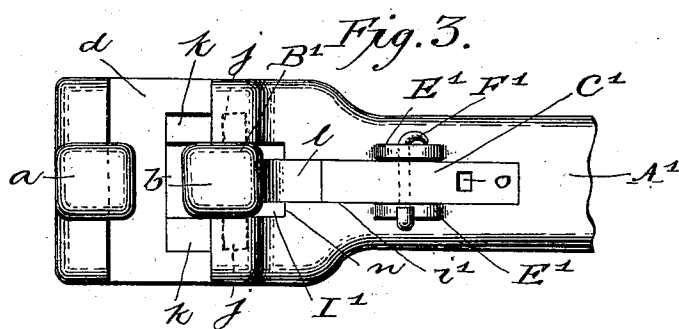
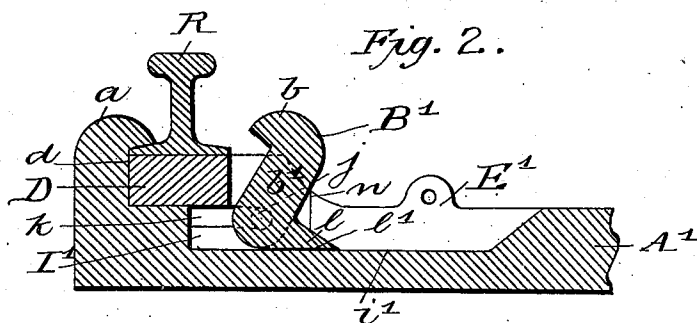
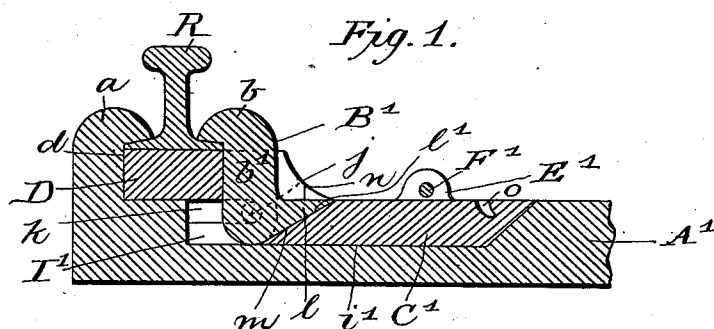


(No Model.)

T. H. H. MESSINGER.
METALLIC RAILWAY TIE.

No. 547,798.

Patented Oct. 15, 1895.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS H. H. MESSINGER, OF WILMINGTON, DELAWARE.

METALLIC RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 547,798, dated October 15, 1895.

Original application filed August 27, 1894, Serial No. 521,402. Divided and this application filed May 6, 1895. Serial No. 548,262. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. H. MESSINGER, of Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Metallic Railway-Ties, of which the following is a specification.

This invention relates to metallic ties for railways, and particularly to the provisions for securing the rail to the tie. In an application filed by me August 27, 1894, Serial No. 521,402, of which the present case is a division, I have described and claimed a metallic railway-tie having rail-locking devices which include a stationary overhang at one side of the rail, a movable rail-clamp mounted in a cavity adjacent to the rail on the other side, a locking-block filling said cavity and securing the rail-clamp in position to secure the rail, said locking-block being so inclosed by said cavity that it is proof against accidental displacement, and a guard to prevent the intentional withdrawal of the locking-block from the cavity. In said application I have made specific claim to a construction of locking devices wherein the rail-clamp has a sliding movement to and from the rail. In the construction specifically covered by the present application the rail-clamp is pivotally mounted and has a swinging movement to and from the rail; but the locking devices set forth in the present application possess the same main characteristics generically claimed in said application, Serial No. 521,402.

The present invention consists in the constructions and combinations defined in the claims appended hereto.

The accompanying drawings illustrate the construction, Figures 1 and 2 being central longitudinal sections showing, respectively, the two portions of the rail-clamp; and Fig. 3, a plan view with the rail and rail-cushion omitted.

In the drawings, R is the rail, and A' is the metallic tie having near its end a rectangular transverse groove *d*, which is occupied and filled by a rail-cushion D, consisting of a block of wood or indurated fiber, which forms a cushioned seat for the rail R. The cushion or rail seat D is overhung at one side by a stationary lug *a* and at the other side by the

hooked end *b* of a pivoted clamp B', the two overhanging parts *a* and *b* fitting upon the base-flange of the rail on opposite sides and holding the rail firmly and immovably upon the tie. The stationary lug *a* is at the end of the tie outside of the rail-seat D and is an integral part of the tie A'. The hooked end *b* of the movable clamp is located at the inner side of the rail-seat and corresponds in form and position to the overhanging lug *a*.

The pivoted hook or clamp B' is arranged to swing toward and from the rail-seat, so that when said clamp is swung back the rail R can be laid upon its seat with one edge of its base-flange inserted beneath lug *a*, and the clamp B' can then be swung forward, so that its hooked end will pass above the other edge of the base-flange of the rail and securely lock the rail in place. The clamping-hook B' is mounted in a cavity I', formed within the body of the tie adjacent to the rail-seat, and a locking-block C' fits behind and against the clamp in the same cavity or an extension thereof for the purpose of holding the clamp in position to secure the rail.

The cavity I' comprises a wide portion adjacent to the rail-seat, a narrow portion *i'*, extending from said wide portion of the cavity back toward the center of the tie, and two lateral grooves or recesses *k k* at the opposite sides of said wide portion of the cavity. The wide portion of the cavity I' accommodates the pivoted clamp. The narrow portion *i'* is occupied by the locking-block, and the grooves *k k* accommodate the pivot-studs of the clamp. Shoulders *n n* are formed at the inner end of the wide portion of the cavity where the narrow portion *i'* commences.

The clamp B' comprises the hook *b*, before mentioned, the body *b'*, the pivot-studs *j j*, projecting laterally from the body *b'* near the lower end thereof, and the tail *l*, projecting rearward at the lower end of the clamp and co-operating with the forward end of the locking-block. The width of the body *b'* of the clamp is substantially equal to the width of the wide portion of cavity I'. When the clamp is mounted in its place upon the tie, the body of the clamp fits between the sides of the wide portion of cavity I', the pivot-studs *j j* are supported and journaled at the

inner ends of the grooves or recesses *k*, and the tail *l*, which is narrower than the body of the clamp, projects a little into and fits the width of narrow portion *i'* of the cavity. The tail *l*, of the clamp has an inclined cam-surface *l'* corresponding to the adjacent beveled end *m* of the locking-block *C'*, and when the locking-block is in place it fills the narrow portion *i'* of the cavity and the bevel *m* of the locking-block fits beneath the tail *l* of the clamp to hold the clamp against the rail. In its locking position the rail-clamp occupies the front end of its portion of the cavity *I'*, with the straight front face of the clamp standing perpendicularly against the edge of the rail-cushion *D*, and its tail *l* supported by and upon the beveled end of the locking-block. (See Fig. 1.) In this position the clamp is held perfectly rigid and the hook *b* of the clamp is held firmly against the rail-flange. The backward swinging movement of clamping-hook *B'*, when it is released from its clamping position by the removal of the locking-block *C'*, is limited either by the shoulders *n* or by the tail *l* coming in contact with the bottom of the cavity.

The cavity *I'* and the journal-grooves *k* extend partially beneath the rail-cushion *D* and communicate with the cushion-groove *d*, so that when the rail-cushion is removed the clamping-hook *B'* can be entirely detached from the tie *A'*, the pivot-studs moving first forward to the front open ends of the journal-grooves and then passing therefrom in an upward direction. Conversely, in applying the clamp to the tie the clamp is dropped into the front end of the cavity, where the open journal-grooves permit the insertion of the pivot-studs, and the clamp is then moved back to bring the studs to their bearings and to clear the groove *d*. The rail-cushion is then put into place in groove *d*, which holds the pivots of the clamp to their bearings, and the tie is then ready to receive the rail. (See Fig. 2.) When the rail has been put into position the clamping-hook is swung forward and the locking-block *C'* is pushed into place in cavity *I'*, the inclined surface of the beveled end *m* of the locking-block passing beneath the inclined cam-surface *l'* of the tail *l* of the clamp-hook, thus firmly pressing and holding the clamping-hook in its forward position. As the locking-block has a slight forward movement during its insertion to engage beneath the tail of the clamp, the rear end of the locking-block and the rear end of the cavity *i'* are cut to a slight incline to permit the block to slip easily into place. When the locking-block is in place its top is flush with the general upper surface of the tie. Since the locking-block *C'*, when inserted, is inclosed except at its top by the body metal of the tie, it is perfectly secure against accidental displacement, since no possible jarring or striking of any of the parts could raise the locking-block from its cavity; but in order to prevent withdrawal of the locking-block

by thoughtless or malicious persons a guard-pin *F'* is employed, which passes through the stationary lugs *E'* on opposite sides of the cavity *I'* and crosses above and in contact with the top of the locking-block, the pin being preferably clinched, as shown, for better security. The locking-block may be provided with a handle-lug *o* for convenience in withdrawing the locking-block when the rail is to be released. The arrangement of the journal-grooves *k* *k* is such that when the clamp *B'* and the rail-cushion are in place the clamp is secured to the tie and cannot be removed without first removing the rail-cushion.

I claim as my invention—

1. The pivoted rail-clamp *B'* mounted in a cavity adjacent to the rail-seat, and the locking block *C'* inclosed within said cavity behind said pivoted rail-clamp and holding said clamp in position to secure the rail, said clamp having the rear inclined surface *l'*, and said locking-block having the beveled front end *m* cooperating with said incline on the clamp, substantially as set forth.

2. The pivoted rail-clamp *B'* mounted in a cavity adjacent to the rail-seat, and the locking-block *C'* inclosed within said cavity behind said pivoted rail-clamp, said clamp having a tail *l* with an inclined rear face *l'* which occupies an approximately horizontal position before the locking-block is inserted, and said locking-block having a beveled point which enters beneath said tail *l* of the clamp and causes the latter to ride up thereupon until the clamp has moved to its clamping position and the locking-block has wholly entered its cavity, substantially as set forth.

3. The tie *A'*, the cavity *I'* having a wide portion and a narrow portion forming shoulders *n* *n*, the pivoted rail-clamp mounted in said wide portion of the cavity and limited in its rearward swing by said shoulders *n* *n*, and the locking-block *C'* occupying said narrow portion of the cavity and cooperating with said pivoted clamp to hold the same in position to secure the rail, substantially as set forth.

4. A railway tie having a rail-seat, a cavity formed within the body of the tie adjacent to said rail-seat, journal-grooves at the opposite sides of said cavity, a swinging rail-clamp having pivot-studs occupying bearings at one end of said journal-grooves, said journal grooves being open to permit the introduction of the pivot-studs thereinto, means for holding the pivots of said rail-clamp to their bearings in said grooves, and a locking-block for holding said clamp in position to secure the rail, substantially as set forth.

5. A railway tie, a rail-cushion, a cavity formed within the body of the tie adjacent to said rail-cushion, a rail-clamp pivotally mounted in said cavity, and means for holding said rail-clamp in position to clamp the rail, the pivots of said rail-clamp occupying bearings at the sides of said cavity and re-

tained therein by said rail-cushion, said bearings being opened to permit the insertion or detachment of said pivoted clamp when said rail-cushion is removed from the tie, substantially as set forth.

5 6. The tie A', groove *d*, cavity I', and rail-cushion D, in combination with the journal-grooves *k k* at the side of said cavity communicating with said groove *d*, and the pivoted
10 rail-clamp B' having pivot-studs *j j*, occupy-

ing bearings in said journal-grooves, and retained therein when said rail-cushion is in place, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing
15 witnesses.

THOMAS H. H. MESSINGER.

Witnesses:

CHAS. H. SASSE,

WILBUR L. SASSE.