

No. 758,523.

PATENTED APR. 26, 1904.

W. GOLDIE.  
RAILROAD TRACK.

APPLICATION FILED NOV. 19, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

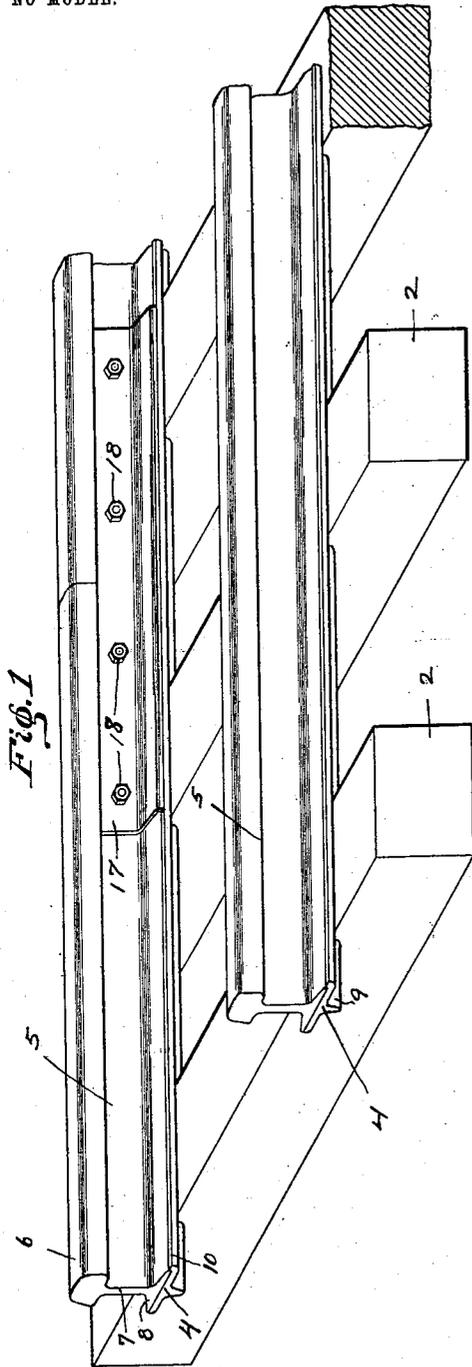


Fig. 1

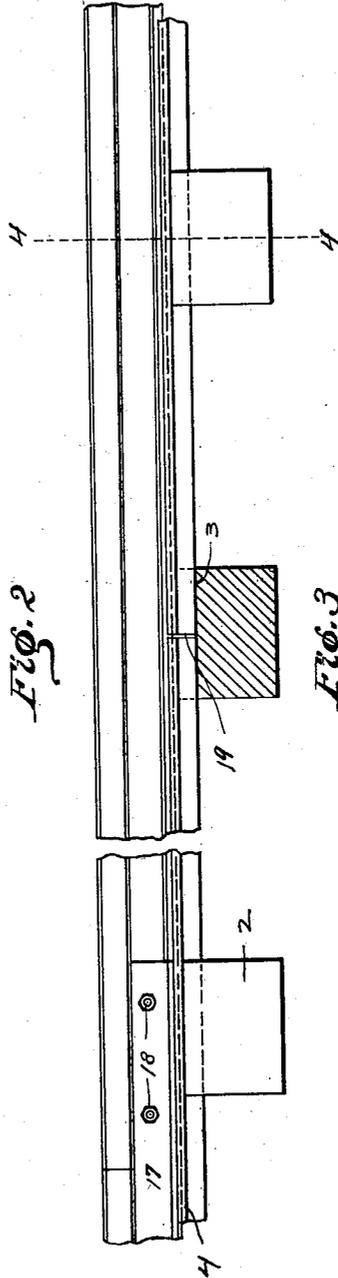


Fig. 2

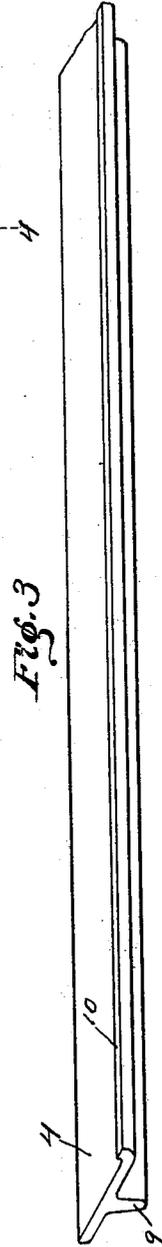


Fig. 3

Witnesses  
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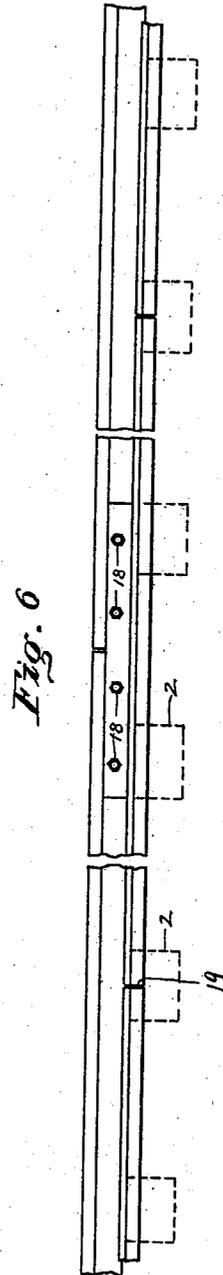
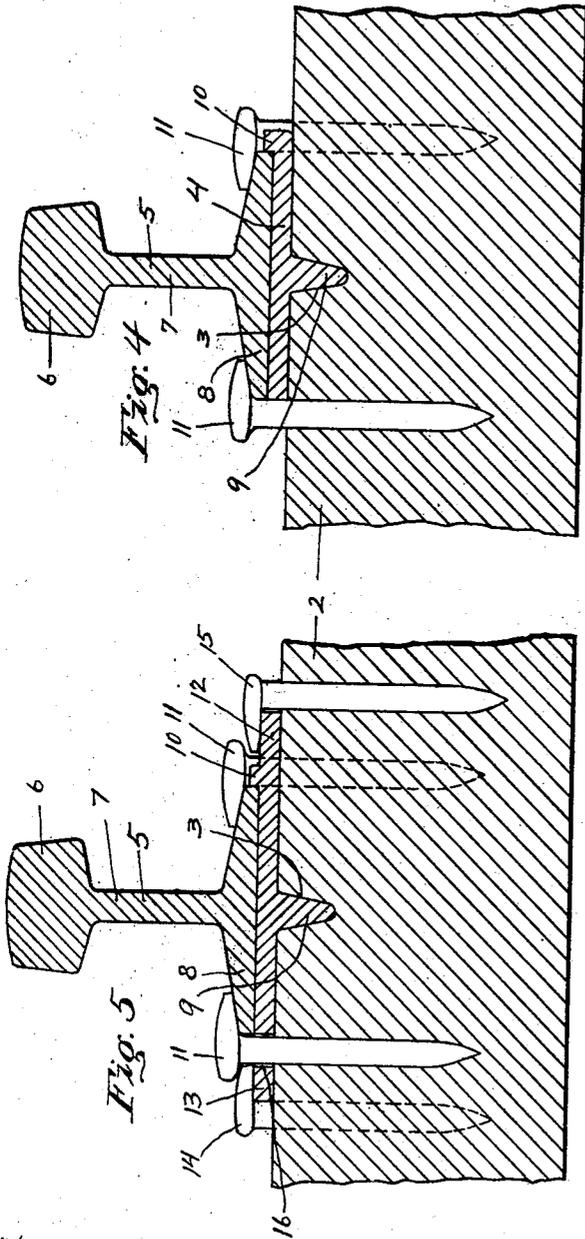
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2 SHEETS—SHEET 2.



Witnesses.

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# UNITED STATES PATENT OFFICE.

WILLIAM GOLDIE, OF WILKINSBURG, PENNSYLVANIA.

## RAILROAD-TRACK.

SPECIFICATION forming part of Letters Patent No. 758,523, dated April 26, 1904.

Application filed November 19, 1902. Serial No. 131,918. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM GOLDIE, a resident of Wilkesburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Railroad-Tracks; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to railroad-tracks, its object being to provide a track in which the gage can be positively maintained and also one in which the rails may be made much stiffer to withstand loads, considering the height of the same above the ties, than in the track now in use.

As the weights of both the engines and cars have increased, one of the problems presented to railroad engineers has been to provide a track to sustain the increased weight and one which is not so liable to sag or weaken at the joints. Though the weight of the rails themselves has also increased in late years, it has been found that there is a limit as to the height of the rail above the tie, increase of such height increasing the leverage upon the rail-head and the liability of rocking of the rail, and consequent wear on the tie and the spreading of the track, so that some engineers have believed that the limit as to the weight and stiffness of the rail has been reached.

By the present invention I am enabled to provide a much stronger and stiffer railroad-track adapted to carry heavier loads and also to positively maintain the gage of the track without encountering the above difficulties found in carrying the rail higher above the supporting-ties.

To these ends my invention consists, generally stated, in the combination, with the rails, of a series of cross-ties suitably supported and having transverse grooves or kerfs in their upper faces and rail-supporting bars having longitudinal depending ribs seated in the kerfs in the cross-ties and forming supports for the rails which rest thereon, the supporting-bars preferably having shoulders extending upwardly along their outer edges against which the rail-flanges fit and the rails being thus held to exact gage, while the rails are braced and stiffened by the supporting-bars and en-

abled to withstand the increased load. It also comprises certain other improvements, as will be hereinafter more particularly set forth and claimed.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a perspective view of the improved track. Fig. 2 is a side view of the same. Fig. 3 is a perspective view of the supporting base-bar. Fig. 4 is a cross-section on the line 4-4, Fig. 2; Fig. 5 is a cross-section illustrating some modifications in the base-bar; and Fig. 6 is a side view, on a smaller scale, illustrating the respective positions of the joints of the rails and base-bars.

In the railroad-ties 2 at suitable distances apart, so as to give the exact gage of track desired, I form the grooves or kerfs 3, such kerfs being either formed in the making of the ties or cut in the ties when forming part of the road-bed, such as where the invention is applied to a track already laid. The grooves or kerfs 3 have either straight or tapering side walls, conforming substantially in shape to the depending ribs of the supporting-bars hereinafter described. The ties may of course be of any suitable material, the invention being illustrated in connection with the ordinary wooden railroad-ties. Extending across the ties above the kerfs so made therein are the rail-supporting bars 4, on which rest the rails 5, which are shown as the ordinary rails having heads 6, webs 7, and flanges 8. The supporting-bars are each provided with a downwardly-extending rib 9, which fits into the kerf 3 in the tie, extending across the tie, as such rib portion 9 is made continuous. The strengthening-rib 9 has parallel or tapering side walls, being preferably made slightly tapering, and the kerf 3 of the cross-tie of like form to receive the same and form a close fit therewith, so that as the rib fits into the kerf it wedges therein slightly and closes the same to prevent entrance of water. Extending along the outer edge of the base-bar 4 is the upwardly-projecting shoulder 10, against which the outer edge of the flange 8 fits, so that the base-bar is adapted to receive the thrust of the rail in

carrying its load. This shoulder 10 may either be at or close to the outer edge, being shown both ways. When the shoulder is formed at the outer edge, as in Fig. 4, the spikes 11 secure both the rail and base-bar to the ties. The base-bar may, however, have the lip 12 extending beyond the shoulder 10 and the extension 13 on its inner edge beyond the seat for the rail-flange, and the spikes 14 15 engage therewith independently of the rail, as shown in Fig. 5, the base-bars being punched or notched, as at 16, for the passage of the spikes holding the rail. In the laying of the track the base-bars are arranged to break joint with the rails—that is, the rails have their joints located at one point and the base-bars at another, so that the base-bars extend continuously under the rails at the joint, and thereby support the rails at the joints and overcome the necessity of any special bracing against the vertical deflection at such points. The rails can of course be connected by any suitable joint, the joint shown in the drawings being the ordinary angle-bar 17, fitting against the web portion 7 and over the flange portion 8 of the rail and connected thereto by bolts and nuts, as at 18. The rail-joint may either be formed suspended or supported, as found desirable, though this is not important in view of the stiffening of the rail at the joint through the base-plate under the joint, which extends not only under the rails between the two ties, but continuously across the adjacent ties and imparts stiffness to the entire rail structure, so that the usual deflection of the track when the train passes over it does not take place. The base-bars extend under the rails and preferably meet each other on one of the ties, the body of one bar extending part way across the kerf of the tie and the body of the other bar extending in like manner on the opposite side, as shown at 19 in Figs. 2 and 6. The shoulder 10 on the base-bar does not necessarily extend higher than the regular rail-flange 8, so that the spikes 11 can be driven either outside of the shoulder extending over onto the rail or through holes or slots 16, formed in the angle-bars 17, and supporting base-bars 4 for their reception.

The tracks may be laid as above indicated by the employment either of ties having the kerfs previously formed in them, in which case as the kerfs are made of exact distance apart and the rail structures are made to exact gage and a perfect gage of track is obtained, the track being laid in the usual or any approved way by the employment of stone or other ballast. If desired, the track may also be regularly laid, the ties being properly ballasted, and by means of a suitable machine the kerfs being then cut in the ties and the rail structure secured in place. This course may also be followed in applying the invention to a track already laid where the

supporting base-bar is placed under rails previously used. The rails may be unspiked and moved to one side on the ties and temporarily spiked thereto or the ties moved underneath the rails, the kerfs cut in the ties, the base-bars seated in the kerfs so formed, and the ties and rails brought into proper alinement, and the rails then spiked or otherwise secured to the ties while resting on the base-bars.

As above stated, by the employment of the invention practically perfect alinement of the rails is obtained and there is practically no liability of the spreading of the track, since the depending ribs fitting in the kerfs are supported against said spreading action by the full width of the tie, and as the grain of the tie in wooden ties is cut across in forming the kerf and the tie-body extends for a foot and a half or more beyond the rail, and, further, as the rail structure rests directly upon the tie and binds the parts firmly together and prevents the outward strain from raising the wood under the pressure brought upon the downwardly-projecting rib there is practically no liability of the wood of the tie yielding under the strain. The rail and its supporting base-bar also cover the tie and the kerf formed in it and prevent the entrance of water into the kerf, so that there is little or no liability of the rotting of the tie on account of the cutting of the kerf across the same. The track as so formed is stiff enough to sustain much heavier loads than the ordinary track, while the flange portion of the rail is not raised to any appreciable extent above the supporting-ties, and the difficulty of the leverage incident to the employment of a higher rail is overcome. This stiffness is obtained both through the body of the supporting base-bar and its continuous rib extending under the rail, and the strength of the rail to resist loads is thereby nearly doubled without raising the load any farther above the supporting cross-tie.

In the use of the compound rail structure the supporting base-bar performs all the functions of the ordinary bridge or bracing plate under the suspended joint, and as it extends across many ties distributes the peculiar strain brought upon the rail at the joint for a considerable distance along the track it forms a practically continuous rail at the joint, as well as in the body, since the joint of the base-bar is at a distance from the joint of the rail proper.

The base-bar of the compound rail structure can be made at low cost by removing the head from and rerolling old rails, and they will be of great value in providing for the stiffening of both the light rails now in use on roads where, though not subjected to heavy strains, the weight of the rolling-stock is increased and also in connection with the heavier rails on main lines where the greatest stiffness of rail is desired on account of

the great increase in weight of the loads carried and the higher speed attained.

Modifications of the invention may of course be made without departing from the broad principle herein set forth.

What I claim is—

1. The combination with the rails, of a series of cross-ties having transverse grooves or kerfs in their upper faces, and rail-supporting base-bars having longitudinally-depending strengthening-ribs seated in the kerfs of the cross-ties and upwardly-projecting shoulders on their outer edges to receive the outer thrust of the rails resting on the base-bars, the rail-supporting bars extending continuously under the rails.

2. The combination with the rails, of a series of cross-ties having transverse grooves or kerfs formed therein, and supporting base-bars seated on the cross-ties and having upwardly-

extending shoulders on their outer edges to receive the outward thrust of the rails resting on the base-bars, the rail-supporting bars extending continuously under the rail.

3. The combination with the rails, of a series of cross-ties having transversely-extending grooves formed therein, and supporting base-bars provided with depending strengthening-ribs seated in the grooves of the cross-ties, the joints of the base-bars being out of line with the joints of the rails, and the joints of the base-bars being formed within the cross-ties.

In testimony whereof I, the said WILLIAM GOLDIE, have hereunto set my hand.

WILLIAM GOLDIE.

Witnesses:

ROBERT C. TOTTEN,  
G. C. RAYMOND.