

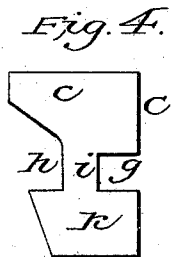
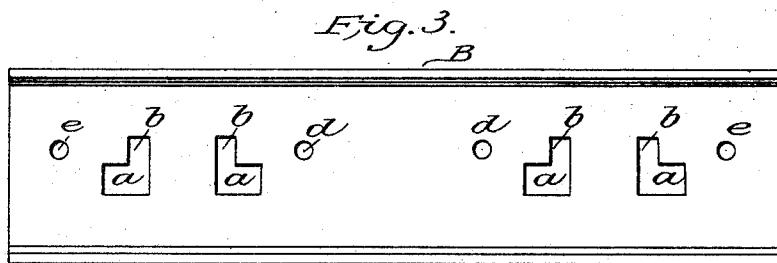
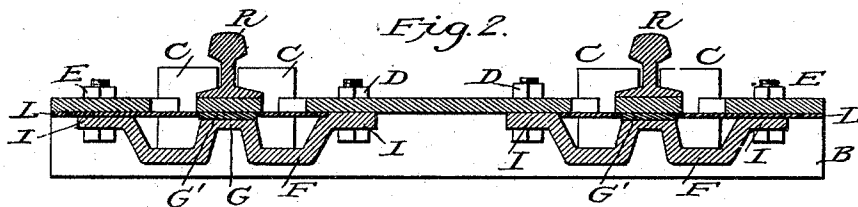
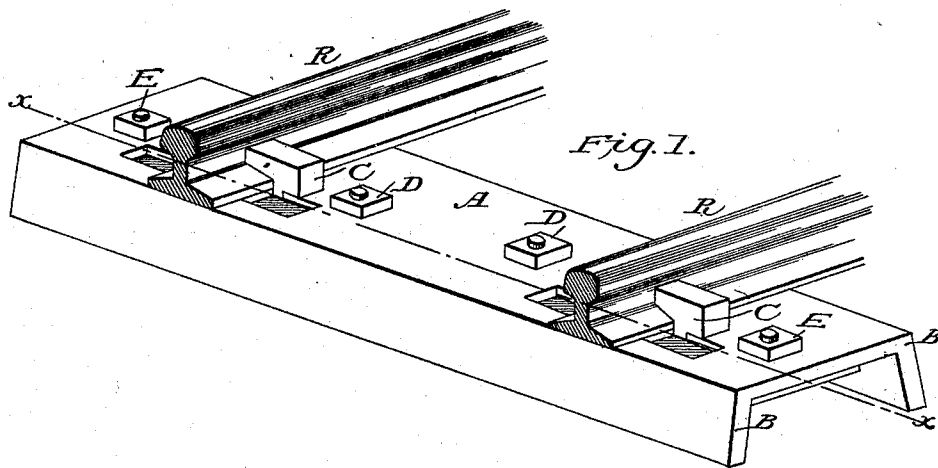
(No Model.)

2 Sheets—Sheet 1.

J. P. LANCASTER.
METALLIC RAILWAY TIE.

No. 502,464.

Patented Aug. 1, 1893.



Witnesses:

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Amos J. Jones

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(No Model.)

2 Sheets—Sheet 2.

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Fig 5

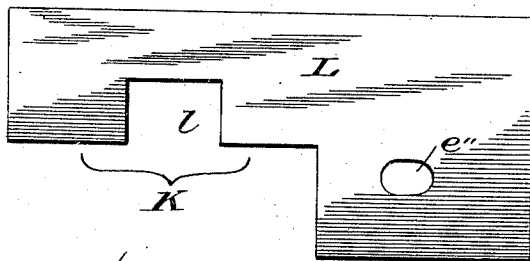


Fig 6

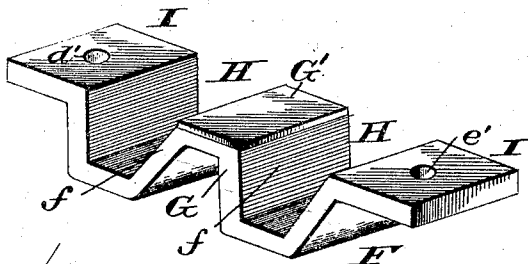


Fig 7

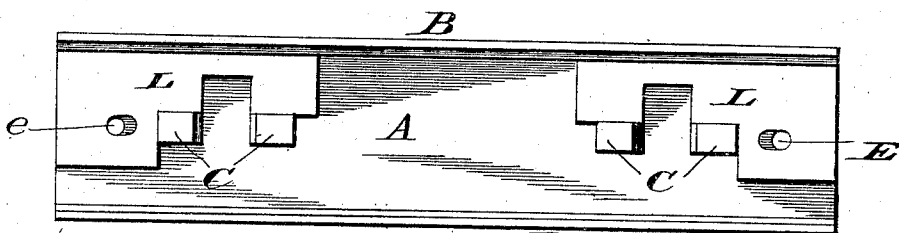
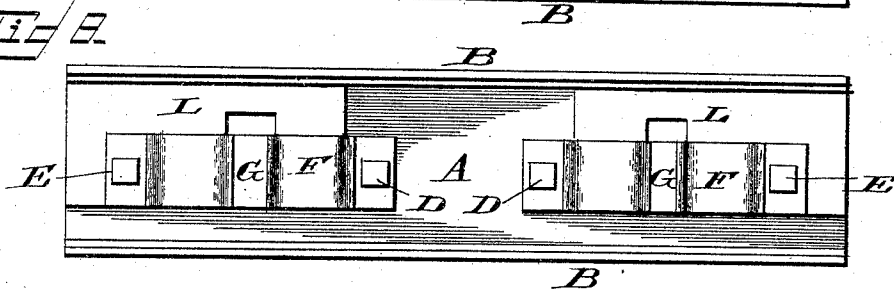


Fig 8



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN P. LANCASTER, OF CLEVELAND, OHIO, ASSIGNOR OF THIRTY-THREE SIXTY-FOURTHS TO SAMUEL PROSKEY AND FREDERICK ALEXANDER, OF BROOKLYN, NEW YORK.

METALLIC RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 502,464, dated August 1, 1893.

Application filed March 21, 1892. Renewed January 6, 1893. Serial No. 457,548. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. LANCASTER, a citizen of the United States, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Metallic Railway-Ties; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my metal tie, showing the rails and their fastenings in position upon the same. Fig. 2 is a longitudinal sectional view on the vertical plane indicated by the broken line marked $x-x$ in Fig. 1. Fig. 3 is an inverted plan view of the tie with the rails and rail-keys or fastenings removed. Fig. 4 is a detail view (in side elevation) of one of the rail-keys, removed from the tie. Fig. 5 is a detail view (plan) of the plate or lock for locking the keys to the rails and tie. Fig. 6 is a perspective view of the cushioned bridge-piece, removed from the tie. Fig. 7 is a view of the under side of the tie, with the keys and lock-plate in their operative position, but with the "bridge" or cushioned bearing removed; and Fig. 8 is a plan view of the under side of the tie, showing the device complete, with the bridge, lock-plate and keys (concealed from view by the bridge) in position.

Like letters of reference denote corresponding parts in all the figures.

My invention relates to all-metal (preferably steel) ties for railways, and consists in an improved construction of a tie of that type, and in the combination therewith of the devices for securely fastening the rails to the tie, as will be hereinafter more fully described and claimed.

Referring to the accompanying two sheets of drawings, the letter A designates the flat top and B B the parallel slightly flaring side-construction. The top A has two L-shaped flanges of a rolled steel tie of my improved slots or openings at each end, on opposite sides

of the places where the rails are to be bedded on the tie, each of said openings comprising a rectangular aperture a and a narrow slot, b , at one end of and at right angles to the aperture a , thus together forming the L-shaped openings $a b$ at opposite sides of the rails R. The rails are fastened upon the flat top of the tie by keys C (Fig. 4), one on each side; each key comprising a head c , and neck i , and shoe or bottom part k . The head or top-part c , which projects above the top of the tie and overlaps the contiguous rail-flange, is beveled on the under side to conform to the shape of the flange (or to the shape of the angle-plate at rail-joints, if such are used), and the shoe k is also made sloping on the same (inner) side, so as to form a wedge, the purpose of which will be described later on. At one side of the narrow part or neck i is a recess, g , and on the opposite side, between the head c and shoe k , is another recess h , adapted to fit the rail-flange or angle-iron, as the case may be.

To the under side of the flat top A is fastened, by nutted bolts D and E, the cushioned bearing or bridge-piece F. This consists of a plate of metal bent into the shape shown in Figs. 2 and 6, so as to form a central raised part or saddle, G, separating the depressed parts which form side-recesses H H having end flanges I I. Said end-flanges I have holes d' and e' drilled through them, coinciding with the bolt holes d and e in the tie for the insertion of the fastening bolts D and E. When the bridge-piece F is bolted to the under side of the tie, it will be seen that the raised middle part or saddle G comes directly under that part of the tie on which the rails are bedded, so that the cushion G'—which may be of wood, rubber, or other suitable material—will bear against the under side of the tie at that point, thus giving an elastic support to the rail. After the rails have been placed on the tie, they are fastened down immovably by means of the keys C, which are dropped from the top of the tie through the aperture a and then pushed into the connecting slot b , so that the key-recesses g and h will interlock with the top of the tie on opposite sides of the slot b , thus preventing the

key from being withdrawn in an upward or downward direction, unless it is pushed back into the larger aperture *a*. But this is prevented by the lock-plate L (see Figs. 5 and 7), the extension K of which will, when this plate is in its operative position, bear against the adjacent sides of the rail-keys C. A bolt-hole *e''*, is cut through this plate for the insertion of bolt E, by which plate L is locked in position, and which also, as we have seen, forms a fastening for one end of the bridge-piece F. In order to save material and also make room for the saddle and cushion of said bridge-piece, plate L is cut out, as shown at *l* in Fig. 5, on the side facing the keys.

If it is desired to remove a rail, bolt E is withdrawn, which permits of the lock-plate L being slipped out endwise. This lays open the apertures *a a*, on opposite sides of the rails, so that the keys CC can be pushed into them sidewise and then removed by pulling them up through the apertures, which unfasten the rails. To lock or fasten the rail to the tie, this operation is simply reversed, and here comes into play the sloping sides *f f* of the bridge-piece F, which, bearing against the wedge-shaped shoes *k* as these are forced down into position, have a tendency to slightly tilt or turn the keys upon the neck *i* as a center so as to cause their heads *c*, which overlap the rail-flanges on opposite sides, to bear down upon and bind said flanges with very great pressure, thus holding the rail firmly and immovably to its position on the tie.

From the foregoing description, taken in connection with the drawings, it will be seen that

this tie is exceedingly simple in construction, as well as very strong and durable. All of the parts are metal (preferably steel) and of such shapes that they can readily be rolled or stamped from suitable blanks.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination with the tie of the bridge-piece below its flat top, having a cushioned saddle bearing against the under side of that part of the tie on which the rail is to be bedded, substantially as and for the purpose set forth.

2. The combination of the slotted tie, the removable keys, the locking-plate, and the bridge-piece, substantially as and for the purpose set forth.

3. The combination of the tie constructed as described; the keys comprising the heads adapted to overlap and bind against the rail-flanges, a narrow middle-part or neck, and a wedge-shaped bottom part or shoe; the bridge-piece having a central raised part or saddle with sloping sides; the locking-plate and the bolts; all constructed and arranged to operate substantially as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOHN P. LANCASTER.

Witnesses:

AUGUST PETERSON,
ARTHUR B. SEIBOLD.