

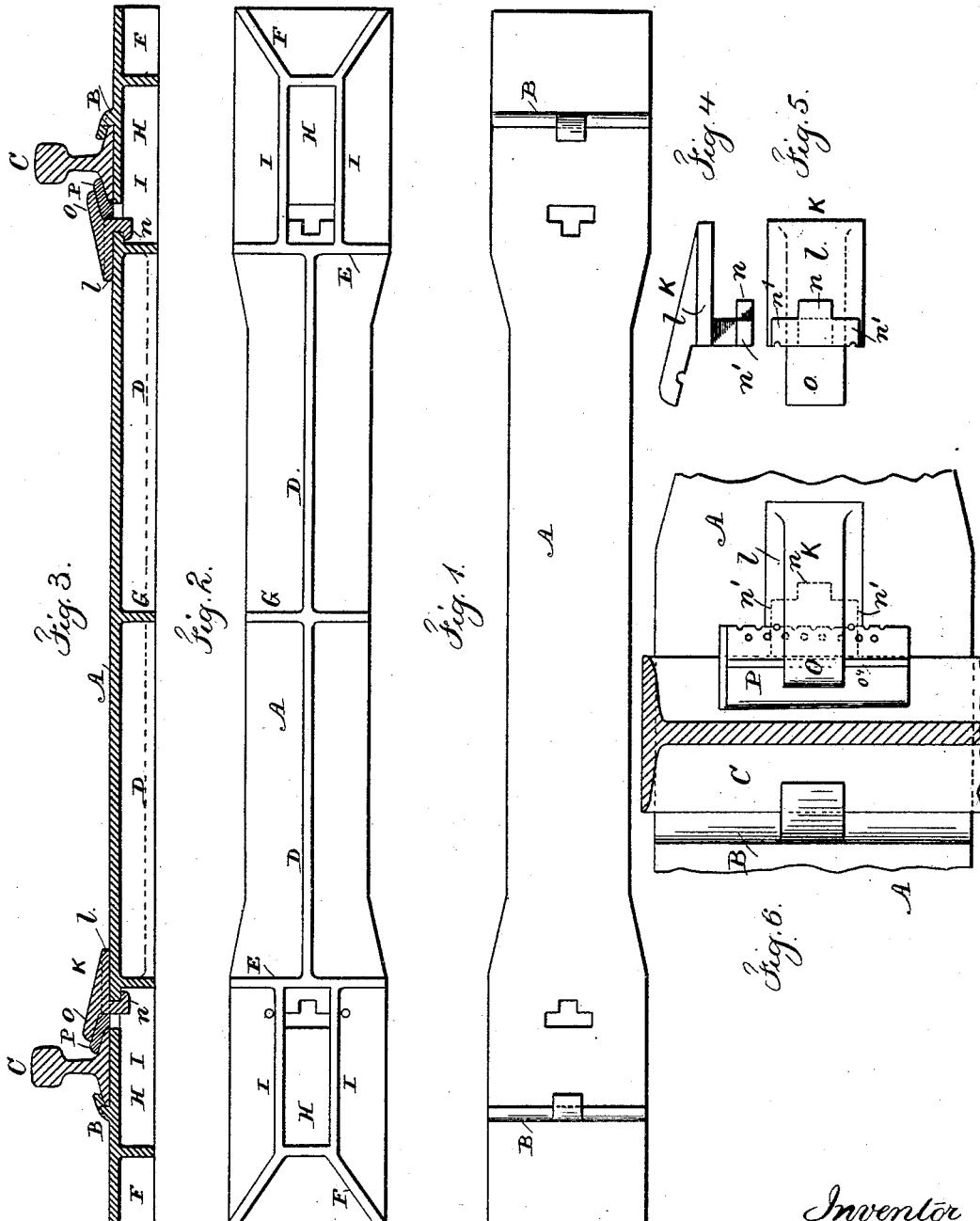
(No Model.)

H. L. DE ZENG.

METALLIC RAILWAY TIE AND FASTENING FOR RAILS.

No. 348,550.

Patented Sept. 7, 1886.



Witnesses

Chas. H. Smith

J. Stark

Inventor

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# UNITED STATES PATENT OFFICE.

HENRY L. DE ZENG, OF GENEVA, ASSIGNOR TO HIMSELF, AND ALBERT G. LUCAS, OF UTICA, AND WILLIAM D. BURRALL, OF WATERLOO, NEW YORK.

## METALLIC RAILWAY-TIE AND FASTENING FOR RAILS.

SPECIFICATION forming part of Letters Patent No. 348,550, dated September 7, 1886.

Application filed January 18, 1886. Serial No. 188,832. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY L. DE ZENG, of Geneva, in the county of Ontario and State of New York, have invented an Improvement in Metallic Railway-Ties and Fastenings for Rails, of which the following is a specification.

The object of my present invention is to facilitate the tamping of metallic railway-ties, and to effectually secure the tie from slipping either laterally or endwise under the action of passing trains. I also construct the tie with openings for movable clip-pieces, that allow for the insertion or removal of the rail, and make the bottom flanges of the cross-tie in such a manner as to form boxes that surround the openings through the tie and prevent the earth or stone filling the space required for the hooks of the movable clip-pieces during the tamping operation. I also provide a wedge for holding down the flange of the rail, such wedge having serrations along on one edge for the reception of a pin that prevents the wedge working loose.

In the drawings, Figure 1 is a plan of the tie. Fig. 2 is an inverted plan of the same. Fig. 3 is a longitudinal section of the tie and rails complete. Fig. 4 is a side view, and Fig. 5 an inverted plan view of the movable clip-piece; and Fig. 6 is a plan of the wedge and clip-piece applied to a rail. In Figs. 4, 5, and 6 the parts are shown in larger size than in the other figures of the drawings.

The cross-tie A is of metal, preferably cast-steel. The upper surface is level, except the transverse ribs B, that run along the sides of the rail-bases, outside the same, to prevent the rails C spreading; but the top plate of the tie, near the middle, may be depressed, as shown by dotted lines in Fig. 3.

The tie is usually made the widest at the ends and narrower in the middle, as shown, and upon the under side is the central longitudinal flange or rib, D, transverse ribs E, and diverging end ribs, F, and I usually provide a central transverse rib, G. These flanges or ribs E F G strengthen the tie-plate and prevent any movement of the tie transversely to the track, especially on curves, and the flange D prevents any motion of the tie longitudinally of the track. These flanges do not interfere with the tamping, because the earth or stone

can be rammed in beneath the tie from the sides and from the ends.

I provide openings through the tie for the reception of the clip-pieces that hold the rails, and in order to prevent the earth or ballast interfering with the insertion or removal of the clip-pieces I make a bottomless box at H, between the flanges E and F, which are at the requisite distances apart, and these are connected by the short flanges I to form the sides of the boxes.

Each clip-piece K is made with a bearing-plate, L, to rest upon the surface of the tie, a downward projection with a T-head, N, or hook to catch beneath the cross-tie, and with an inclined hook, O, to catch over the flange of the rail C and hold the same. Clip-pieces of this character may be provided for each side of each rail-flange; or the hook for the outside of each rail may be cast upon the cross-tie, and the hook O, that comes over the rail-flange at the inside of the rail, is sufficiently above the same to allow for the insertion of the wedge or key P, which is slightly tapering, so as to secure the parts firmly in place, and the outer edge of this key is serrated or notched at short intervals, and in the plate L of the clip are one or more notches, so that when the key has been driven into a place where one notch on the key coincides with one notch on the plate an opening is formed, into which a bolt, spike, or pin is placed to prevent the wedge moving endwise and becoming loose.

The hook N extends backwardly, so as to pass beneath the top plate of the metallic cross-tie and aid in holding down the clip-piece against the action of the wedge P, and I also use the side hooks, N', that pass beneath the tie-plate or beneath hooks on the same, as shown. The clip K may have two hooks, O, upon it, if desired.

The wedge P has by preference a row of holes intermediate in positions to the notches upon the edges. The bolt, spike, or pin may be inserted through one of these holes, and there may be a rib, O', upon its upper surface to enter a groove in the under side of the hook O, as shown.

I claim as my invention—

1. The metallic railway cross-tie having a

top plate, a central flange, D, cross-flanges E, and diverging end flanges, F, on the under side, substantially as set forth.

2. The metallic cross-tie for railways, having a top plate that is broad at the end portions and narrower in the middle portions, a central flange, D, upon its under side, with cross-flanges E, and flanges forming bottomless boxes around the openings in which the clips are secured, substantially as set forth.

3. The combination, with the rails and metallic cross-ties having mortises through them, of movable clip-pieces having hooking ends that pass down through mortises in the ties and overhanging hooks O, and the wedge-shaped keys notched on one edge for the reception of pins or bolts, substantially as set forth.

4. The combination, with the rails, of movable clip-pieces having hooks upon their under sides, and metallic cross-ties having mortises into which such hooks are passed, and flanges on the under sides of such cross-ties surrounding the mortises and forming bottomless boxes, substantially as set forth.

5. The combination, with the tie-plate, of clip-plates to hook over the flange of the rail, and a wedge-plate to be driven in between the flange and the clip, there being notches in the wedge for the insertion of a holding pin or bolt, substantially as set forth.

6. The clip-plate having a hook upon the under side and lateral projections, in combination with the tie-plate, into which the hook and lateral projections engage, substantially as set forth.

7. The combination, with a rail, of a clip having a hook to pass over the rail, and lateral projections, and a tie-plate having hooks beneath which the lateral projections pass, substantially as set forth.

Signed by me this 16th day of December, A. D. 1885.

HENRY L. DE ZENG.

Witnesses:

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GEORGE G. CODINGTON.