

1,045,285.

Patented Nov. 26, 1912.

2 SHEETS—SHEET 1.

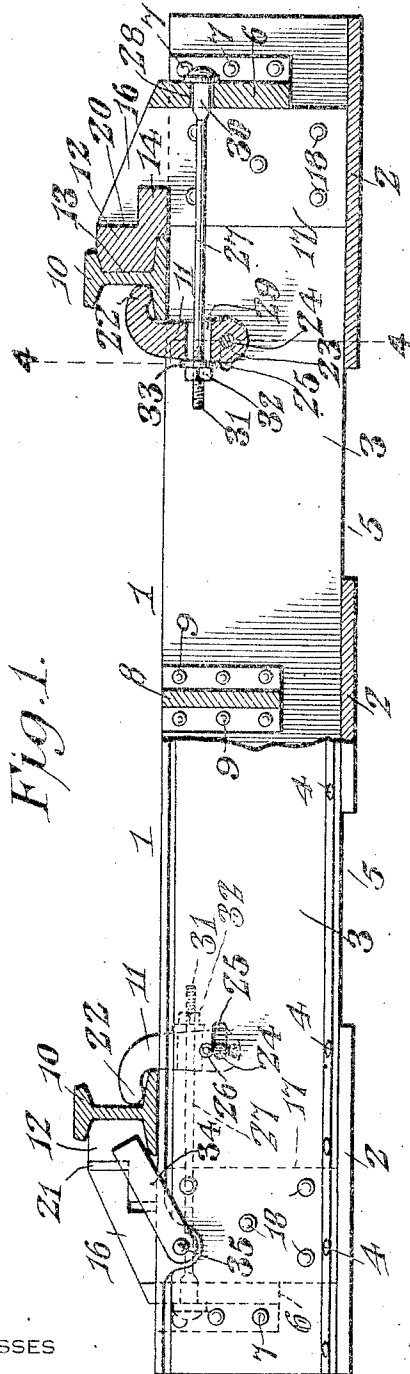


Fig. 1.

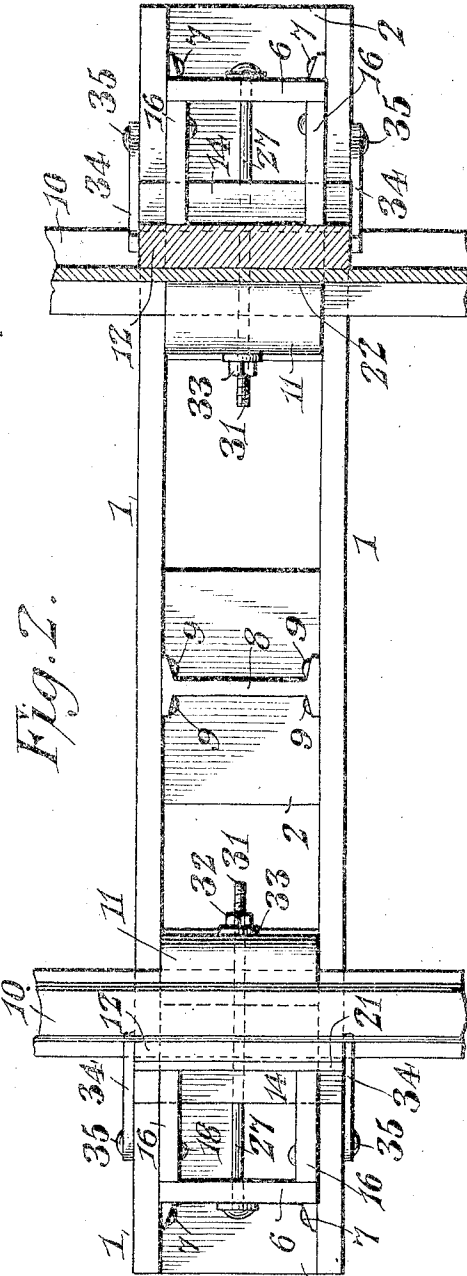


Fig. 2.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

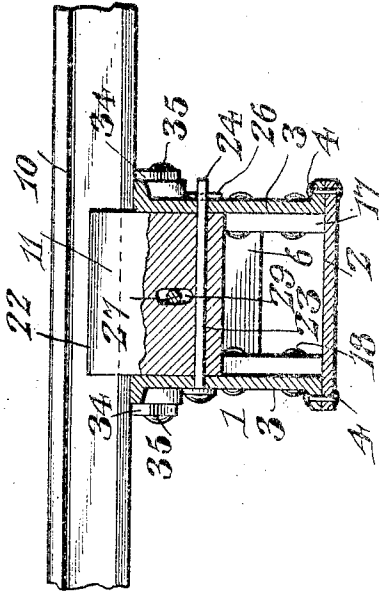


Fig. 7.

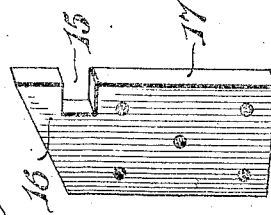


Fig. 3.

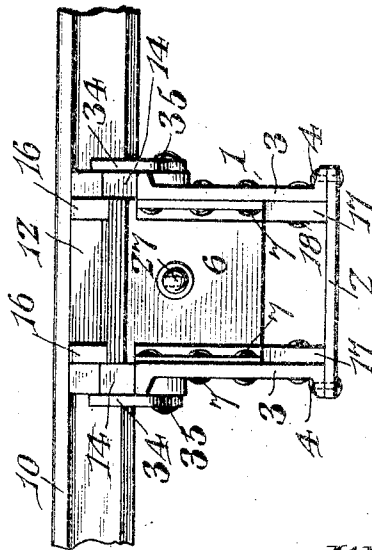


Fig. 6.

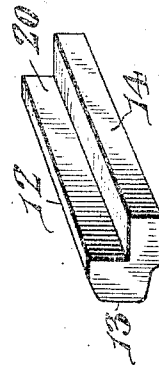
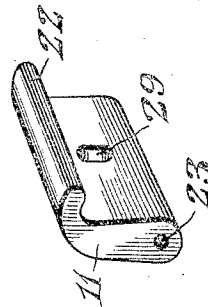


Fig. 5.



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UNITED STATES PATENT OFFICE.

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METALLIC RAILWAY-TIE.

1,045,285.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Application filed February 15, 1912. Serial No. 677,752.

To all whom it may concern:

Be it known that I, WILLIAM H. HAWS, a citizen of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Railway-Ties, of which the following is a specification.

The invention relates to improvements in metallic railway ties.

The object of the present invention is to improve the construction of metallic railway ties, more especially that shown and described in an application filed by me on or about Nov. 16, 1911, and to provide a simple, strong and efficient metallic railway tie, adapted to be easily and cheaply constructed, and capable of being taken out and put in place in a track without removing the adjacent ties, whereby it may be substituted for wooden or other cross ties of a track without tearing up the latter.

A further object of the invention is to provide a metallic cross tie of this character, designed for use on both curved and straight tracks, and adapted as the rail becomes worn to permit the same to be adjusted inwardly to the proper gage without affecting the clamping action of the rail securing means.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a side elevation partly in section of a metallic railway tie, constructed in accordance with this invention. Fig. 2 is a plan view of the same, partly in section. Fig. 3 is an end elevation of the metallic railway tie. Fig. 4 is a vertical sectional view on the line 4—4 of Fig. 1. Fig. 5 is a detail perspective view of the inner clamping jaw. Fig. 6 is a similar view of the outer clamping jaw. Fig. 7 is a detail perspective view of one of the vertical plates, which form projecting lugs or abutments.

Like numerals of reference designate cor-

responding parts in all the figures of the drawings.

In the accompanying drawings in which is illustrated the preferred embodiment of the invention, 1 designates a metallic railway tie approximately U-shaped in cross section and consisting of a horizontal bottom 2 and sides 3, arranged in parallel vertical planes. The sides are constructed of channeled metal and have flat inner faces and are provided at their upper and lower edges with exterior horizontal flanges, the lower flanges being arranged upon the upper face of the bottom 2 and being secured by rivets 4 to the same. The cross tie is preferably provided at the bottom with openings 5 formed by spaced sections or pieces of the bottom plate, but the bottom plate may be continuous and may be provided with any suitable means for engaging the road bed to prevent the cross ties from moving longitudinally or laterally. The sides of the cross tie are connected at their ends by channeled cross bars or braces 6, having their flanged ends fitted against the inner faces of the sides of the cross tie and secured to the same by rivets 7, which pierce the flanges of the end bars or pieces 6. At the center of the cross ties the sides are connected by a brace 8, preferably consisting of a section or piece of an I-beam and having its flanged ends fitted against the inner faces of the sides of the cross tie and secured to the same by rivets 9, piercing the flanges of the central brace and the sides 3 of the cross tie. By this construction, a cross tie of great strength and durability and made up of structural steel or other relatively cheap material is provided; and the expense and loss of material incident to stamped cross ties are eliminated. A cross tie of this construction also possesses the advantage of being adapted to be constructed from perfect portions of defective channeled beams, which would otherwise be discarded. The metallic cross tie may also be braced in any other preferred manner and any number of transverse connecting pieces may be employed, and they are preferably arranged at the upper portions of the sides of the tie and are spaced from the bottom thereof, as clearly shown in Fig. 1 of the drawings.

The upper flanges of the sides of the cross tie provide relatively large bearing surfaces for supporting rails 10, which extend across

and rest upon the upper edges of the cross tie. The rails 10 are detachably fastened to, and securely held on the cross tie by means of inner and outer clamping jaws 11 and 12. The outer clamping jaw 12, which extends across the space between the sides of the metallic railway tie, is arranged upon the upper edges of the same and its inner engaging face 13 fits against the rail at the outer side thereof and conforms to the configuration of the same, the outer clamping jaw preferably extending from the bottom flange of the rail to the lower face of the head thereof. At the outer or rear portion, the clamping jaw 12 is provided with a longitudinal flange 14, located at the bottom of the outer jaw and having flat horizontal upper and lower faces and extending into rectangular recesses 15 of lugs or abutments 16, projecting above the upper edges of the sides of the cross tie and preferably formed by vertical plates 17, secured by rivets 18, or other suitable fastening devices to the inner faces of the sides of the cross tie and extending upward from the bottom of the same. The lower edges of the vertical plates 17 are straight and are arranged in flush relation with the lower edges of the sides of the cross tie and fit squarely against the upper faces of the bottom plates thereof. The outer vertical edges of the vertical plates are fitted against the inner vertical faces of the end braces 6, and their projecting upper portions are preferably tapered, as shown, and the recesses 15, which have horizontal upper and lower edges are located at the inner vertical edges of the plates 17, the lower edges of the recesses 15 being in flush relation with the upper edges of the sides of the cross tie. The flange 14, which is rectangular in cross section, fits snugly in the recesses 15 and when the rail is first placed in position, the flange 14 fits against the inner vertical wall of the recess, and the outer or rear face 20 of the outer jaw is vertical and fits against the inner vertical edges of the plates 17 above the recesses 15. Should the rail be worm at the inner side and it become necessary to move the rail inwardly to preserve the proper gage of the track, the outer jaws may be adjusted inwardly and vertically disposed liner plates 21 may be interposed between the rear vertical faces of the outer jaws and the upper portions of the inner edges of the vertical plates 17. The rectangular character of the recesses 15 and the corresponding shape of the flanges 14 provide an interlocking engagement adapted to prevent any upward or downward movement of the outer jaw in the adjustment thereof, and the inward adjustment of the rails does not affect the clamping action of the inner and outer jaws. One or more liner plates may be employed, and

liner plates of different thicknesses may be used, as set forth in the aforesaid application.

The inner clamping jaw, which is arranged vertically, has an outwardly curved upper engaging portion 22, rounded at the edge to engage the web and bottom flange of the rail, as clearly illustrated in Fig. 1 of the drawings. The inner jaw 11 is provided at the lower portion with a perforation 23 for the reception of a pivot bolt 24, extending through the vertical sides of the cross tie and preferably arranged in horizontal slots 25 thereof to permit an adjustment of the inner clamping jaw. The clamping jaw is adapted when arranged, as shown in the accompanying drawings, to engage the rail at three distinct points, viz., the edge of the bottom flange, the upper face thereof and the web of the rail, and in any adjustment of the jaw the rounded engaging edge will adapt itself to the position of the rail and the jaw and firmly grip the former. The pivot bolt or pin may be secured by any suitable means, such as a split key or cotter pin 26.

The hinged inner clamping jaws are maintained in engagement with the rails by means of longitudinal bolts 27, extending through openings 28 in the end braces 6 and having their inner portions arranged in vertical slots 29 of the inner jaws. The bolt or rod 27 is provided at its outer end with a head and is squared at 30 adjacent to the head to engage the side walls of the opening to prevent the rod or bolt from rotating in the same. The distance from the top to the bottom of the opening 28 is preferably slightly larger than the thickness of the squared portion of the bolt to permit a slight adjustment of the same. The inner end 31 of the rod or bolt is threaded for the reception of a nut 32, and a washer 33 is preferably interposed between the nut and the inner clamping jaw. The slot is located above the pivot and the rod or bolt with its adjustable nut is adapted to draw the inner clamping jaw tightly into engagement with the rail, the vertical slot 29 permitting the necessary relative movement of the parts incident to the pivotal mounting of the inner clamping jaw.

The nuts 32 are adapted to be readily unscrewed from the rods to permit the latter to be withdrawn from the slots of the inner clamping jaws, so that the said jaws may be swung downwardly and inwardly within the cross tie to release the rails. The outer clamping jaws may then be readily driven laterally of the cross tie to remove them therefrom. This entirely disconnects the cross tie from the rails and when the latter are jacked up slightly, the cross tie may be partially rotated to turn the projecting abutments or lugs 16 downward and arrange

them at the side of the cross tie below the plane of the rails. This will enable the cross tie to be readily removed from the track without disturbing the adjacent cross ties, and when it is desired to substitute the metallic cross tie for an ordinary wooden cross tie, or any other cross tie, it may be readily introduced into position by arranging its sides at the top and bottom and inserting it in this position beneath the rails and then partially rotating it to place it in an upright position.

The cross tie is equipped at opposite sides with pivoted gravity catches 34, arranged at an inclination at the outer faces of the sides and connected at their lower ends to the sides of the cross tie by suitable pivots 35. The upper portions of the gravity catches are arranged at and engage the ends of the outer clamping jaws and also the liner plates, and they prevent the same from moving laterally of the rail in either direction. The upper ends of the inclined catches rest upon and are supported by the bottom flanges of the rails, and the said catches are maintained in their engaging position by gravity, and they may be readily swung outwardly to release the outer jaws or the liner plates when desired.

What is claimed is:—

1. The combination of a cross tie having spaced sides and provided with fixed upwardly projecting abutments having horizontal recesses at their inner edges, an outer rail clamping jaw extending across the top of the cross tie and provided at the outer side with a horizontal flange slidable in the recesses of the abutments and interlocking the outer jaw with the same, said outer jaw being removable from the cross tie by sliding it transversely thereof, an inner clamping jaw pivotally mounted between the sides of the cross tie and co-acting with the outer clamping jaw, the inner clamping jaw being adapted to swing within the cross tie, and means for securing the inner clamping jaw in engagement with the rail.

2. The combination of a cross tie having spaced sides and provided with upwardly projecting abutments having inner vertical edges and provided thereat with horizontal recesses located at the upper edges of the sides of the cross tie, an outer transversely disposed clamping jaw extending across and resting upon the upper edges of the sides of the cross tie and provided with outwardly extending horizontal flanges fitting in the horizontal recesses of the abutments, said

outer jaw being slidable transversely of the cross tie to remove it therefrom, an inner rail clamping jaw pivoted between the sides of the cross tie and provided above the pivot with a vertical slot, and a rod or bolt connected at the outer portion with the cross tie and having a threaded inner portion extending through the slot of the inner clamping jaw and provided with a nut.

3. The combination of a cross tie having spaced sides and provided with upwardly projecting abutments having recesses located at the upper edges of the sides, an outer jaw extending across the top of the cross tie and provided with a flange slidable in the recesses, pivoted catches mounted on the exterior of the cross tie and extending upwardly and inwardly across the ends of the outer clamping jaw and supported at their inner ends, and an inner clamping jaw co-acting with the outer clamping jaw.

4. The combination with a rail, of a cross tie having spaced sides supporting the rail and provided with fixed upwardly projecting abutments having recesses at their inner edges, an outer clamping jaw engaging the rail and provided with a flange slidable in the said recesses, said outer clamping jaw being slidable across the top of the rail to remove it, an inclined gravity catch pivoted at its lower end to the cross tie and extending across the end of the outer jaw and having its upper end supported upon the bottom flange of the rail, and an inner jaw engaging the rail and co-acting with the outer jaw.

5. The combination of a cross tie including spaced sides, plates secured to the inner faces of the sides of the cross tie and projecting above the same to form abutments, and provided at their inner edges with recesses, transverse braces connecting the sides of the cross tie and fitting against the outer edges of the said plates, outer jaws extending across the top of the cross tie and interlocked with the recesses of the said plates, inner clamping jaws arranged between the sides of the cross tie and cooperating with the outer jaws, and adjusting means connecting the inner jaws with the transverse braces.

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

WILLIAM H. HAWS.

Witnesses:

JNO. M. ROSE,

JOSEPH W. KOCH.