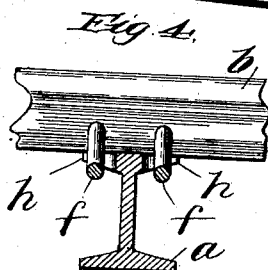
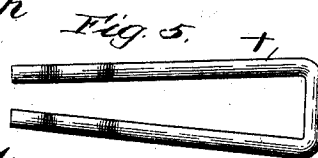
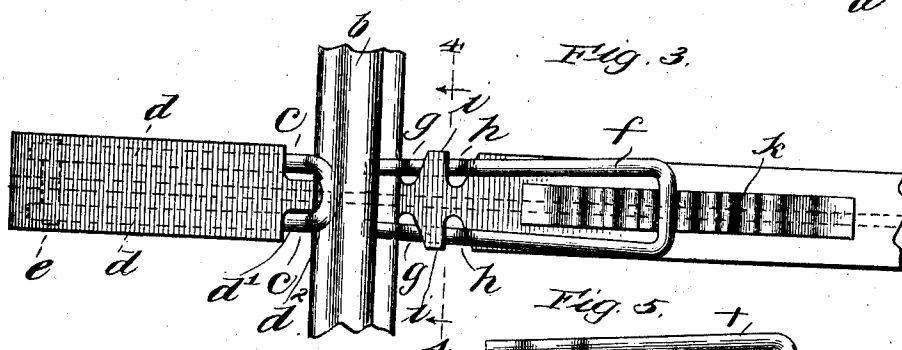
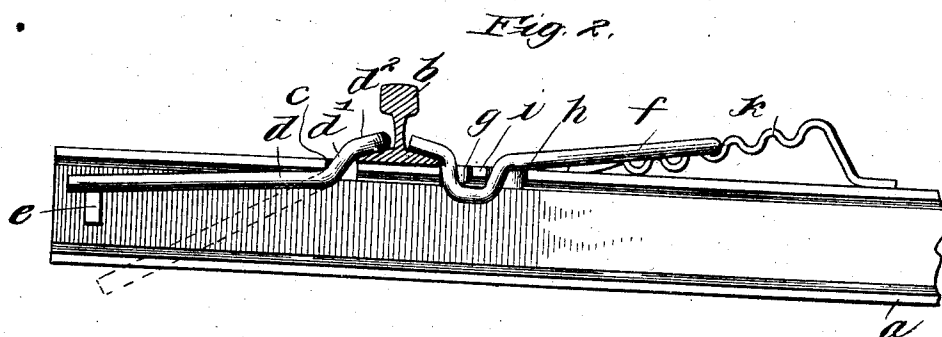
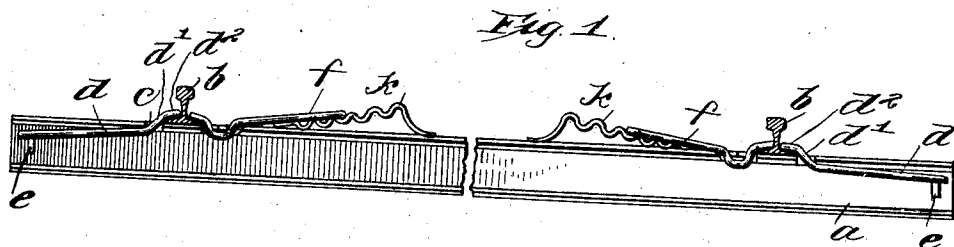


T. LENNOX.
RAILROAD TRACK STRUCTURE.
APPLICATION FILED SEPT. 14, 1909.

964,981.

Patented July 19, 1910.



Witnesses:

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UNITED STATES PATENT OFFICE.

TALBOT LENNOX, OF CHICAGO, ILLINOIS.

RAILROAD-TRACK STRUCTURE.

964,981.

Specification of Letters Patent.

Patented July 19, 1910.

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To all whom it may concern:

Be it known that I, TALBOT LENNOX, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Railroad-Track Structures, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to railroad tie structures, and has for one of its objects the provision of improved means whereby the track rails may be secured to the ties extending across the track and beneath the rails thereof, and has for its further object the provision of an improved tie structure enabling the rail fastening means to perform their office.

My invention may, in one aspect, be described as including a tie extending across the track and underlying the track rails and clamping devices in the form of levers so inter-related with the tie, that they may engage the track rails and hold the same properly in place upon the tie.

My invention, in another aspect, may be described as comprising clamping devices exerting spring pressure upon the track rails so as to firmly press the track rails against the ties, whereby wear between the base flanges of the rails and the ties is compensated for. The clamping devices, as I preferably construct the same, prevent creeping of the track rails across the ties and longitudinally of the track. As my invention is preferably practiced, the clamping devices will sufficiently yield when the rails are subject to severe strain or impact, as, for example, may be due to the contact of wheel flanges with the balls of the rails, as is the case particularly upon curves, to prevent said clamping devices from snapping, my invention being of much advantage in this respect as compared with clamping bolts which are frequently snapped apart under the circumstances named.

I will explain my invention more fully by reference to the accompanying drawing, showing one of many embodiments thereof, in which—

Figure 1 is a longitudinal elevation of a tie structure equipped in accordance with my invention, a middle section of the length of the tie being removed. Fig. 2 is a view on an enlarged scale, of the lefthand end of

the structure illustrated in Fig. 1. Fig. 3 is a plan view of the structure as it is illustrated in Fig. 2. Fig. 4 is a sectional view in elevation on line 4 4 of Fig. 3. Fig. 5 is a plan view of one of the spring lever clamping devices that may be employed.

Like parts are indicated by similar characters of reference throughout the different figures.

In the embodiment of the invention illustrated, I preferably employ a metal tie *a*, which may be in the form of an I-beam, this tie extending across the track and beneath the track rails *b b*. I have illustrated openings *c c* in the upper longitudinal portions of the tie, and have indicated spring lever clamping devices *d* straddling the upper portions of the tie on the outsides of the rails *b*, this straddling occurring where the upper portions of the ties have been reduced in width by the openings *c*. As illustrated, these spring lever clamping devices *d* are of U-shape, the bights of the clamping devices engaging the outer portions of the flanges of the rails *b* and the other ends of the clamping devices *d* engaging the lugs *e* that are passed through the webs of the tie *a*. The clamping devices are shaped as clearly illustrated in Figs. 1, 2 and 3, the bight ends of the clamping devices *d* each having one offset *d¹* from the portion of the clamping devices underlying the top of the tie and an offset *d²* extending from the offset *d¹*. The clamping devices *d* have fulcrum engagement with the tie *a* where the offset *d¹* joins the underlying portions of the clamping devices. When a clamping device *d* is to be engaged with the flange of a rail, it may initially occupy the position suggested by dotted lines in Fig. 2, whereafter, by means of a suitable appliance, it may be forced to occupy the position indicated in full lines, in which position it engages the lug *e*. In assuming this engagement, the clamping device works upon its fulcrum, whereby much leverage is secured firmly to clamp the engaged flange portion of the rail and tie together. The clamping devices *d* are desirably formed of spring steel, in the shape of round rods, whereby the rail flange is clamped upon the tie for the purposes and with the advantages that have been hitherto suggested.

I have thus described the outer clamps and the way they are employed, and I will

now describe the clamps that are upon the insides of the rails, the clamps upon the outsides and the insides of the rails differing as illustrated, in the preferred embodiment of the invention, but I do not wish to be limited to a structure in which the two sets of clamps differ in make-up. The inner clamps *f* are also desirably made of spring steel, in the form of round rods, and these inner clamps are also desirably of U-shape, but the free ends of the clamps engage the rail flanges instead of the bights of the clamps. The bights of the inner clamps *f* are so related to the balance of the clamps, that they are adapted to lie above the tie, which is of importance in connection with the inner clamps, in order that these inner clamps may be made more accessible. The ends of the clamps *d*, being adjacent to the ends of the tie, may be readily reached from beneath the top of the tie. As the bights of the clamps *f* are preferably to be located above the tie *a*, I provide two sets of openings *g h* in the top wall of the tie and provide dips or curves in the sides of each of the clamps *f*, so that the tie portions *i* intervening between the spaces *g* and *h* may be partially encompassed by portions of the clamps *f*. The clamps *f* desirably possess sufficient resiliency to cause the free ends thereof to approach when the clamps are free of the tie, the free ends of the clamps being spread apart when they are to be brought into engagement with the tie and the rail flanges. As is illustrated, the clamps *d* are provided with rigid abutments *e*, but in the case of the inner clamps, I desirably employ flexible or yielding abutments *k* that are desirably formed of corrugated spring metal, the corrugations of which being adapted to receive the bight ends of the clamps *f*. By means of suitable mechanism or tools, the abutments *k* may be moved toward the track rails *b* to extents sufficient to enable the spring clamps *f* to have desired clamping engagement with the rail flanges. The clamping devices *f*, especially when used in connection with the spring abutments *k*, clamp the rail flanges in engagement with the tie, with sufficient firmness properly to hold the rails in place upon the tie. The portions *i* intervening between the spaces *g* and *h*, constitute fulcrum for the spring clamps *f*, about which said spring clamps may be turned to secure the desired clamping engagement with the rail flanges, the abutments *k* holding the clamps *f* in the positions to which they are rotatively adjusted. In the case of both sets of clamps *d* and *f*, the ends that engage the rail flanges desirably slope in directions that approximate the directions in which the upper surfaces of the rail flanges slope, so as to have not only clamping action upon the rail flanges, but wedging action as well,

thereby giving lateral adjustment to the rails. As illustrated in connection with the clamps *f*, the rear or inner walls of the spaces *h* converge, so as to act as cam surfaces to force the ends of the clamps *f* that engage the rail flanges, toward the rails. This result is assured by making the spaces *h* sufficiently deep and by having sufficient spring tension between the sides of the clamps *f* as to cause said sides to approach when thrust apart.

As the metal between the spaces *g* and *h* wears away, due to its natural wearing engagement with the clamps *f*, the longitudinal sides of said clamps, by approaching, ride upon the rear wall of the rear or inner surfaces of the openings *h*, whereby the flange-engaging ends of said clamps are forced forward and downward to compensate for the wear of the metal at *i*, whereby the clamping action is maintained substantially uniform. The rear walls of the spaces *g* also desirably converge outwardly and also desirably have engagement with the longitudinal sides of the clamps *f* similar to the engagement that is had between these longitudinal sides and the rear walls of the openings *h* and to the same purpose.

The metal portions *i* should thicken vertically as well as longitudinally of the tie as they approach the middle portion of the tie, in order that the portions of the spring clamps *f* underlying the metal parts *i* may ride downwardly to assure the maintenance of the desired clamping engagement between the clamps *f* and the rail flanges.

The clamps *d* and *f* may have a variety of shapes, as may also the ties with which they are to be used; and while I have shown two different forms of clamps to be used in connection with the same tie, I do not wish to be limited to this characteristic, nor do I wish to be limited to a tie that is of I-beam construction. While the clamps *d* and *f* each possess two longitudinal members that straddle the tie structure, I do not wish to be limited to clamps each of which possess two longitudinal members.

It will be seen that I have provided a railway track structure including a railroad tie, a rail supported thereby, and a clamping device in the form of a spring rod bent into U-shape and having fulcrum engagement with the tie, the tie being provided with wedge formation to force the clamping device toward the rail as it is worn and to force the clamp downward as it is moved toward the rail, the clamping device, when in position, having its sides under tension, whereby said sides are caused to approach each other as wear is occasioned, to cause the clamping device to move toward the rail and downward toward the tie.

I believe that the railroad track structure herein described is particularly new, and I

do not, therefore, wish to be limited to the precise details of construction illustrated, believing that changes may readily be made without departing from the spirit of the invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:

1. A railroad track structure including rails, ties underlying the same, and lever clamping devices binding the rails and ties together and including U-shaped spring clamping members whose bights are engaged with the rail flanges and whose ends opposite the bights are supported by the tie, intermediate portions of these clamping members having fulcrum engagement with the tie.
2. A railroad track structure including rails, ties underlying the same, and clamping lever rods effecting fulcrum engagement with the ties and pressed into clamping engagement with the rail flanges, there being means whereby the clamps are moved longitudinally of the ties to compensate for wear where the clamps have fulcrum engagement with the ties.
3. A railroad track structure including rails, ties underlying the same, clamping lever rods having fulcrum engagement with the ties and pressed into clamping engagement with the rail flanges, and spring abutments engaging the lever rods and holding the same in clamping engagement with the rail flanges.
4. A railroad track structure including rails, ties underlying the same, clamping lever rods effecting fulcrum engagement with the ties and pressed into clamping engagement with the rail flanges, there being means whereby the clamps are moved longitudinally of the ties to compensate for wear where the clamps have fulcrum engagement with the ties, and spring abutments engaging the lever rods and holding the same in clamping engagement with the rail flanges.
5. A railroad track structure including rails, ties underlying the same, clamping lever rods having fulcrum engagement with the ties and pressed into clamping engagement with the rail flanges, and corrugated spring abutments engaging the lever rods and holding the same in clamping engagement with the rail flanges.

6. A railroad track structure including rails, ties underlying the same, clamping lever rods effecting fulcrum engagement with the ties and pressed into clamping engagement with the rail flanges, there being means whereby the clamps are moved longitudinally of the ties to compensate for wear where the clamps have fulcrum engagement with the ties, and corrugated spring abutments engaging the lever rods and holding the same in clamping engagement with the rail flanges.

7. A railroad track structure including rails, ties underlying the same, clamping lever rods having fulcrum engagement with the ties and pressed into clamping engagement with the rail flanges, and corrugated abutments engaging the lever rods and holding the same in clamping engagement with the rail flanges.

8. A railroad track structure including rails, ties underlying the same, clamping lever rods effecting fulcrum engagement with the ties and pressed into clamping engagement with the rail flanges, there being means whereby the clamps are moved longitudinally of the ties to compensate for wear where the clamps have fulcrum engagement with the ties, and corrugated abutments engaging the lever rods and holding the same in clamping engagement with the rail flanges.

9. A railway track structure including a railroad tie, a rail supported thereby, and a clamping device in the form of a spring rod bent into U-shape and having fulcrum engagement with the tie, the tie being provided with wedge formation to force the clamping device toward the rail as it is worn and to force the clamp downward as it is moved toward the rail, the clamping device, when in position, having its sides under tension, whereby said sides are caused to approach each other as wear is occasioned, to cause the clamping device to move toward the rail and downward toward the tie.

In witness whereof, I hereunto subscribe my name this 4th day of September A. D., 1909.

TALBOT LENNOX.

Witnesses:

L. G. STROH,
G. L. CRAGG.