

(No Model.)

2 Sheets—Sheet 1.

J. M. PRICE.
METALLIC CROSS TIE.

No. 462,062.

Patented Oct. 27, 1891.

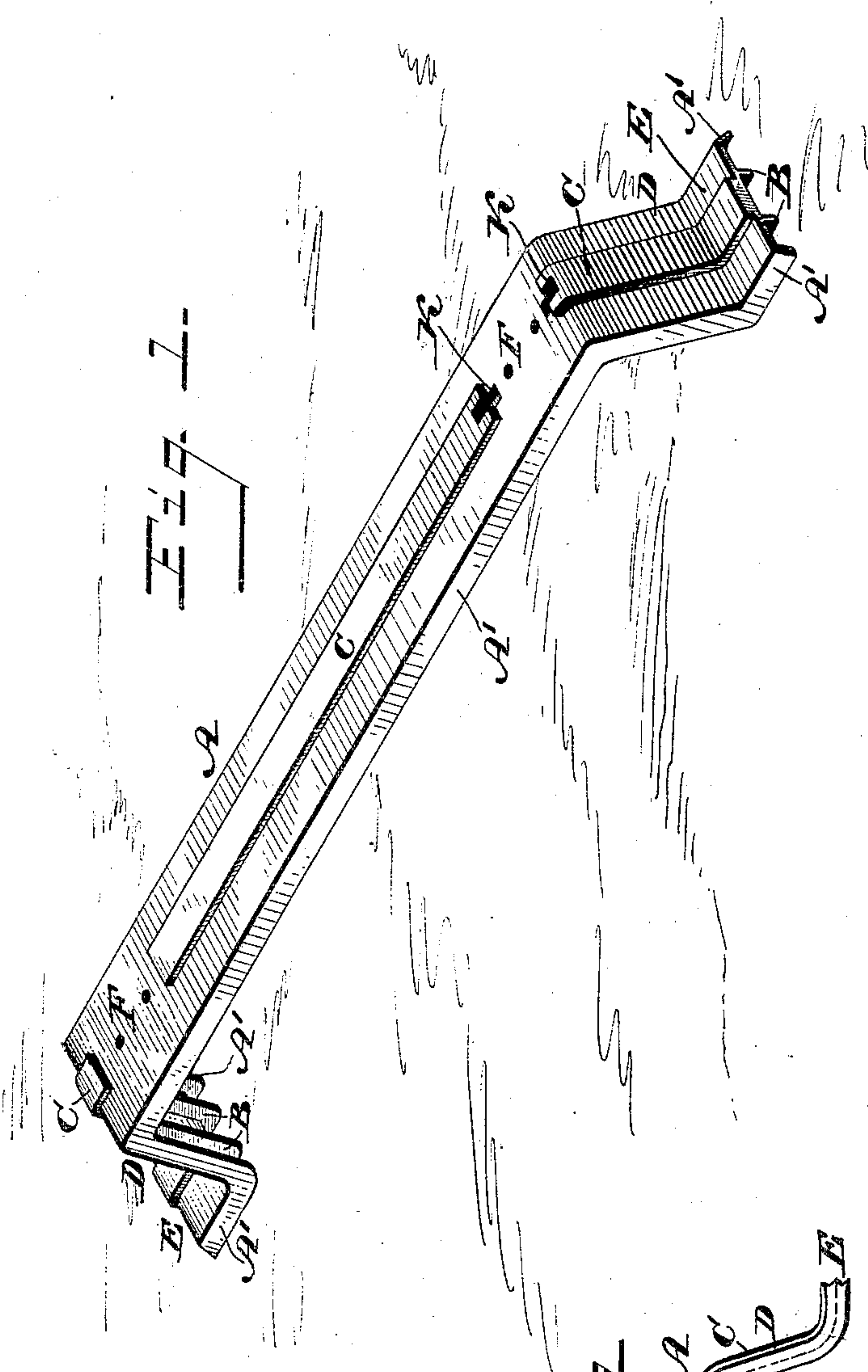


Fig. 1.

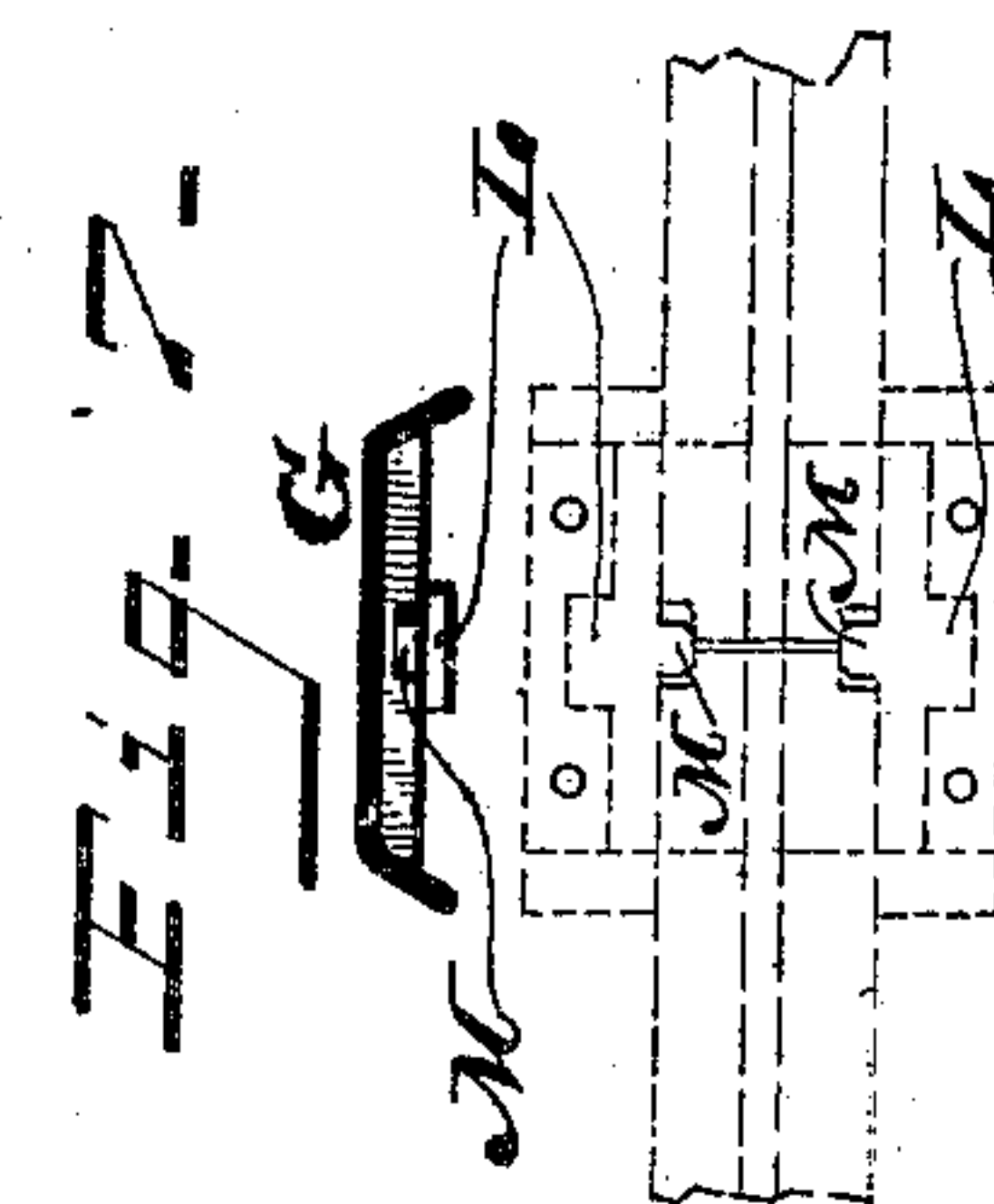


Fig. 7.

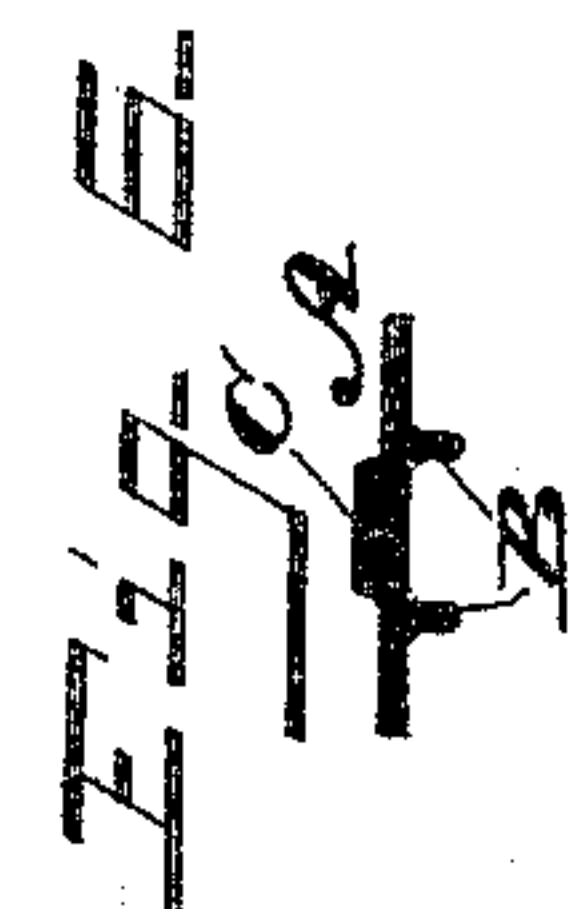


Fig. 8.

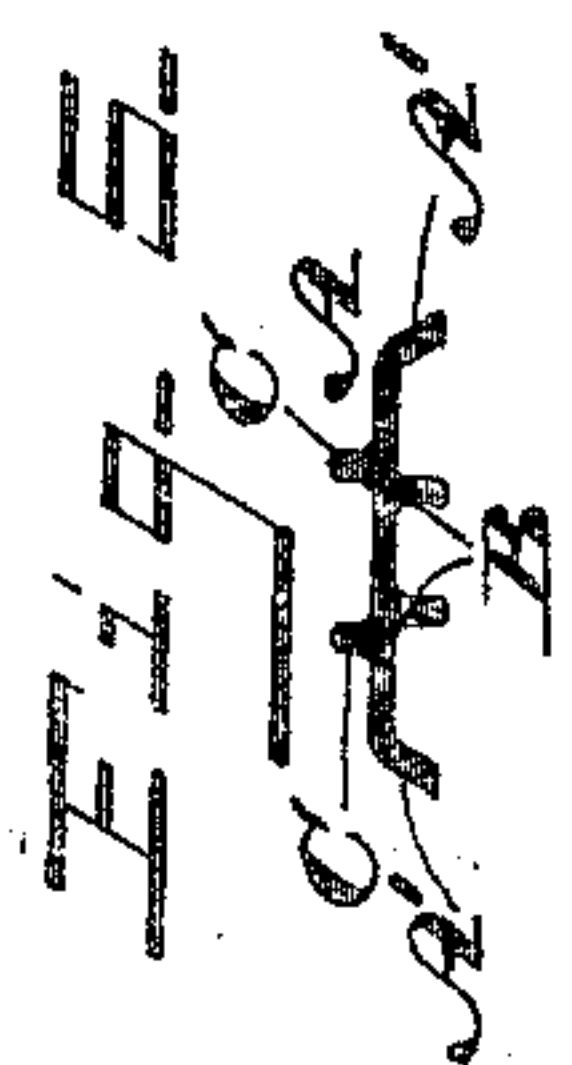


Fig. 9.

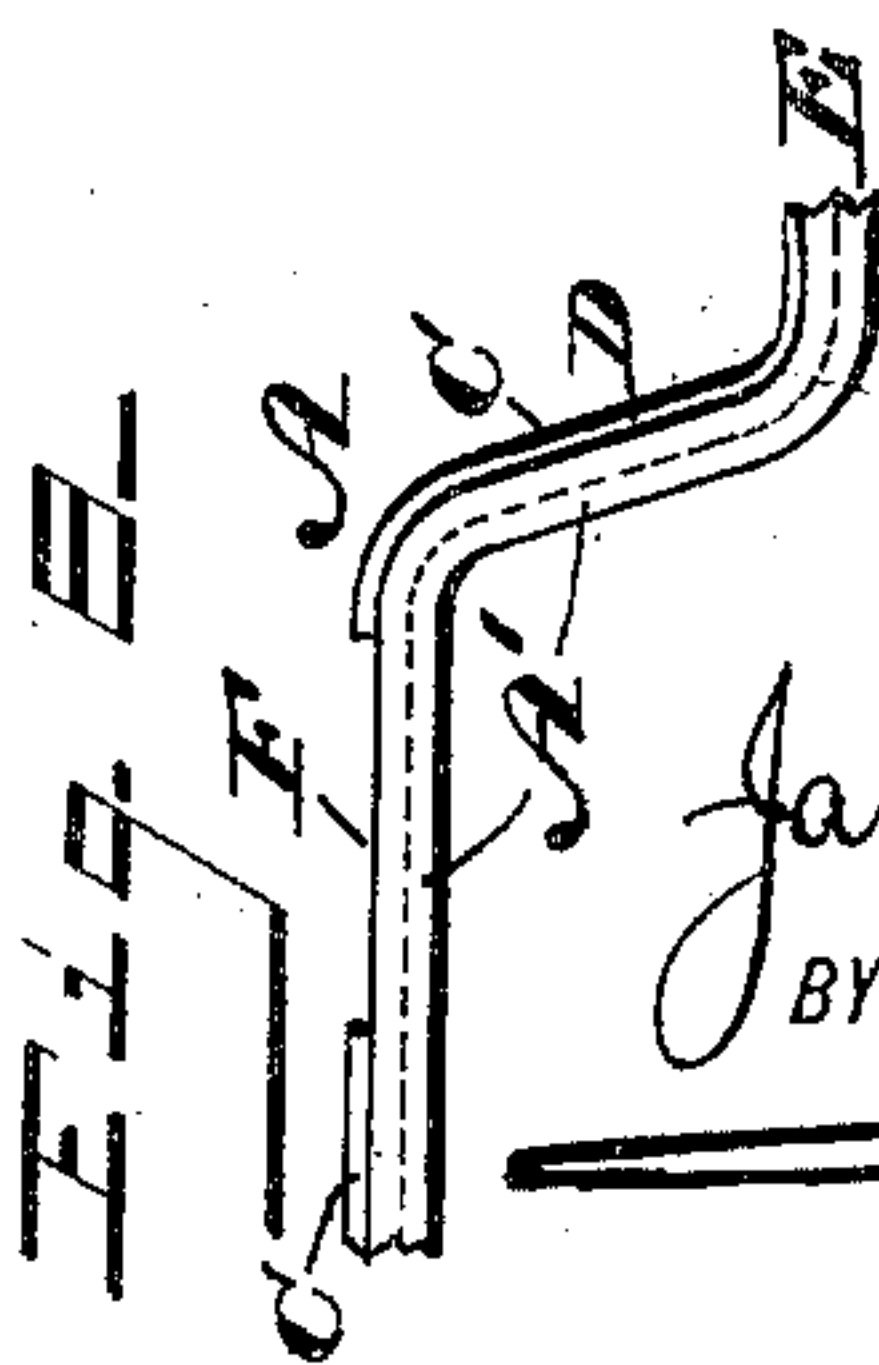


Fig. 10.

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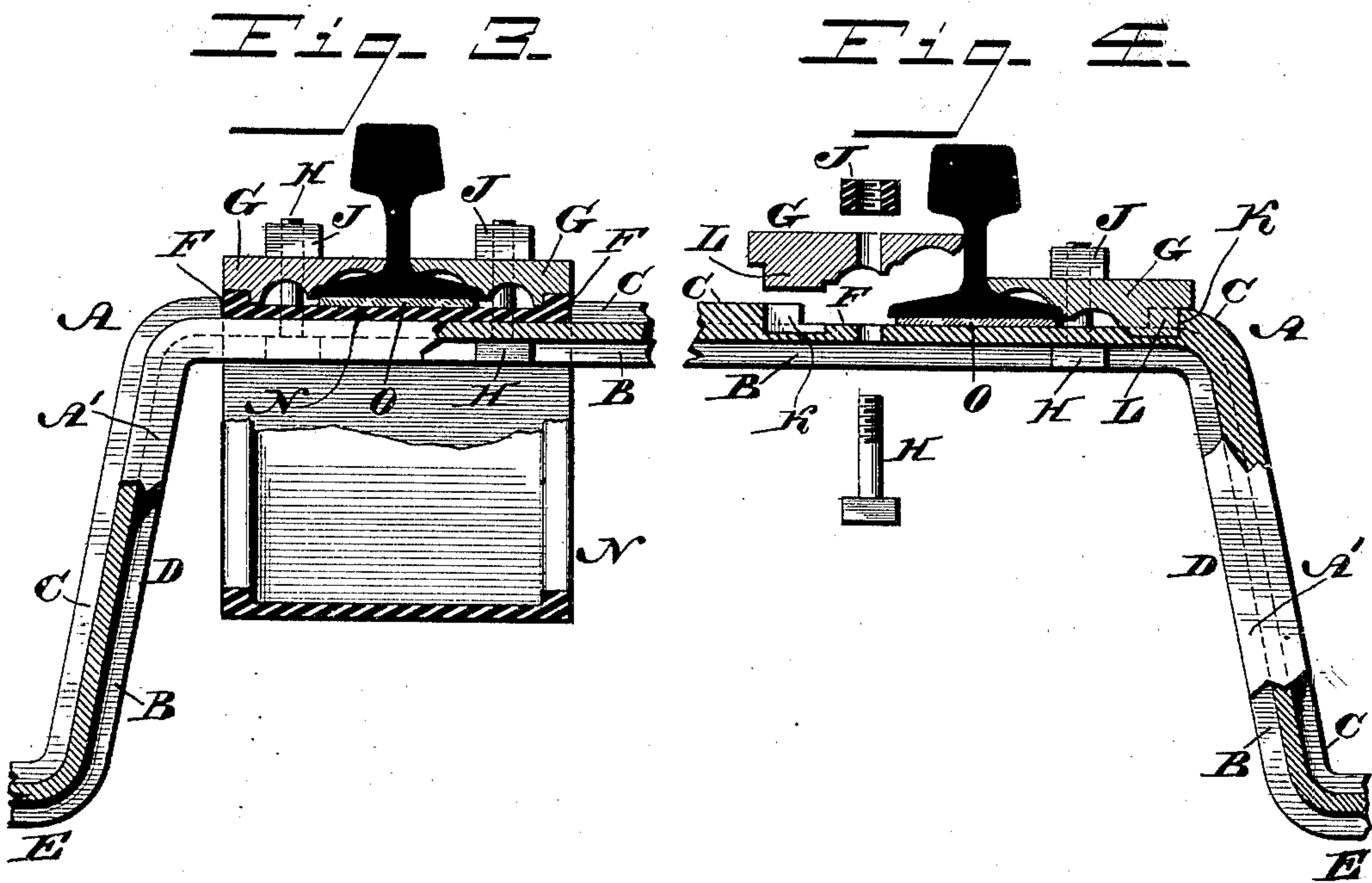
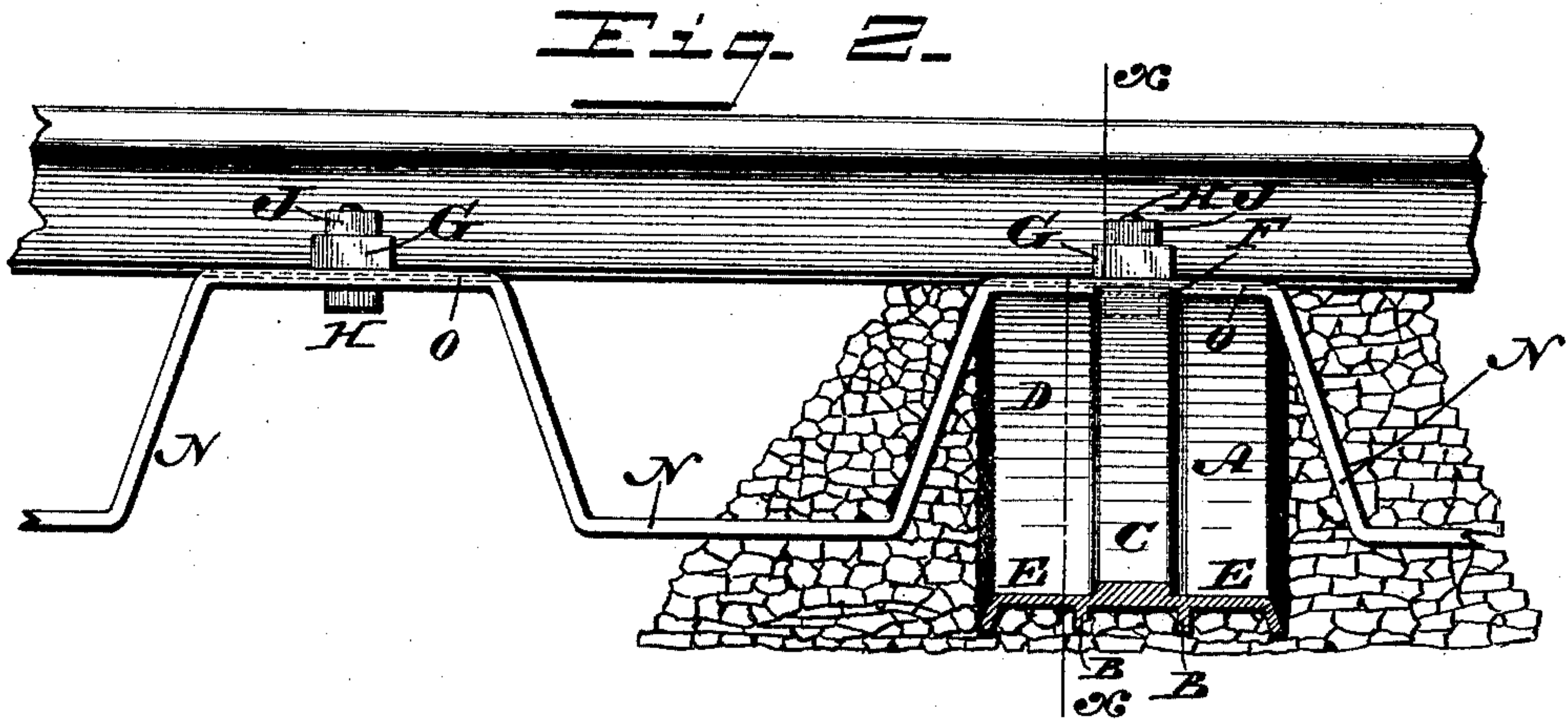
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2 Sheets—Sheet 2.

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WITNESSES:

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JAMES M. PRICE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE
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METALLIC CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 462,062, dated October 27, 1891.

Application filed July 24, 1890. Serial No. 359,745. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. PRICE, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Metallic Cross-Ties, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of a novel improvement in metallic cross-ties to be used under railroad-rails as supports therefor, either separately or connected at intervals with stringers or sleepers, as will be hereinafter set forth.

Figure 1 represents a perspective view of a metallic cross-tie embodying my invention. Fig. 2 represents an enlarged end elevation of the tie, together with a side elevation of a connected stringer and a supported railroad-rail. Figs. 3 and 4 represent transverse sections on line $x x$, Fig. 2, some of the parts being separated in Fig. 4, the stringer being omitted in Fig. 4. Figs. 5 and 6 represent end views, on a reduced scale, of modified forms of cross-ties embodying my invention. Fig. 7 represents a longitudinal section, on a reduced scale, of a form of cheek-piece employed. Fig. 8 represents a side elevation of a portion of another form of the end of a tie embodying my invention.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a cross-tie, formed of a plate of suitable metal with side flanges A' and with ribs B C, respectively, on the upper and lower sides, said ribs extending in the longitudinal direction of the tie. The portion of the tie near the ends thereof is bent angularly downward and outward, forming legs D, and the extreme ends are bent laterally or outwardly parallel or nearly parallel with the upper part of the tie, forming the feet E, the several parts enumerated being rolled or otherwise produced by suitable machinery, it being evident that a number of such ties may be formed of a continuous plate or piece of metal bent or shaped and severed one from the other. The ribs C are separated, as at F, so as to provide seats for the railroad-rails which are supported upon the ties, it being seen that owing to the

ribs considerable strength is imparted to the tie, and there is economy of metal owing to the light quality of the same that may be used.

In order to connect the rails with the cross-ties, I employ cheek-pieces G, which are connected with the cross-ties by means of the bolts H and nuts J, the bolts passing through openings in the cross-tie and cheek-pieces, the inner ends of the cheek-pieces bearing upon the base of the rail, so that when the nut is tightened the cheek-pieces are securely clamped upon the rail and to the cross-tie, whereby the rail is firmly held in position. In Fig. 7 the cheek-piece is shown widened so as to overhang the head of the stringer and engaging with the recessed corners or ends of two meeting rails, thus preventing creeping of the rails. The ends of the upper ribs C on opposite sides of the spaces or passages F are recessed or grooved, as at K, to receive the tongues L of the cheek-pieces, whereby the latter may be interlocked with the tie and thus reliably connected therewith, the cheek-pieces having also tongues M, which are adapted to interlock with notches or recesses in the rails, as will be seen in Fig. 7. The ties may be connected at intervals with a stringer N, the connecting-bolts in the present case passing through the tops or heads of the stringer as well as through the cross-tie and cheek-pieces. The rail may be supported on the stringer and cross-tie with an intervening pad or cushion of wood, trunk-board, or its equivalent, to prevent metallic connection, friction, and resonance, as at O, as will be seen in Fig. 2. The road-bed will be properly ballasted, embedding the main portion, legs, and feet of the tie so as to effectively support the same, it being observed that the tie is admirably sustained by the feet E, and that because of its general structure it possesses increased security and elasticity. The longitudinally underlying stringer contributes greatly to the elasticity of the tie itself besides adding security and strength to the parts, owing to the gridiron structure produced by fastening ties to the stringer at regular intervals.

By having the tie formed with angular end bends the same is greatly strengthened by

more nearly approximating an arch, and also provides for sufficient resiliency to obviate the shock of short and successive vibrations brought to bear on the tie by cars rolling thereover.

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

1. A metallic cross-tie having oblique ends formed by bending the same downward outside of the rail-seat, and then horizontally from said downward bend parallel with the body of the tie to form stable rests or feet, downwardly-bent edge flanges and parallel under flanges B, extending throughout the length of said tie as thus formed, and top central flanges or ridges having their ends separated on the body of the tie to form rail-seats, substantially as described.

2. A metallic cross-tie having oblique ends terminating in horizontal feet, broad top flanges having recessed ends, and parallel under flanges extending the length of the tie and feet, substantially as described.

3. A metallic cross-tie countersunk as to its external ridge beneath the rail in such manner as to give bearing, foothold, and lateral security to a longitudinal metallic stringer underlying the rail or to a cheek-piece mounted in a depression in the body of the tie and

holding the rail in position and precluding displacement, substantially as described.

4. A metallic cross-tie with double curves or angles reversed to each other outside of the rail-seat, with upper and lower ribs and edge flanges, in combination with a longitudinal metallic stringer underlying or overlying it beneath the rail and cheek-pieces, with bolts and nuts binding all together, substantially as described.

5. A metallic cross-tie with double curves or angles reversed to each other near each end, with upper and lower ribs and edge flanges, and recessed beneath the rail producing a cavity to fit the foot of a cheek-piece for each side of the rail, in combination with the rail, the cheek-pieces, and bolts and nuts binding them together, substantially as described.

6. A widened cheek-piece with feet running its entire length projecting over the head of the stringer at each side and wedging between the rail and the head of the stringer, with a ridge or projection on its under and inner side engaging with the recessed corners or ends of the flanges of two meeting rails, substantially as described.

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Witnesses:

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