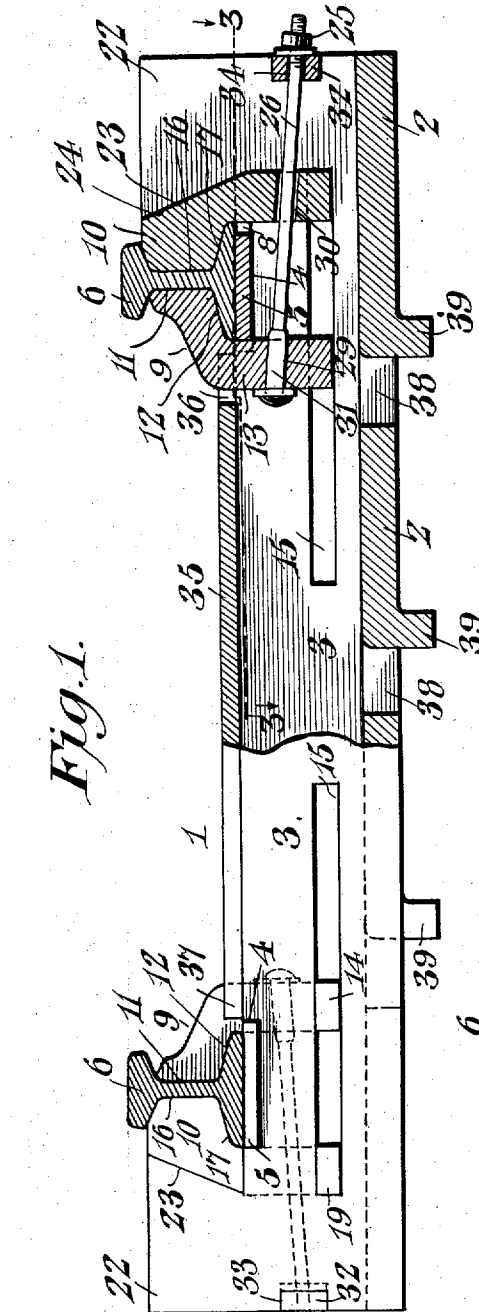


1,018,491.

Patented Feb. 27, 1912.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
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Fig. 3.

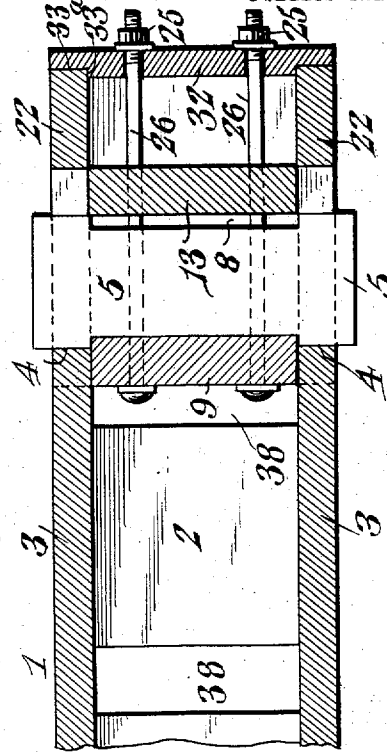
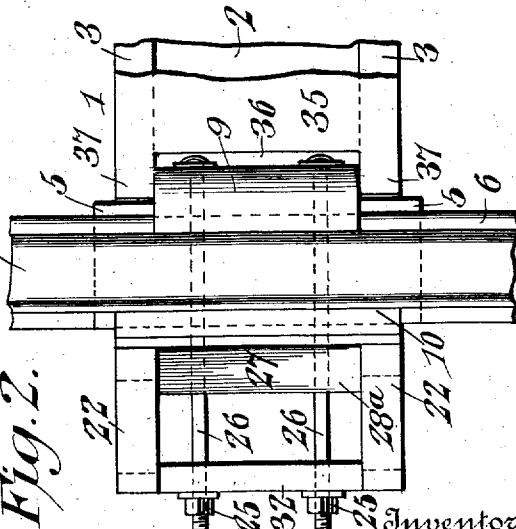


Fig. 2.



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1,018,491.

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2 SHEETS—SHEET 2.

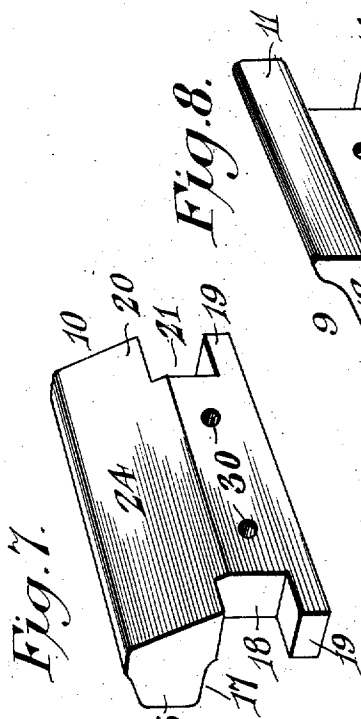


Fig. 8.

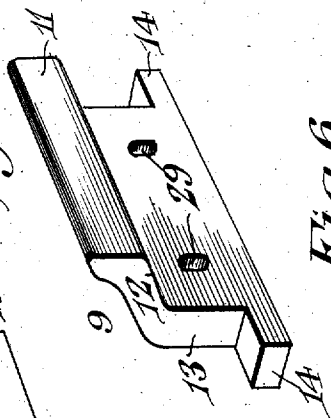


Fig. 6.

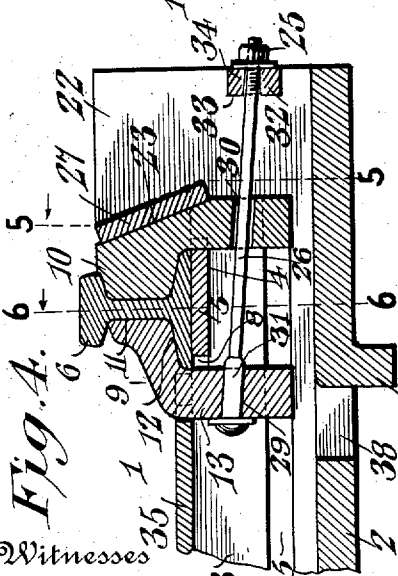
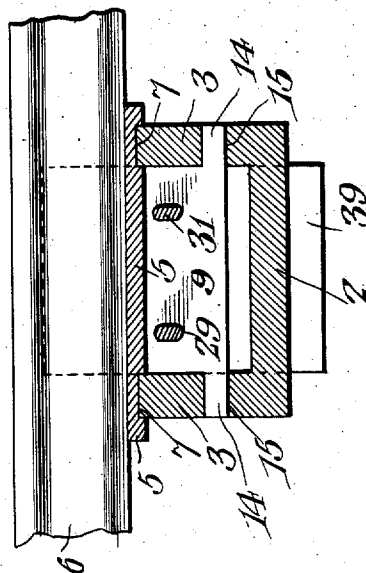


Fig. 4.

Fig. 9.

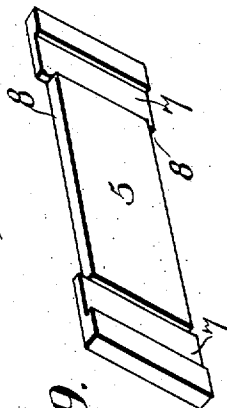
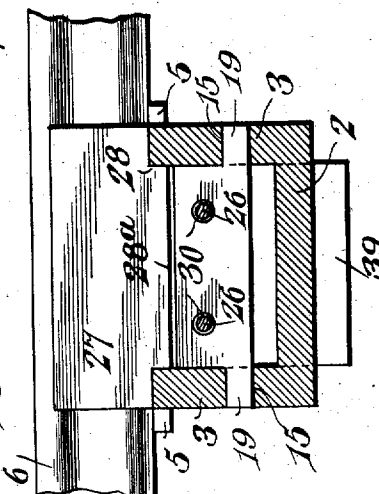


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM H. HAWS, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR OF ONE-EIGHTH TO HERMAN WAGNER AND ONE-EIGHTH TO JONATHAN E. RAGER, BOTH OF JOHNSTOWN, PENNSYLVANIA.

METALLIC RAILWAY-TIE.

1,018,491.

Specification of Letters Patent.

Patented Feb. 27, 1912.

Application filed November 16, 1911. Serial No. 660,739.

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 Patent No. 1,010,756 granted to me Nov. 3, 1911, and to provide a simple, strong and inexpensive metallic railway tie, equipped with means for securely holding the rails at the proper gage and of effectually preventing the rails from spreading or moving inwardly out of position.

A further object of the invention is to provide a metallic railway tie, designed for use on both curved and straight tracks, and adapted as a rail becomes worn to permit the same to be adjusted inwardly to the proper gage, and capable of presenting solid abutments to the rails and of firmly retaining them in their adjustment.

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 one end of the metallic cross tie. Fig. 3 is a horizontal sectional view taken substantially on the line 3—3 of Fig. 1. Fig. 4 is a longitudinal sectional view of one end of the metallic tie. Fig. 5 is a transverse sectional view on the line 5—5 of Fig. 4. Fig. 6 is a similar view on the line 6—6 of Fig. 4. Fig. 7 is a detail perspective view of one of the outer rail clamping jaws. Fig. 8 is a

similar view of one of the inner rail clamping jaws. Fig. 9 is a detail perspective view of one of the rail supporting plates.

Like numerals of reference designate corresponding 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 cross tie preferably stamped or otherwise formed from heavy sheet steel, but it may be constructed in any other manner from any preferred material. The metallic tie, which is approximately U-shaped in cross section, consists of a horizontal bottom 2 and vertical sides 3 formed integral with the bottom. The cross tie is provided in the upper edges of its sides adjacent to each end with transversely aligned recesses 4, receiving rail supporting plates 5, disposed transversely of and bridging the cross tie and presenting flat upper faces to the rails 6. The rail supporting plates, which have their upper faces arranged in flush relation with the upper edges of the sides 3 of the cross tie, are provided in their lower faces with grooves or recesses 7, extending across the end portions of the rail supporting plates and forming inner and outer shoulders, which fit against the inner and outer faces of the sides 3 of the cross tie. The shoulders formed by the grooves or recesses 7 of the plates 5 hold the supporting plates against movement in a direction transversely of the cross tie, and the shoulders formed by the recesses 4 in the sides of the cross tie prevent any movement of the supporting plates in a direction longitudinally of the cross tie. By this construction, the plates 5 are securely interlocked with the cross tie and there is no liability of the plates shifting out of proper position when the rails are in place, and they are subjected to the pressure of the latter.

Each rail supporting plate is provided at its side edges with inner and outer recesses 8, extending along the supporting plate a distance equal to the width of the space between the vertical walls of the cross tie, and adapted to permit a limited adjustment of inner and outer rail clamping jaws 9 and 10. The inner rail clamping jaw is provided at its top rail engaging portion

with vertical and inclined rail engaging faces 11 and 12, conforming to the configuration of the web and bottom flange of the rail 6 and fitting against the same. The upper rail engaging portion of the inner adjustable clamping jaw 9 is of a length equal to the width of the space between the side walls of the cross tie, and the said inner clamping jaw is also provided with a lower vertical portion, fitting between the side walls of the cross tie and interlocked with the same by projecting lugs 14, which extend into opposite slots 15 in the side walls of the cross tie, whereby the inner clamping jaw is slidably interlocked with the cross tie, and is movable inwardly and outwardly on the same. The recess 8 at the inner side of the rail supporting plate is of a size to receive the lower vertical portion of the inner clamping jaw, and when the rail is first placed in position on the cross tie, the said lower portion 13 fits within the inner recess 8 and abuts against the edge of the rail supporting plate, the rail being at the limit of its outward adjustment, and as the rail becomes worn, it is adapted to be adjusted inwardly by the means hereinafter described to preserve the proper gage of the track, and the inner jaw is moved inwardly with the rail as the latter is adjusted. The outer rail clamping jaw 10 is also provided with inner vertical and inclined edges or faces 16 and 17 to fit the web and bottom flanges of the rail 6, and it has a lower vertical portion 18 fitting between the vertical sides of the metallic tie and provided at the bottom with projecting lugs 19, which engage in the longitudinal slots 15 to slidably interlock the outer clamping jaw 10 with the cross tie. The upper rail engaging portion of the outer clamping jaw is provided with terminal extensions 20, fitting over the upper edges of the sides of the cross tie and arranged in spaced relation with the lugs 19, intervening terminal recesses 21 being formed between the lugs 19 and the terminal extensions 20 to receive portions of the sides of the cross tie. The terminal portions 20 of the outer rail clamping jaw extend into the plane of upwardly projecting fixed jaws or abutments 22, projecting from the terminals of the sides of the cross tie and provided with inclined or undercut inner edges 23. The outer face 24 of the upper rail engaging portion of the outer clamping jaw is inclined to fit the inclination of the projecting fixed jaws or abutments 22, and it extends beneath the same so that the fixed jaws or abutments tend to prevent upward movement of the outer clamping jaw when nuts 25 of rods or bolts 26 are tightened to draw the inner clamping jaw into engagement with the rail. The lower portion 18 of the outer clamping jaw is of a size to fit into the outer recess 8,

and it is moved into the same when the rail is adjusted inwardly to compensate for any wear thereon, the rail being adjustable over the entire surface of the supporting plate.

When it is necessary to adjust the rail inwardly to take up the wear incident to the grinding action of the wheels at a curve or other portion of a track, the rail is moved inwardly a sufficient distance to arrange the rails at the proper gage, and the outer clamping jaw is moved inwardly and fitted against the rail, the space between the adjustable outer clamping jaw and the fixed jaws or abutments being filled by means of a liner plate 27.

Liner plates of various sizes or thicknesses are designed to be employed so that a rail at different portions of a curve may be adjusted inwardly the proper distance to preserve the gage and to take up the wear, which is greater at some portions of a curve than at other portions. One or more liner plates may be interposed between the outer clamping jaw and the fixed jaws or abutments, and in order to prevent movement of the liner plates longitudinally of the rails, they are preferably provided with lower terminal recesses 28, receiving the upper edges of the sides of the cross tie and forming a reduced lower portion 28^a, which extends between the sides of the tie, as clearly shown in Fig. 5 of the drawings.

The clamping jaws are provided in their lower portions with openings 29 and 30 for the rods or bolts 26. The rods or bolts 26 have heads at their inner ends and are provided adjacent to the same with enlarged flattened portions 31, conforming to the configuration of and fitting in the openings 29, which are oblong to conform to the configuration of the inner portions 31 of the bolts or rods. The openings 30 of the lower portions of the outer clamping jaws are of greater diameter than the rods or bolts, which are arranged at a slight downward and outward inclination in order to tend to draw the inner clamping jaw downwardly against the rail to prevent upward movement of the same. The outer ends of the bolts or rods, which are threaded to receive the nuts 25, pierce a cross bar 32 preferably consisting of a separate bar or piece, fitted in end recesses 33 of the sides of the cross tie and having terminal recesses 33^a to form shoulders for engaging the inner faces of the sides of the cross tie to prevent the cross bar or piece 32 from moving transversely of the cross tie. The openings 34 of the transverse bar or piece 32 are of sufficient size to permit the necessary play of the rods or bolts 26 incident to the adjustment of the clamping jaws. Washers are preferably arranged to receive the heads and the nuts of the bolts, and the nuts may

be keyed or otherwise secured on the rods or bolts.

The cross tie is equipped with a cap or plate 35, arranged upon the upper edges of the sides and provided with terminal recesses 36, forming projecting end portions 37, which are arranged at the ends of the inner clamping jaws, the recesses 36 providing sufficient space for the adjustment of the jaws 9.

The cross tie may be provided at the bottom with slots or openings 38, and the metal punched from the bottom to form the openings may be extended downwardly to provide flanges 39 for preventing the cross tie from slipping in the ballast, but the bottom of the cross tie may be left smooth, or constructed in any other preferred manner.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination of a cross tie having spaced sides and provided with fixed upwardly projecting jaws or abutments, an outer rail clamping jaw extending across the tie and held against outward movement by the fixed jaws or abutments, an inner adjustable clamping jaw cooperating with the outer clamping jaw to engage a rail, and means for adjustably connecting the inner clamping jaw with the cross tie.

2. The combination of a cross tie having spaced sides and provided with fixed upwardly projecting jaws or abutments, an outer rail clamping jaw extending across the tie and held against outward movement by the fixed jaws or abutments, an inner adjustable clamping jaw cooperating with the outer clamping jaw to engage a rail, means for adjustably connecting the inner clamping jaw with the cross tie, and adjusting means for the outer jaw consisting of a liner plate interposed between the said outer jaw and the fixed jaws or abutments.

3. The combination of a cross tie having spaced sides and provided at its ends with integral upwardly projecting terminal abutments forming fixed jaws and having inclined inner edges, an outer adjustable clamping jaw having an inclined outer face to fit the inclined faces of the fixed jaws or abutments, an inner adjustable clamping jaw cooperating with the outer jaw to clamp a rail, and adjusting means for connecting the inner adjustable jaw with the cross tie.

4. The combination of a cross tie having spaced sides and provided with integral upwardly projecting abutments, an outer clamping jaw having an upper rail engaging portion extending over the upper edges of the sides of the cross tie so as to be held against outward movement by the abutments, said outer clamping jaw being also provided with a lower portion extending between the sides of the cross tie, an inner

clamping jaw cooperating with the outer clamping jaw to clamp a rail and having a lower portion arranged between the sides of the cross tie, and adjusting rods or bolts extending through the lower portion of the outer clamping jaw and connected with the lower portion of the inner clamping jaw and with the cross tie.

5. The combination of a cross tie having spaced sides and provided with integral upwardly projecting abutments, an outer clamping jaw having an upper rail engaging portion extending over the upper edges of the sides of the cross tie so as to be held against outward movement by the abutments, said outer clamping jaw being also provided with a lower portion extending between the sides of the cross tie, an inner clamping jaw cooperating with the outer clamping jaw to clamp a rail and having a lower portion arranged between the sides of the cross tie, a transverse bar or piece extending across the tie and located beyond the lower portion of the outer clamping jaw, and adjusting rods or bolts connecting the lower portion of the inner clamping jaw with the transverse bar or piece and also extending through the lower portion of the outer clamping jaw to retain the same in place.

6. The combination of a cross tie having spaced sides provided with longitudinal slots and having integral upwardly projecting abutments forming fixed jaws, inner and outer clamping jaws having lower portions arranged between the sides of the cross tie and provided with lugs projecting into the longitudinal slots to slidably interlock the clamping jaws with the cross tie, the outer clamping jaw being also provided at its upper rail engaging portion with extended terminals extending over the upper edges of the sides of the cross tie and arranged in the plane of the fixed jaws or abutments so as to be held against outward movement by the same, a transverse bar extending across the tie and connected with the sides thereof, and inclined rods or bolts extending through the lower portions of the clamping jaws and through the transverse bar and adjustably securing the inner clamping jaw to the cross tie and retaining the outer clamping jaw in place.

7. The combination of a cross tie having spaced sides, a rail supporting plate extending across the space between the sides and provided at its inner and outer edges with grooves, inner and outer clamping jaws having lower portions located at the said grooves and movable in the same to permit a rail to be adjusted on the said supporting plate, and means for adjustably securing the inner and outer jaws to the cross tie.

8. The combination of a cross tie having spaced sides provided in their upper edges

with notches, a rail supporting plate extending across the tie and fitting in the notches of the sides thereof and provided with grooves or recesses forming opposite shoulders to engage the inner and outer faces of the sides of the tie, spaced clamping jaws having rail engaging portions extending over the supporting plate to clamp

a rail thereon, and means for adjustably securing the clamping jaws to the cross tie. 10
In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. HAWS.

Witnesses:

H. WAGNER,

JONATHAN RAGER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."