required for such purpose and its manner of application.

The tie is substantially trough-shaped having upturned flanges 8, which stiffen the same, serving also for other special purposes to be presently described. Near their ends and properly distanced apart the upper edges of these flanges are recessed, as shown at 9, to receive the bases of the rails 10. These latter are held in place by clips or special fittings, consisting, substantially, of jaws 11 and 12, which embrace the flanges on the sides of the rail-bases, and which jaws are continued at their inner ends, the end of jaw 11 downwardly to form a support 13, which rests on the bottom of the tie, and the end of jaw 12 upwardly to form an abutment or brace 14, which lies against the web of the rail. The length of this whole clip is such as to fit between the flanges of the tie, which thus confine it between them against longitudinal displacement.

The clips are held in position by bolts 15, preferably square and slightly tapering, which pass through and occupy a longitudinal groove 16 in the outside of the clips and at the edge formed by the junction of jaws 11 and 12. The ends of these bolts pass through holes 17, correspondingly located in flanges 8 of the tie, and are provided on the outside of the latter at one end with a head 18 and at the other with a round and threaded end which receives a nut 19. Beyond the latter a split key 20 may be provided to prevent loosening of the nuts.

As will be seen, one of the rails is held by two clips at one end of the tie, while only one clip is used for the other rail at the other side and at the inside thereof. In place of a second clip for this rail parts of such clip are permanently formed by the flanges 8 of the tie, which are raised at one side of the recesses 9 and form a stop 21 thereat. The reasons for this variation in construction will be made clear when the mode of laying the track

is described. At junctions of rails their adjoining ends are prevented from separating by notches 22 cut in one of the flanges at the base of the rails, such notches being so located  
 5 as to be at points where flanges 8 come in contact with the rails, the recess 9 thereat being shorter, so as to cause part of the flange 8 to occupy the notches, as will be readily understood from an inspection of the drawing  
 10 Fig. 3.

At places where movable rails are used, as at switches, for instance, special fittings 23 are required to support them and also to permit the point of such movable switch-rail to  
 15 come close up to the stationary rail. These fittings consist of a supporting-top 24, on which the rail rests, and two legs 25, depending downwardly therefrom to the bottom of the tie. They also, like the clips, fit between the  
 20 upright flanges 8 of the latter and are confined by them in one direction, while in the other direction they are held by the rails themselves by reason of tops 24 being higher to either side of the base of the rails, as shown. These  
 25 higher parts form on one side a rib 26 and on the other a comparatively broad surface 27, upon which the switch-point rests and moves during its adjustment. While in this case apparently no means are shown whereby the  
 30 rails are held down to the ties, it should be understood that of fittings 23 only a limited number are used and near the points of the switch-rails only, which latter are generally located between the ends of the full-length  
 35 rail-sections.

Beyond the ends of the switch-rails the main rails are securely held to the ties by the clips, as before described, and thereby enabled to hold the few fittings 23 between their  
 40 ends in position by simply resting on them. The construction of railway-tracks becomes very much simplified if practiced in accordance with my invention.

The ties having been laid in their proper positions, the rails are laid on them, occupying  
 45 recesses 9 in the upper edges of their flanges 8. Near the ends of the rails where they join special ties are used with shorter recesses 9 to enable the flanges 8 to enter notches 22 in the rail-bases for the purpose of holding the  
 50 adjoining rail ends together, as has been explained before. The clips are then applied sidewise and shoved up against the flanges of the rails which enter into the space between  
 55 the jaws 11 and 12 thereof. When in their proper positions, they are held therein by keys 15, which are passed in, entering on one side through one of the openings 17 in one of the flanges 8, then occupy groove 16 in the clips,  
 60 and pass out through openings in the opposite flange, where the nut is applied to the protruding end.

In such places where switches are to be located the special fittings 23 required to support the movable switch-rails are placed in  
 65 position first between the flanges of the tie before the rails are laid over the latter.

As will be seen, no difficult mechanical manipulations are required in the construction of these tracks and the laying of rails may be  
 70 proceeded with in an easy and rapid manner. All parts are individually accessible for repairs or replacing and any tie may be readily taken out sidewise after the clips holding it to the rails are disconnected. (See dotted  
 75 lines in Fig. 2.)

In devising the fittings special attention has been given to use a shape which permits cheap manufacture and which is without any projections, depressions, openings, &c., requiring  
 80 the use of cast-iron or requiring finishing by machinists' work. In the shape designed, therefore, these fittings are rolled out in rails having a profile as they appear in Figs. 2 and  
 85 6 and after which they are cut or sawed off to proper lengths to fit between the flanges of the ties.

Having described my invention, I claim as new—

1. A metallic tie having two upturned  
 90 flanges 8 provided with recesses 9 in their upper edges, in combination with rails, the bases of which fit within said recesses and clips having jaws 11 and 12 adapted to engage  
 95 between them a flange on one side of the rail-base and having the brace 14 and the support 13, the first resting against the web of the rail and the latter on the bottom of the tie, an open groove 16 in each clip and a bolt 15  
 100 passing through the flanges of the tie and occupying said groove.

2. A metallic tie having two upturned  
 105 flanges 8 provided with recesses 9 in their upper edges and stops 21 at one side of those recesses near one end of the tie only, in combination with rails, the bases of which fit into said recesses and the web of one of the rails resting against stops 21 formed at one  
 110 end of the tie only, clips adapted to engage the flanges of the base of the rails, one clip for the rail resting against stops 21 and engaging with the flange opposite such stops  
 115 and two clips for the other rail engaging with the flanges at each side of the base thereof and bolts to hold the clips in place.

3. A metallic tie having two upturned  
 120 flanges 8 provided with recesses 9 in their upper edges and stops 21 at one side of those recesses near one end of the tie only, in combination with rails, the bases of which fit into said recesses and the web of one of the rails resting against stops 21 formed at one  
 125 end of the tie only, clips adapted to engage the flanges of the base of the rails, one clip for the rail resting against stops 21 and engaging with the flange opposite such stops  
 130 and two clips for the other rail engaging with the flanges at each side of the base thereof, such clips each consisting substantially of two jaws 11 and 12 adapted to receive one of the flanges of the rail-bases, an abutment 14 which braces the web of the rail, a support 13 and an open groove 16 at their outside and bolts 15 passing through openings in the

flanges of the tie and occupying said grooves in the clips whereby these latter with the rails are held to the ties.

4. A clip to secure rails to metallic ties, consisting of two jaws 11 and 12, one being continued upwardly to form an abutment 14 to brace the web of the rail, the other being continued downwardly to form a support 13 and a groove 16 sunk in from the outside at the edge where jaws 11 and 12 join.

5. A special fitting 23 to support movable rails and switch-points in track constructions where metallic ties are used, such fittings consisting of a supporting-top 24, legs 25 depending therefrom, parts of the top being higher to form a rib 26 and a broad surface 27 upon which the switch-points are supported during adjustment, such fittings being held in position by the flanges of the tie and by the bases of the stationary rails which

they also support and which fit between the higher parts of top 24.

6. In track constructions where metallic ties are used, the combination of these latter, having flanges 8, rails 10 resting on these flanges, special fittings 23 fitting between them, consisting of tops 24 resting on the legs 25 and held in position between the flanges of the ties by rails 10 and by their top 24 which is higher at each side of the rail-base, forming a broad surface 27 to one side thereof and a switch-rail supported on this surface.

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

THOMAS CLIFTON.

Witnesses:

C. SPENGEL,

ARTHUR S. KLINE.