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METALLIC CROSS TIE.

APPLICATION FILED JULY 10, 1908.

923,820. Patented June 8, 1909.

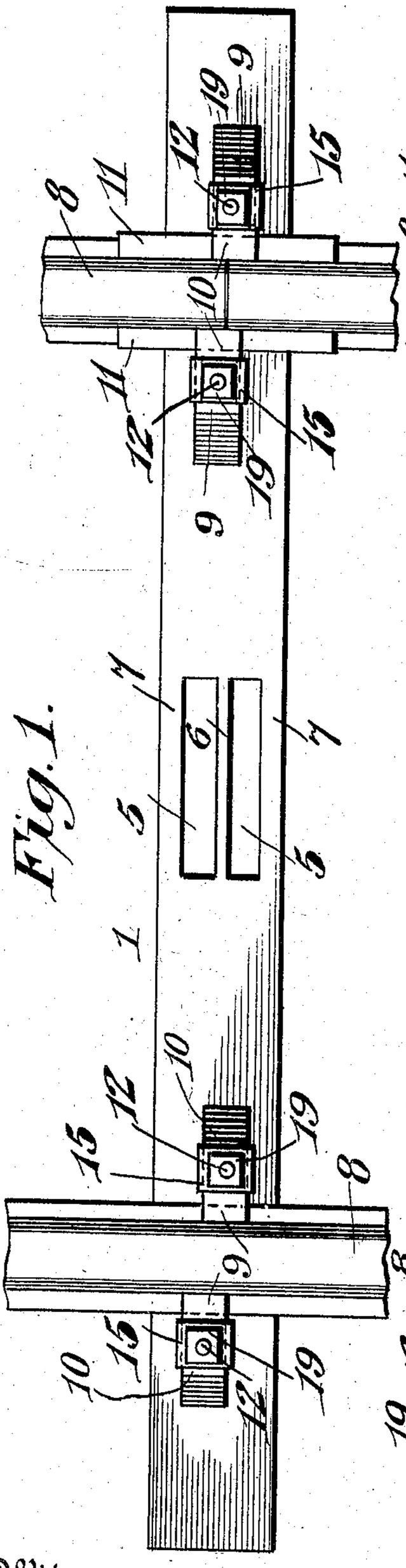

Fig. 1.

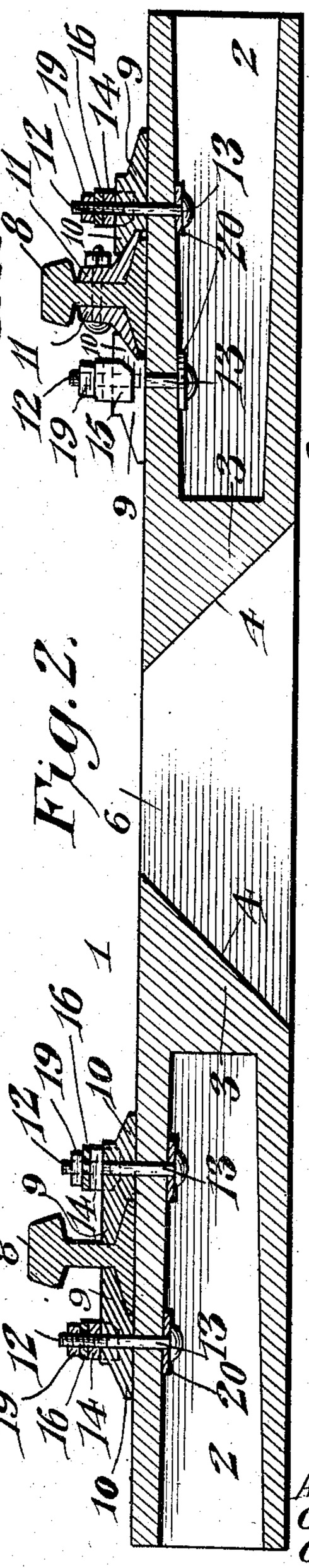

Fig. 2.

Fig. 5.

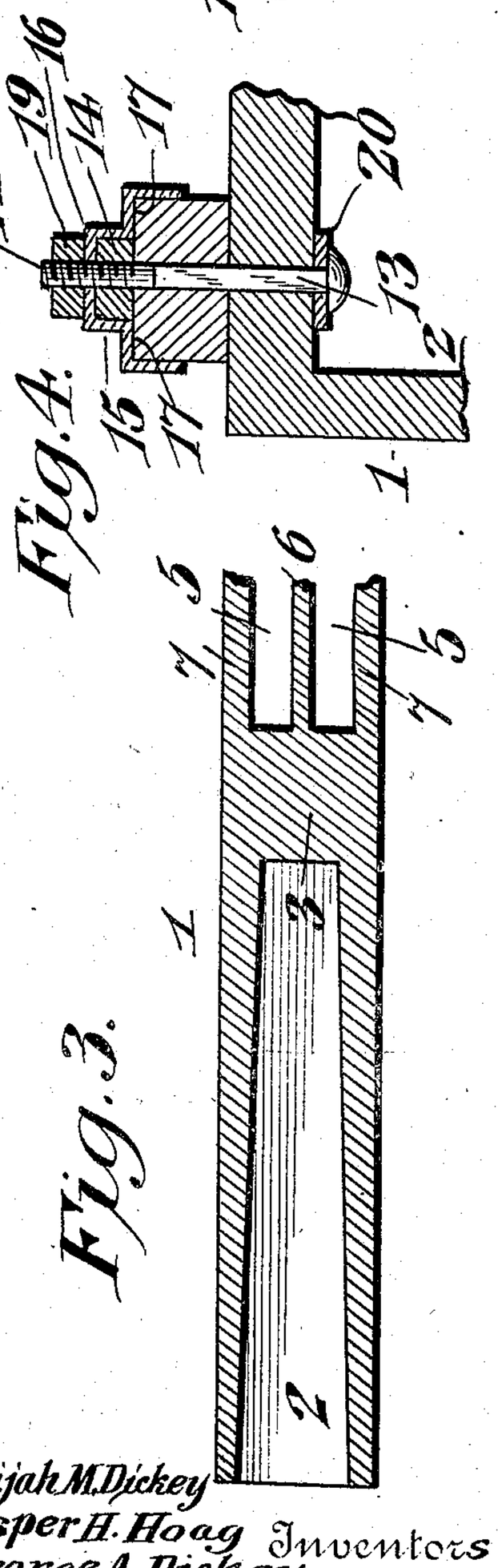

Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

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METALLIC CROSS-TIE.

No. 923,820. Specification of Letters Patent. Patented June 8, 1909.

Application filed July 10, 1908. Serial No. 442,922.

To all whom it may concern:

Be it known that we, GEORGE A. DICKEY, ABIJAH M. DICKEY, and CASPER H. HOAG, citizens of the United States, residing at Judsonia, in the county of White and State of Arkansas, have invented a new and useful Metallic Cross-Tie, of which the following is a specification.

The invention relates to improvements in metallic cross ties.

The object of the present invention is to improve the construction of metallic cross ties, and to provide a simple and comparatively inexpensive metallic cross tie having an opening of the proper size and shape to prevent what is known as center binding of the track, and to relieve the center of the cross tie of undue strain.

Another object of the invention is to provide a cross tie adapted to eliminate the tendency of cross ties to slip sidewise on curves, dumps and similar places, and capable also of withstanding the tendency of the track to spring out of line through variations in temperature.

The invention also has for its object to provide a metallic cross tie of this character equipped with interchangeable track fastening 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 drawing, 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 drawing:—Figure 1 is a plan view of a metallic cross tie, constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a horizontal sectional view of one half of the cross tie. Fig. 4 is an enlarged detail sectional view, illustrating the construction of the track fastening devices. Fig. 5 is a detail perspective view of the locking piece.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

1 designates a cross tie constructed of suitable metal and designed to be manufactured in various lengths to adapt it for supporting switch stands and for use at various points on a railroad track. The cross tie, which is substantially rectangular in cross section, is provided with hollow end portions 2, and it has transverse partitions or walls 3, located at opposite sides of the center of the cross tie and crossing the inner ends of the hollow terminal portions 2, as clearly illustrated in Fig. 2 of the drawing. The transverse walls 3 are downwardly tapered to present inner opposite upwardly inclined faces 4. The top and bottom of the cross tie are open at the center between the transverse walls 4, thereby providing an upwardly tapered opening at the center of the cross tie to permit the ballast to work through and thereby relieve the center of the cross tie of undue strain.

The cross ties are settled into the ballast by the weight of the passing trains, which, with the ordinary construction of cross tie, causes the same to become center bound and break in two at the middle of the track. While settling, the ballast at the sides of the track works away from the ends of the cross ties leaving the ballast in the center of the track more solid than at the sides. The intermediate vertical opening through the cross tie at the center of the track and the inclined faces at opposite ends of the opening permit the ballast to work out through the top of the tie, thereby preventing the strain from concentrating at the center of the tie. This construction besides relieving the center of the cross tie prevents the same from working sidewise in the ballast, and also prevents the track from working sidewise. Long cross ties extending across the double track or beyond the single track to support a switch stand or a tie in it for any other purpose may be equipped with a plurality of intermediate openings.

The central opening, which has opposite side walls 7, is divided into side openings 5 by a central longitudinal connecting web 6, arranged in parallelism with the sides of the cross tie and extending from one transverse wall or portion 4 to the other. The central web, which may be omitted, braces and strengthens the tie at the center thereof. The side walls of the cross tie gradually increase in thickness from the ends of the tie to

the transverse partitions 3, as clearly illustrated in Fig. 3 of the drawing.

The hollow terminal portions of the cross tie are open at their outer ends, and the cross tie, which presents a flat upper face to receive the rails 8, is equipped with reversible interchangeable rail clamps mounted on the upper face of the cross tie at the end portions thereof, and provided with terminal engaging portions 9 and 10. The engaging or clamping portions 9 are of a length to extend to and engage the bottom flanges of the rail 8, and they conform to the configuration of the bottom flange, as clearly shown in Fig. 2 of the drawing. The other terminal clamping portions 10, which are shorter than the clamping portion 9, are of a length to engage the fish plates 11, and they conform to the configuration of the same. The engaging end faces of the clamp are reversely arranged, and the upper and lower edges of the clamps are straight and horizontal to enable either of them to be fitted against the upper face of the cross tie, as the clamps when reversed, are turned up-side down and end for end to change their engaging portions. The clamps are secured to the cross tie by means of vertical bolts 12, having heads at their lower end and provided with squared portions 13, passing through rectangular openings of the top of the cross tie and the clamps. The bolt openings at each end of the cross tie are located the same distance apart to provide the necessary space for the rails and the engaging portion of the clamp, and by use of the long and short terminal engaging portions of the clamps, the latter are reversible and interchangeable, and only one set of perforations is required for each end of the cross tie, as the same perforations may be used when either the clamping portions 9 or the terminal portions 10 are employed. The squared portions of the bolt preferably extend to within a short distance of the upper faces of the clamps, and their upper threaded portions receive lower nuts 14 for engaging the said clamps. The nuts 14 are held against accidental rotation by locking plates or pieces 15, composed of substantially U-shaped top portions 16 and substantially L-shaped lower portions 17. The locking plate or piece 15 is provided with a central opening 18 for the bolt 12, and the upper U-shaped portion fits over and embraces the nut 14. The L-shaped sides 17 extend outward and downward from the U-shaped top portion and engage the clamp at opposite sides thereof. The locking plates or pieces are retained in engagement with the nuts and the clamps by means of upper nuts 19, arranged on the threaded portions of the bolts. The upper nuts have to be removed with a wrench or other tool in order to unscrew the nuts, which engage the clamps. Washers 20 may be interposed between the heads of the bolts and the lower faces of the top of the cross tie, but they can, of course, be omitted, if desired.

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

1. A cross tie provided at an intermediate point with an upward tapered opening extending entirely through the cross tie from the bottom to the top and presenting opposite inclined faces to the ballast, and adapted to permit the ballast to work through the cross tie.

2. A hollow cross tie rectangular in cross section provided at an intermediate point with transverse walls tapered to present inner inclined faces, said cross tie being provided between the walls with an opening extending from the bottom to the top of the tie and tapered upwardly.

3. A hollow cross tie rectangular in cross section provided at an intermediate point with transverse walls tapered to present inner inclined faces, said cross tie being provided between the walls with an opening extending from the bottom to the top of the tie and tapered upwardly, and a longitudinal web connecting the transverse walls and dividing the space between the same into separate openings.

4. A metallic cross tie provided with an opening having end walls presenting inclined faces to the ballast, said cross tie being also provided with hollow terminal portions closed at their inner ends by the said end walls.

5. A hollow metallic cross tie rectangular in cross section provided with spaced transverse walls tapered downwardly and presenting inner opposite inclined faces, said cross tie being open between the inclined faces and having side walls at the open portion, and a central longitudinal bracing web connecting the transverse walls and dividing the open portion into separate openings.

6. The combination with a hollow cross tie, and a rail, of a clamp arranged on the upper face of the cross tie, a bolt piercing the top of the cross tie and the clamp, a nut arranged on the threaded portion of the bolt and engaging the clamp, a locking plate or piece consisting of an approximately U-shaped top portion arranged on the bolt and engaging the said nut, and substantially L-shaped lower portions fitting against the upper and side faces of the clamp, and an upper nut arranged on the bolt and engaging the locking plate or piece.

7. A cross tie provided with reversible and interchangeable clamps having long and short terminal engaging portions, the short terminal portion being of a length to engage a fish plate and the long terminal portion being of a length to extend to and engage a rail.

8. The combination of a cross tie provided at its ends with vertical bolt openings ar-

ranged equal distances apart, reversible and interchangeable clamps having vertical openings and provided with reversely arranged relatively long and short clamping portions adapted to engage either a rail or a fish plate, and fastening devices passing through the said openings for securing the clamps to the cross tie.

In testimony, that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

GEORGE A. DICKEY.
ABIJAH M. DICKEY.
CASPER H. HOAG.

Witnesses:
J. W. HOBBS,
J. COLLISON.