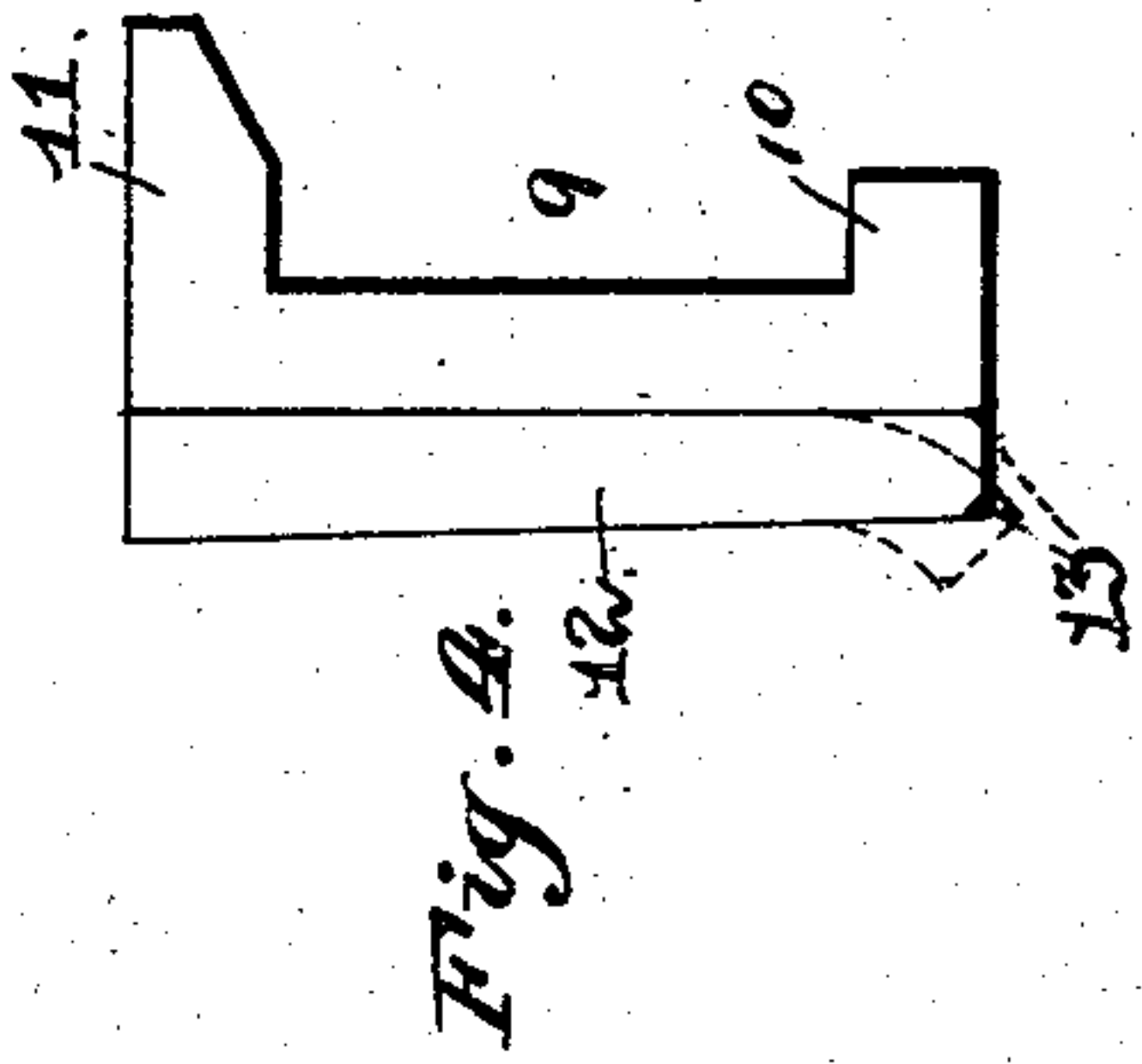
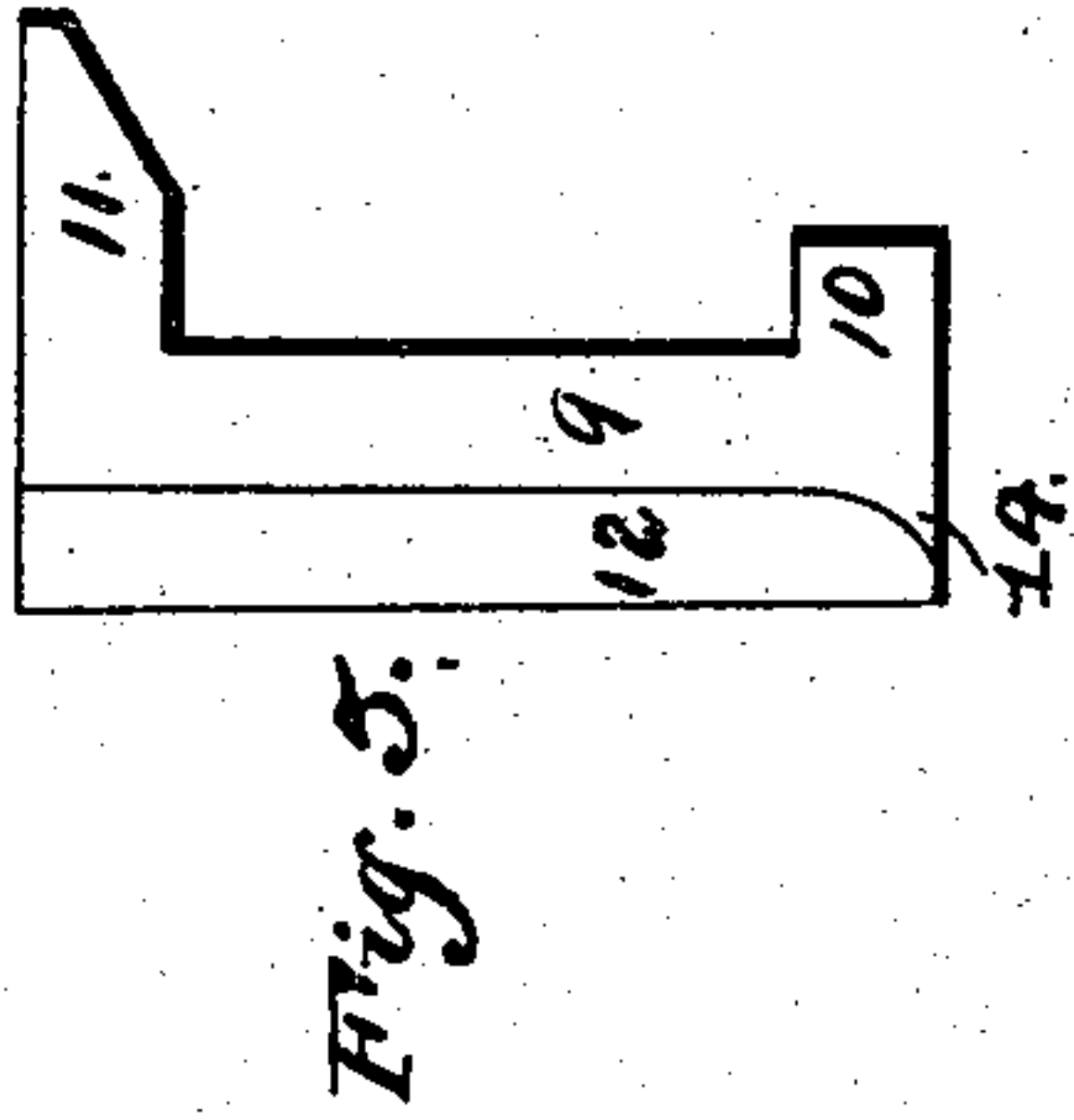
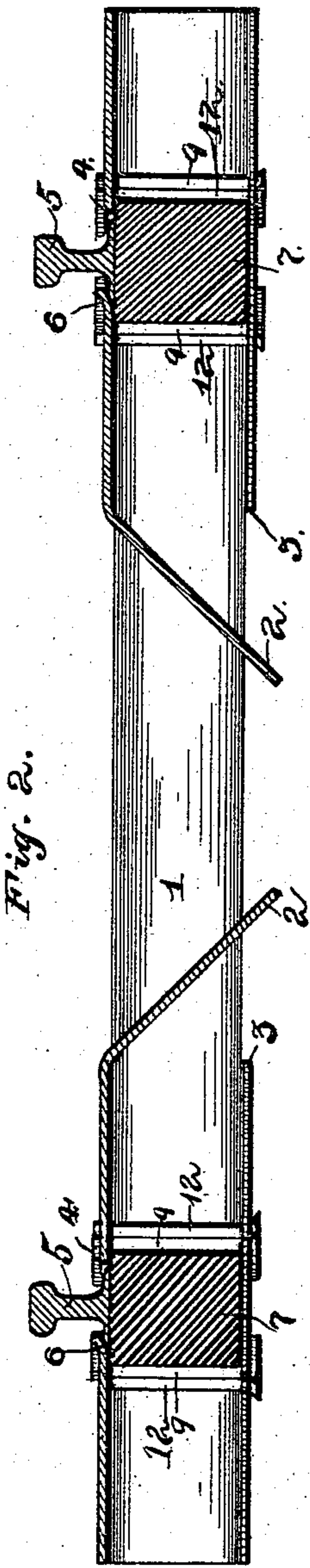
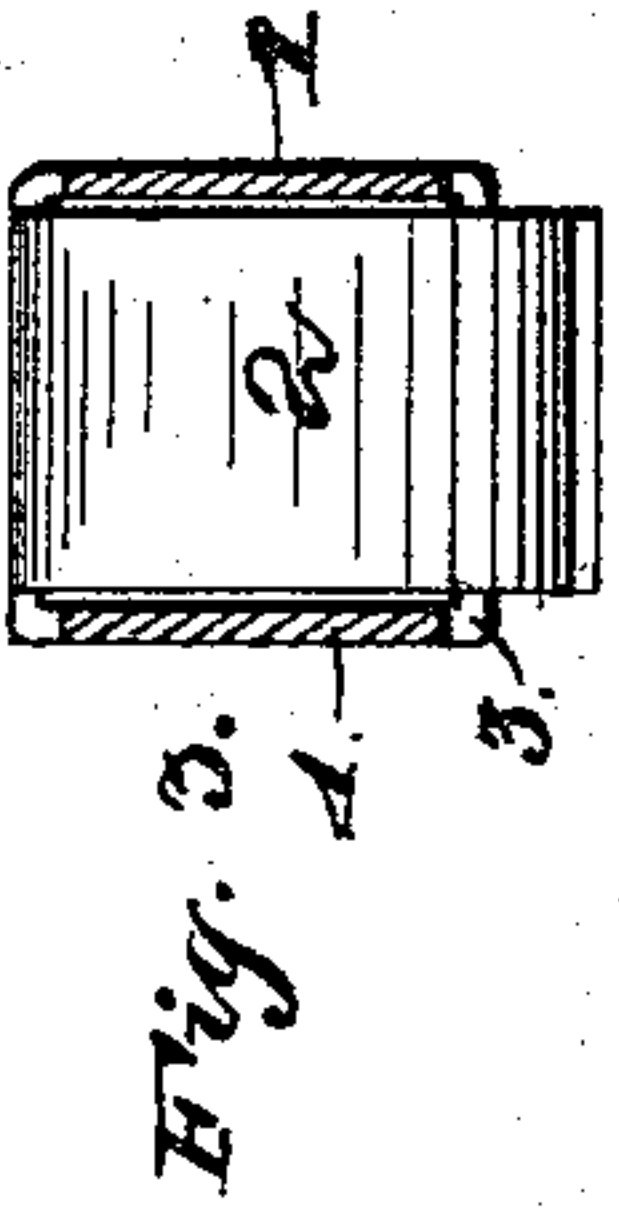
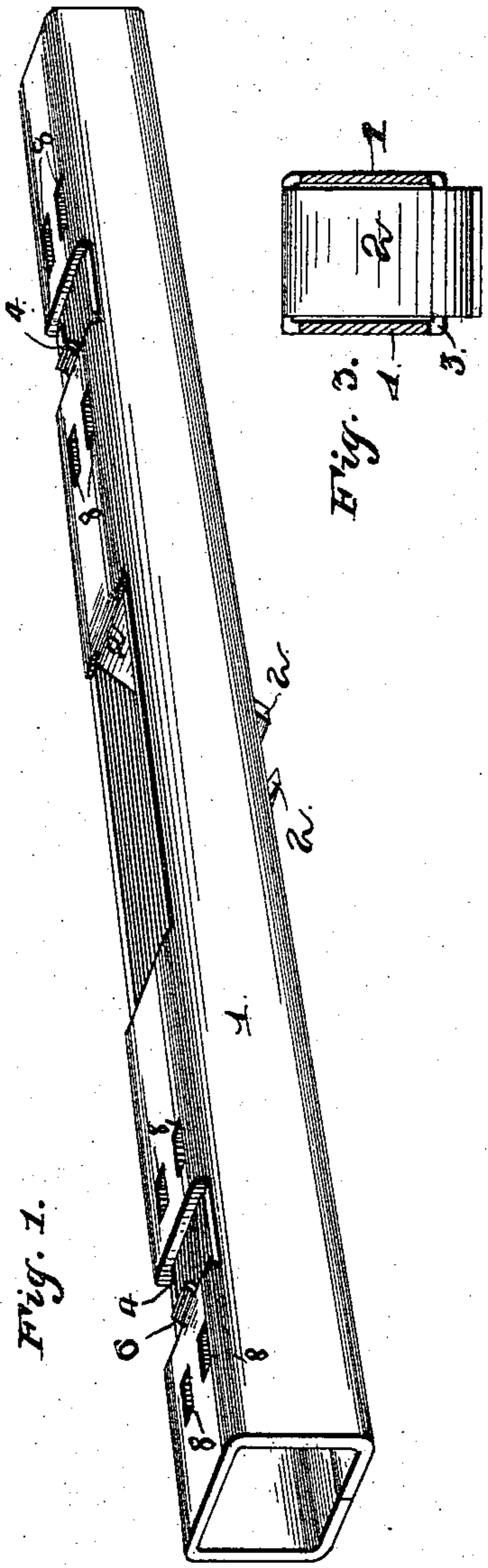


(No Model.)

A. M. KRAMER.
METAL RAILROAD TIE.

No. 438,764.

Patented Oct. 21, 1890.



Witnesses:

- Brace & Sitz -

W. J. L. Swale.

By his Attorneys,

Inventor

Arthur M. Kramer,

Cash on h/o.

UNITED STATES PATENT OFFICE.

ARTHUR M. KRAMER, OF UNIONTOWN, PENNSYLVANIA.

METAL RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 438,764, dated October 21, 1890.

Application filed June 18, 1890. Serial No. 355,852. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR M. KRAMER, a citizen of the United States, residing at Uniontown, in the county of Fayette and State of Pennsylvania, have invented a new and useful Metal Railroad-Tie, of which the following is a specification.

This invention has relation to metal railroad-ties; and the objects in view are to provide an extremely simple easily-manufactured tie of great durability, strength, &c., and to which the rails may be readily and rigidly connected against any accidental disconnection or spreading.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a tie constructed in accordance with my invention. Fig. 2 is a longitudinal section of the same, rail-sections being thereon. Fig. 3 is a transverse section through the center of the tie. Fig. 4 is an elevation of the rail-clamping pin and its locking-key before and after locking. Fig. 5 is a similar view of a modified construction of locking-key and clamp.

Like numerals of reference indicate like parts in all the figures of the drawings.

In practicing my invention I construct the tie of sheet metal and rectangular in cross-section, the tie-blank being folded longitudinally at intermediate points of its side edges, as shown. Previous, however, to the folding process, as above described, the openings punched therefrom are formed.

A transverse cut is formed in the upper side of the center of the tie 1, and said cut intersects opposite longitudinal and parallel cuts, and the metal thus cut is punched downward or depressed to form a pair of downwardly and inwardly disposed inclined anchoring tongues or plates 2. The lower portion or bottom of the tie has an oblong opening 3, which corresponds with the combined length of the tongues, and through said opening the tongues depend and are continued a slight distance below the bottom, so that they take into the road-bed and form an anchorage for the tie that prevents it from slipping. The space between the tongues is provided with

a filling, as is also the tie itself, with the exception of those portions thereof occupied by elements of construction to be hereinafter described.

At proper distances apart and at each side of the center of the tie the same is provided upon its upper side with an opening 4 of a width agreeing with that of the base of the rail 5. A portion of the metal is left at the outer sides or edges of the opening, which metal forms an upwardly inclined or disposed tongue 6, said tongue being adapted to embrace the outer edge of the rail-section. In practice I prefer to locate within the tie and under the openings 4 cushions 7, which cushions may be either blocks of wood, rubber, soft metal, or of other desired material calculated to absorb the jar and prevent unnecessary noise, as would be the case where metal comes against metal. The noise will also be materially deadened by the road-bed or tamping with which the tie is filled. Beyond the edges of each opening 4 and at each side of its longitudinal center are punched oblong openings 8 both in the top and bottom of the tie, those openings of the upper or top portion being in vertical alignment with the corresponding openings in the lower or bottom portion.

9 designates a rail-clamping pin, said pin consisting of a central stem or straight portion of a length agreeing with the vertical depth of the tie, said stem portion terminating at its lower end in a right-angularly-disposed foot 10 and at its upper end in a head 11, the inner lower edge of which is undercut or inclined to overlap or embrace the inner edge of the base of the rail-section. The length of the foot portion 10 of the clamp is sufficiently small to permit the downward insertion of the foot through the openings 8, there being provided one clamp for each opening.

12 designates a wedge or pin, which, after the rail is in position and the clamps in their respective openings, is inserted in each of said openings in rear of the clamps and occupies those portions of the openings not occupied by the stems of their respective clamps, so that by driving the pin into position the clamps are forced toward the rails and snugly embrace the opposite edges of the rails thereof. The inner lower edges or ends of the pins 12

are slightly beveled, as at 13, so that a crow-bar of suitable construction may be inserted under the tie and its end between the pin and clamp at the beveled portion of the former.

5 Severe blows of the hammer or sledge upon the locking-pin will serve to deflect the lower end of said pin or turn the same slightly from the clamp and under the tie, so that its withdrawal or liability to work loose is impossi-
10 ble and a most secure fastening is provided.

If desired, I may omit the lip 6 and simply employ the opposite pair or pairs of opposite clamps and pins, or I may employ the lip at one side and the clamps and pins at the op-
15 posite side.

Referring to Fig. 5, in which I have illustrated a slightly-modified form of clamp, it will be observed that the only difference is that the lower end of the clamp is provided
20 with an inclined lug 14, against which the lower end of a key 12—beveled or not, as desired—may be driven and thereby turned.

From the above description it will be apparent that I have provided an extremely
25 simple, strong, rigid, and durable tie, which may be cheaply manufactured and connected with the rails.

Having thus described my invention, what I claim is—

30 1. The combination, with a sheet-metal tie provided with opposite rail-receiving openings, one edge of each of which is struck up to form an inclined tongue, of the rails mounted in the openings and having their bases
35 overlapped by the tongues, and spikes driven through the tie at each side of the bases and at each side of each of the tongues, substantially as specified.

2. A metal tie rectangular in cross-section,
40 provided with a lower opening and having its

top provided with a pair of inwardly and downwardly disposed anchoring tongues or plates depending through and below the opening in the bottom, substantially as specified.

3. A sheet-metal tie rectangular in cross- 45 section and provided upon its upper side with openings for the reception of the rails and at each side of its openings with oblong openings, in combination with rails mounted in the first-mentioned openings, a clamping-key 50 having at its lower end a foot adapted to take under the tie and at its upper end an undercut head to take over the base of the rail, one of such keys mounted in each of the oblong openings, and wedge-shaped keys mounted in 55 said openings in rear of the clamping-key, substantially as specified.

4. A sheet-metal tie provided with opposite pairs of oblong openings, said tie being hollow and rectangular in cross-section, so 60 that the openings of the top align with those of the bottom, rail-sections mounted between the openings, clamping-pins mounted in each of said openings and provided at their lower ends with inwardly-disposed feet taking un- 65 der the tie and at their upper ends with undercut heads taking over the bases of the rails, and wedge-shaped locking-pins driven in said openings in rear of each clamping-pin and having their lower ends outwardly bent 70 or away from said clamping-pin, substantially as specified.

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

ARTHUR M. KRAMER.

Witnesses:

CARY S. BRYNER,
SAMUEL A. POUNDSTONE.