E. M. McVICKER.

RAILWAY TIE PLATE AND RAIL FASTENING.

APPLICATION FILED APR. 2, 1917.

1,260,563.

Patented Mar. 26, 1918.

2 SHEETS—SHEET 1.

Fig. 1.

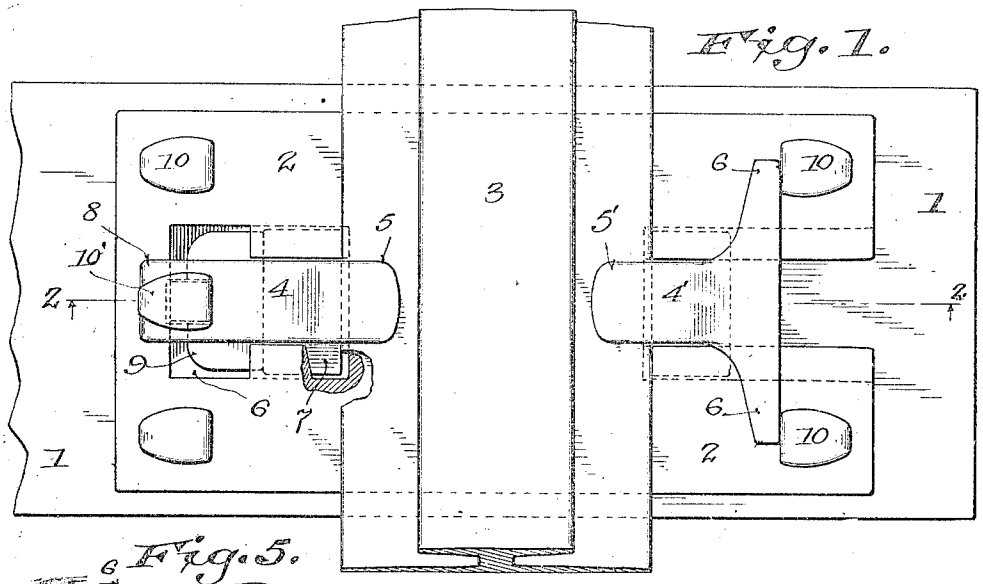


Fig. 5.

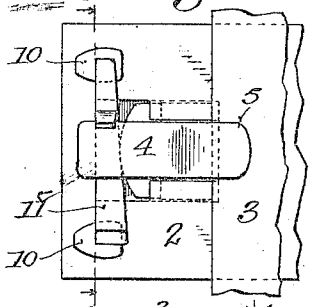


Fig. 2.

Fig. 6.

Fig. 3.

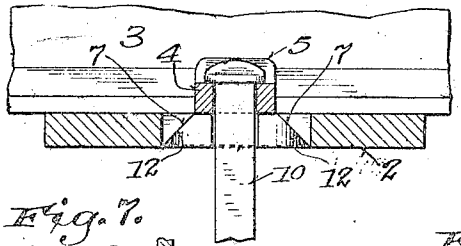


Fig. 4.

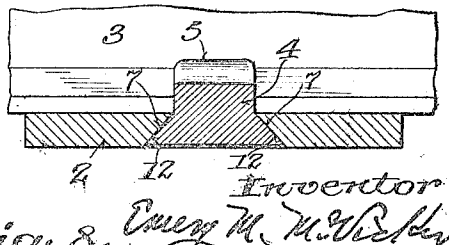


Fig. 7.

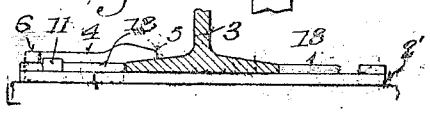


Fig. 8.



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2 SHEETS—SHEET 2.

Fig. 9.

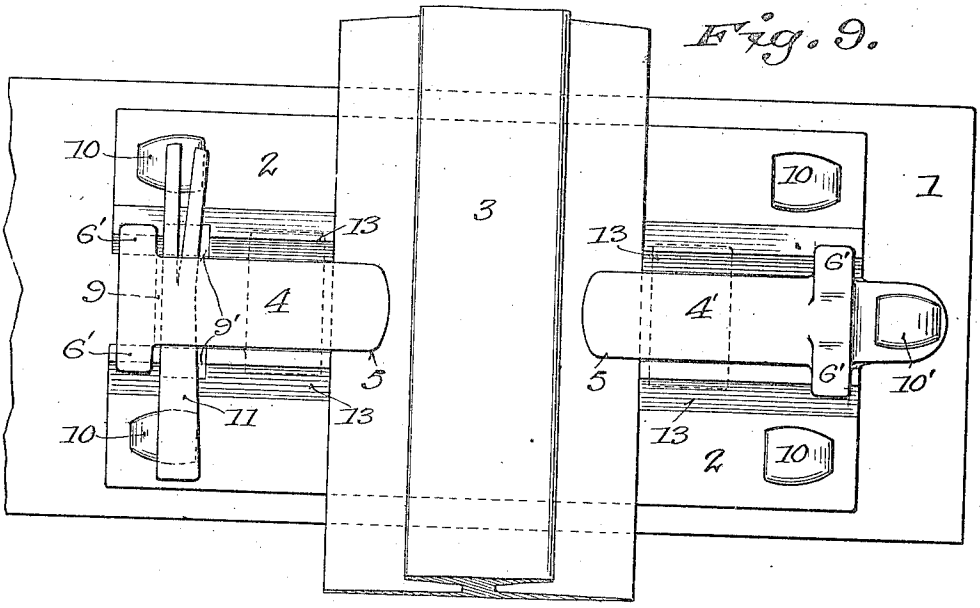


Fig. 10.

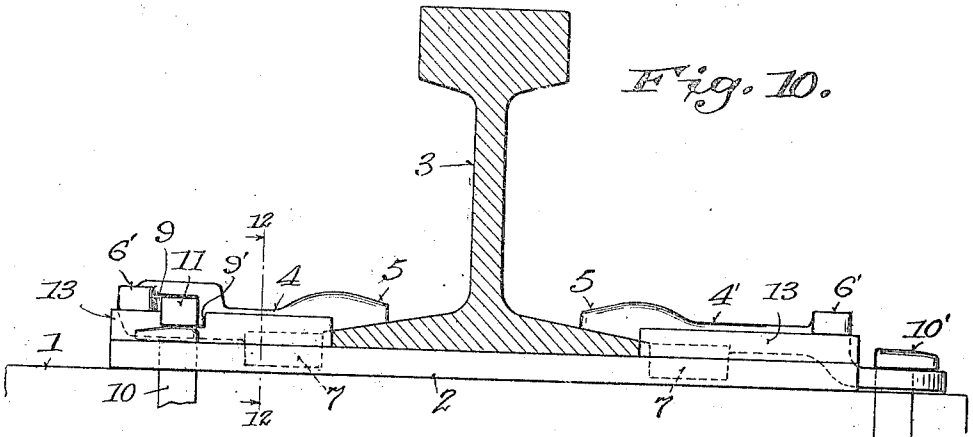


Fig. 11.

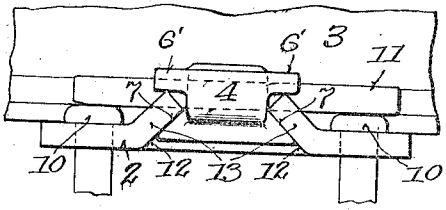
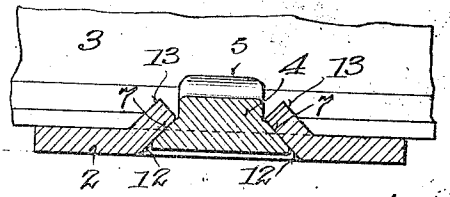


Fig. 12.



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UNITED STATES PATENT OFFICE.

EMERY M. McVICKER, OF MILWAUKEE, WISCONSIN.

RAILWAY-TIE PLATE AND RAIL-FASTENING.

1,260,563. Specification of Letters Patent. Patented Mar. 26, 1918.

Application filed April 2, 1917. Serial No. 159,090.

To all whom it may concern:

Be it known that I, EMERY M. McVICKER, a citizen of the United States, and resident of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Railway-Tie Plates and Rail-Fastenings, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

What I declare as new is simplicity of design and reduction of parts and my particular design of a tie plate with an undercut slot or groove, contracted at the top of the tie plate and broadened at the bottom of the tie plate, and a rail fastening with a portion thereof so made as to engage in the undercut groove within the tie plate and extend upward through the top surface of the tie plate, and a portion of the rail fastening fitting over and against the base flange of the rail; and also the use of a wedge or spike to hold the rail fastening in position in the tie plate, and against the base flange of the rail. The object of having the rail fastening fitting within an undercut groove of the tie plate is to gain sufficient strength between the tie plate and the rail fastening to resist the upward pressure of the rail fastening, and not to extend below the bottom of the tie plate to interfere with the spiking or fastening of the tie plate to the smooth surface of the railway tie.

I further declare as new the driving of the spikes through the tie plate into the tie at a distance and separate from the rail so as to avoid the upward pulling of the spike by the tipping of the rail, this method now being in common practice. With the spikes separate from the rail, the strain caused by the tipping of the rail comes against the rail fastening and tie plate and not against the spike to pull it out.

I further declare as new the use of a wedge or arm fastened to the tie plate and extending over the heads of the spikes, that hold the tie plate to the tie, to prevent them from working up or out of position.

I further claim as new a construction of my rail-fastenings or rail clips of different lengths but interchangeable with the similar fastenings in the tie plate on the opposite sides of the rail so that the interchange of the rail fastenings shifts the rail laterally, and at the same time holds the rail with the same firm anchor at either position of the rail. The object of this is to take up the widening gage of the track from time to time without pulling the spikes or disturbing the tie plate. The gage of the track is widened by the wear of the inside of the ball of the rail, the greater wear occurring on the curves, and also sometimes by the crowding out of the rail caused by the outward pressure of the car wheels in service. In the present practice of track maintenance this necessitates the pulling of the spikes and the sliding in laterally of the rail, and the driving in of the spikes in new places in the tie, in order to bring the track back to the standard gage. This practice is very detrimental to the ties, the many spike holes weakens the tie and the water gets into these holes, and decays these ties. My invention saves this deterioration which is a big economy, and also saves a very large annual expense of maintenance to bring the track in to standard gage, economy being one of labor and tie material both.

The novelty of my invention is illustrated by my drawings hereto attached, reference being had to the figures and numbers, and which is more fully explained by my specifications and reference numbers.

I attain these objects by the mechanical design illustrated in the accompanying drawings, in which—

Figure 1 shows a top view of the tie plate, spiked to the tie.

Fig. 2 shows a cross sectional view on the lines 2—2 Fig. 1.

Fig. 3 shows an end sectional view of the tie plate.

Fig. 4 shows a cross sectional view on the lines 4—4 Fig. 2, of the tie plate.

Fig. 5 shows a top view of a portion of the tie plate, with a modification.

Fig. 6 shows an end sectional view on the lines 6—6 Fig. 5, of the tie plate.

Fig. 7 shows a cross section of the rail and a side view of the tie plate and rail clips.

Fig. 8 shows an end elevation of the modified tie plate of Fig. 7.

Fig. 9 is a top view of a portion of the railway tie in a further modification.

Fig. 10 is a sectional view of the rail, side view of the tie plate of Fig. 9.

Fig. 11 is an end view of the tie plate shown in Fig. 9.

Fig. 12 is a sectional view of the tie plate and of the rail fastening through the lines

12—12 Fig. 10 and a side view of a base portion of the rail.

Similar numerals refer to similar parts throughout the several views.

In my drawings 1 represents a portion of a railway cross tie; 2 my tie plate; 3 the section of a railroad rail; 4 and 4′ my railway fastenings; 5 and 5′ the overhanging lug on the rail fastening overlapping the base flange of the rail; 6 and 6′ the extending and spanning arms on the outer end of the rail fastening resting on the side walls of the groove in the tie plate; 7 the engaging lug of the rail fastening with an undercut groove in the tie plate; 8 the outer extended portion of the rail fastening to receive the railway spike; 9 and 9′ the opening in the plate for receiving the fastening (see Fig. 9); 10 the railway spikes fastening the tie plate to the tie; 10′ the railway spike fastening the rail fastening to the tie; 11 the wedge holding the rail fastening to the tie plate and also holding the railway spikes in position in the tie plate; 12 the inside of the undercut or dovetailed side walls of the groove in the tie plate; 13 the upward extended side walls of the groove in the tie plate.

My invention relates to an improvement for connecting railway rails to tie plates and tie plates to wood or fiber railway ties by means of detachable rail fastenings or rail clips.

In the application of my invention of the tie plate and rail fastening to the railway tie and railway rail, the tie plate is spiked to the wood or fiber tie with ordinary spikes 10 driven through the spike holes in the tie plate, but separate and at a distance from the rail. The rail clip or fastening is then slipped into the dovetailed groove 12 and 12′ of the tie plate 2, and in position against the rail. The sides of these grooves may extend up above the upper surface of the tie plate as shown at 13, and serve as shoulders for the base flange of the rail to abut against and to hold the rail in position. The rail clip is held against the rail in position by the wedge or key which is driven through a hole or groove in the rail clip 4, and a corresponding hole or key seat in the tie plate at a point so as to extend over the heads of the spikes so as to hold those spikes down in place firmly in the tie, prevent their working out. The rail clip 4 may also be held in place by a railway spike 10′ being driven through the outer end of the rail clip 8 (see Fig. 1) when it is desired not to use the wedge to hold the spikes or rail clips in position.

I use different heights of rail clips for shimming on the top of the tie plate beneath the rail, making it necessary to change only the rail clips at times of shimming.

I connect the rail 3 and the tie plate by a dovetailed or beveled portion 7 of the rail clip or fastening 4 fitting into a corresponding undercut, dovetailed, beveled and interlocking recess or slot 12 in the tie plate. The portion of the recess or slot in the tie plate being contracted and narrower at the top, and wider at the bottom. The rail fastening or rail clip interlocking therewith, with an end portion or lug 5 and 5′ thereof overlapping and clasping the rail base 3 and 3′ and holding it firmly down to the tie plate. The beveled shape of the base portion 7 of the rail clip 4 and 4′ and a corresponding beveled seat or slot in the tie plate 12 allows the interlocking of the rail clip in the tie plate without projecting below the tie plate 2, which is of great advantage in spiking the tie plate onto the tie and thus avoiding cutting a hole in the tie to receive any projected lugs 7 should they extend below the tie plate.

The lower part 7 of the rail clip 4 and 4′ is interlocked within the tie plate by the dovetailed construction 12 and the outer part of the rail clip is locked on top by the spanning lugs or arms 6 and 6′ resting on top of the upper edges of the groove 13 in the tie plate. The advantage of not having the rail fastening extend below the bottom of the tie plate as in some constructions, can readily be seen because such a construction interferes with spiking the tie plate on the level wood tie. Ordinary tie plates are in general use but the removable fastenings for fastening the rail to the tie plate are comparatively new, and my undercut dovetailed fastening is entirely new and my design of interlocking the rail fastening entirely within the tie plate so that it resists the upward pressure of the rail clip and does not extend below the tie plate is an improvement which can readily be understood and appreciated in practical use.

The wedge or key 11 being tapered, split and spread the key can be driven in farther and spread from time to time as the wear occurs between the rail clips and the base flange of the rail, thus maintaining a permanent anchor plate as well as a tie plate which would be an economical railway practice.

My method of spiking the tie plate 2 down to the wood or fiber tie 1, by placing the spikes 10 at a distance from the railway rail base 3′ and driving them down through the tie plate 2 into the tie and also in having interlocking wedges or keys 11 fastened to the tie plate, and projecting over the spikes 10 and holding them down, so as to prevent their working out in service or being pulled out by the tipping of the rail caused by the side pressure of the flanges of the car wheels against the rails, is an improvement for safety of the first importance. These keys or wedges 11 may serve the double purpose

of fastening the rail clip 4 firmly in position up against the tie plate 2 and also down against the base flange of the rail 3 to hold it firmly down to the tie plate to prevent it from creeping.

In manufacturing my tie plates, I find it economical practice and desirable at times to use wrought iron metal as well as malleable and I desire to make the grooved interlocking slot in the tie plate by bending upward the edges 13 of the plate 2 (see Figs. 7, 8, 10, 11), so as to form the dovetailed groove 12 and at the same time to project up above the top of the tie plate so that the ends thereof serve as shoulders to hold the base flange of the rail 3 in position. I also cut a slot in the edges 13 to make a key seat for the key or wedge 11 to hold the rail clip in position. The spanning portions 6 of the outer end of the rail clip resting on the edges 13 in the tie plate hold the rear end of the rail clip up in position. 2′ in Fig. 7 indicates the tie plate on the top of which the base flange of the rail 3 rests, and 13 shows the side walls of the tie plate serving as a seat for the base flange of the rail to fit into and abut against in service.

To obtain a cheaper and simpler anchor plate where it is not very necessary to shim the rail a tight fitting groove may be cast across the anchor or tie plate at one end of the tie plate to receive one side of the base flange of the rail to hold the rail firmly in a never slipping position by the pressure of the opposite side of the rail against the base flange of the rail with my dovetailed rail clip working in the slot and being driven firmly against the base flange of the rail as above described. In this use my dovetailed sliding rail clip is used only on one end of the tie plate.

When it is desired to use shims under the rails on the track where tie depression or upheaval of the tie occurs at certain seasons of the year, it is best practice to use my tie plate with my slot sliding rail clips on both sides of the rail. The rail clips for use at such places are made of different heights to be used with different thickness of shims at times of depression or upheaval so as to permit shims to be slipped under the rail on top of the tie plate, interlocking with the rail clip so as to be held in position, and thus not disturb the tie plate upon the tie which is an aid in maintaining a better and more durable anchoring of the tie plate to the rail.

Having thus described my invention, I claim as follows:

1. An interlocking rail fastening comprising a tie plate and a wedge or key holding the rail fastening in position against the rail and to the tie plate and extending across and through the rail fastening and overlapping the tops of the spikes that anchor the tie plate to the tie so as to prevent the spikes from working out.

2. A tie plate with slotted grooves running transverse to the rail with the edges of the grooves extending upward above the surface of the tie plate forming shoulders for abutting against the rail base.

3. A tie plate with a groove contracted at the top and wider at the bottom, a rail fastening having a corresponding base slidable in said groove, an overhanging lug on the inner end and a hole in the outer end to receive a spike, holding the rail fastening over and against the base flange of the rail and in position in the tie plate.

4. A tie plate with rail fastenings of different lengths, fitting interchangeably into grooves into the tie plate, on the two sides of the rail to shift the rail laterally, and extending over and against the base flange of the rail and a wedge for holding each in position against the rail and onto the tie plate.

EMERY M. McVICKER.