

(No Model.)

B. C. J. McGUIRE.  
KEYED SPIKE CAST IRON RAILWAY CROSS TIE.

No. 509,387.

Patented Nov. 28, 1893.

Fig. 1.

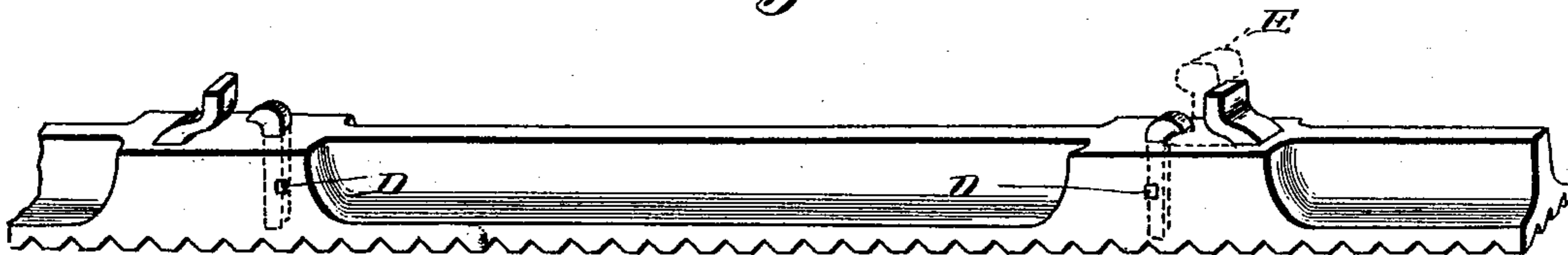


Fig. 2.

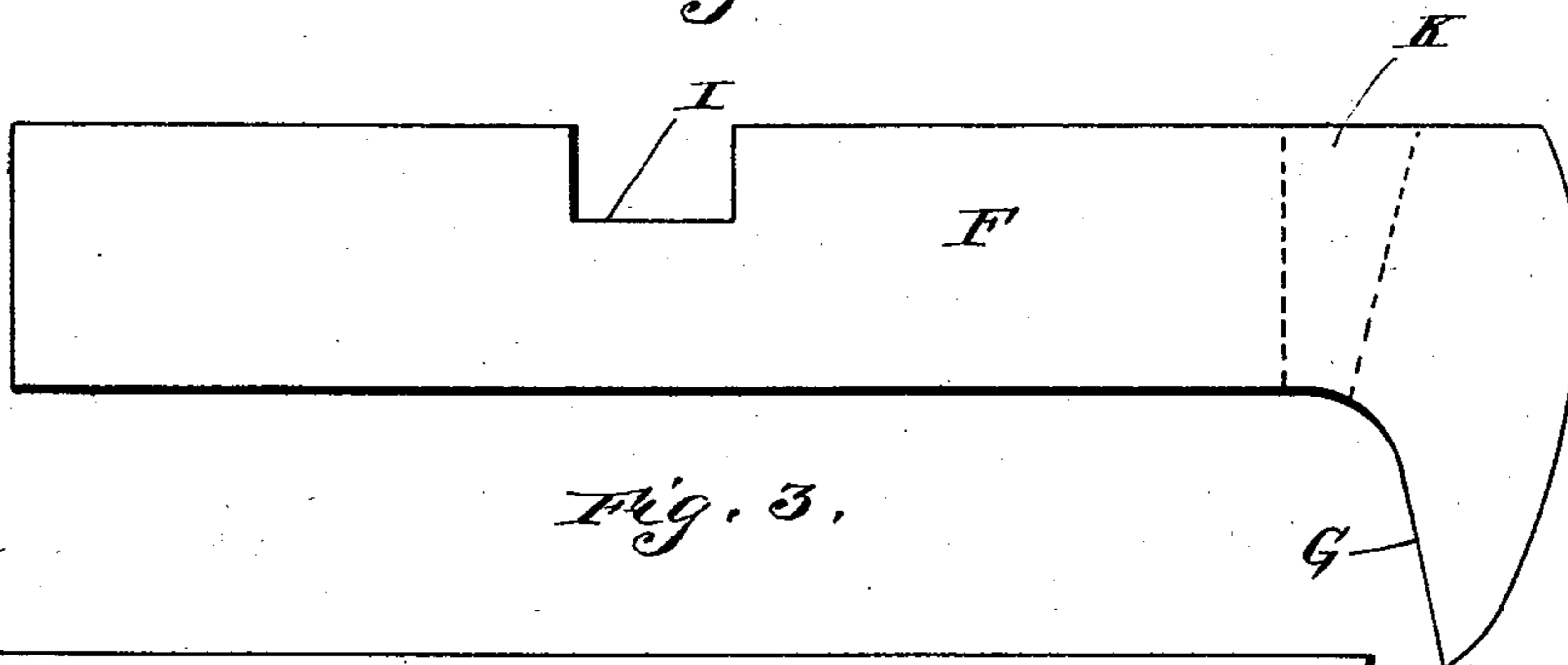


Fig. 3.

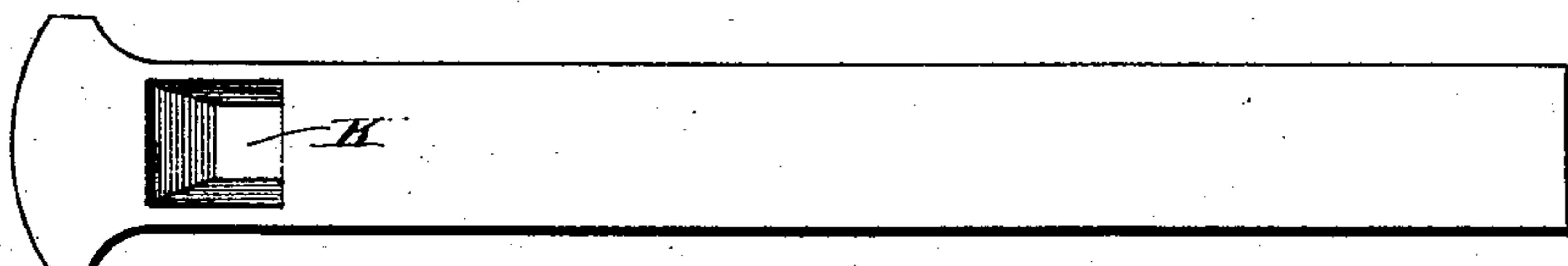


Fig. 4.

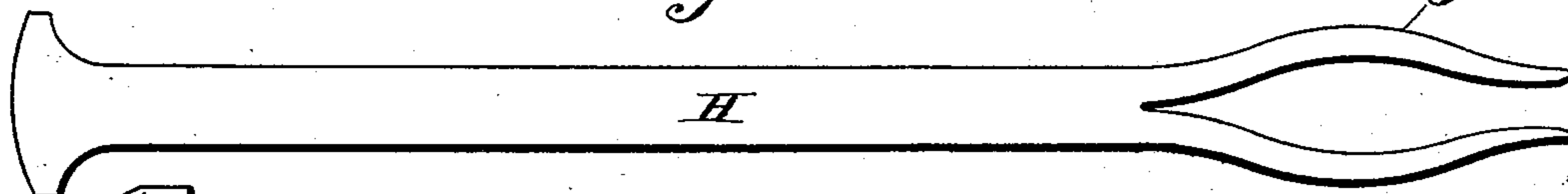


Fig. 5.

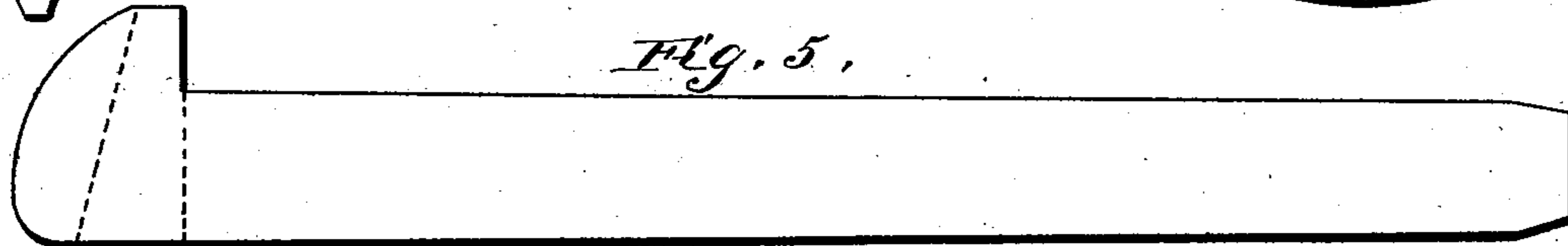


Fig. 6.

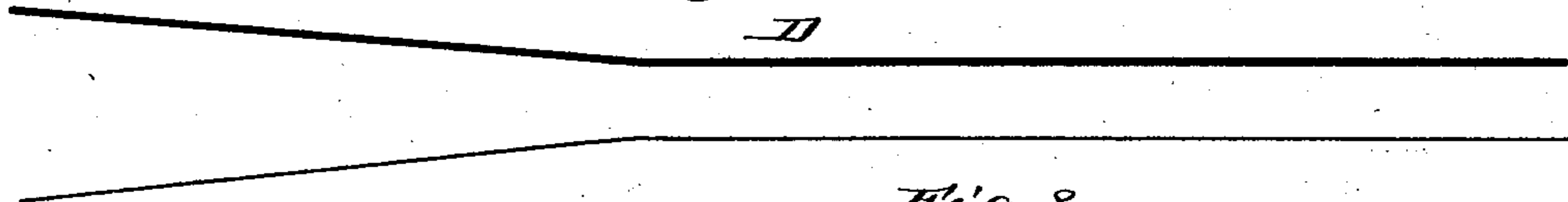


Fig. 7.

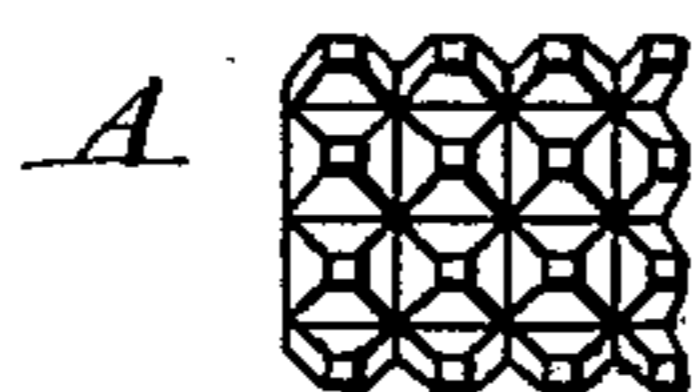
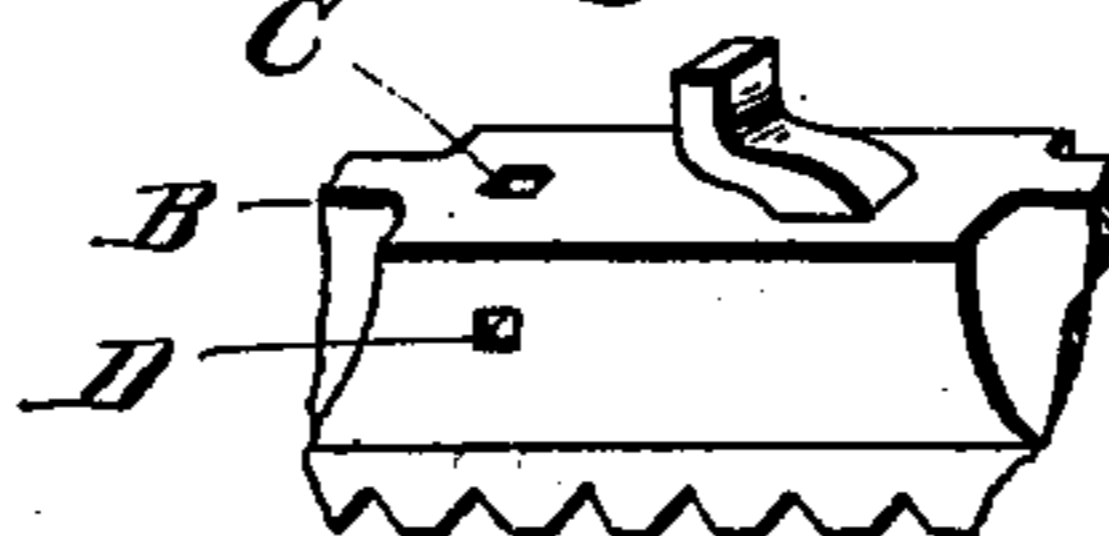


Fig. 8.



Witnesses:

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# UNITED STATES PATENT OFFICE.

BERNARD CELESTINE JEROME MCGUIRE, OF SUMMER HILL, PENNSYLVANIA.

## KEYED-SPIKE CAST-IRON RAILWAY CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 509,387, dated November 28, 1893.

Application filed May 19, 1893. Serial No. 474,852. (No model.)

*To all whom it may concern:*

Be it known that I, BERNARD CELESTINE JEROME MCGUIRE, a citizen of the United States, residing in the village of Summer Hill, county of Cambria, and State of Pennsylvania, have invented a certain form of Cast-Iron Railway Cross-Tie and a Key-Fastened Spike for Holding Rails in position, of which the following is a specification.

My invention relates to an improved cast-iron railway cross-tie, and a key-fastened spike for holding rails in position. I attain these objects by the mechanism illustrated in the accompanying drawings in which—

Figure 1 shows a side-view of a section of tie with spikes in position, the dotted lines at E showing the space to be occupied by a rail; Fig. 2 shows a side-view of spike. Fig. 3 shows back-view of the spike. Fig. 4 shows a back-view of spring-steel key. Fig. 5 shows side-view of spring-steel key. Fig. 6 is a diagram showing the dove-tail mortise, the entrance of which is seen at D in Fig. 8. Fig. 7 shows the bottom of the tie. Fig. 8 represents a section of tie showing mortises C and D.

The scale of Figs. 1, 7 and 8 is one inch to the foot, the plan being a broken section of railway cross-tie of Pennsylvania Railroad regulation length of eight feet. The bed of the tie is seven and one-half inches broad. To hold it from slipping on the ballast in curves of the road, it is to be cast with one hundred and seventy-two projections of the shape of an inverted frustum of a pyramid (for sectional view of which see A, Fig. 7) three-fourths of an inch square at the frustum, the indentations, or valleys, being three-fourths of an inch deep, forming a base two and one-fourth inches square. From the bottom of the tie to the bed for the rail, the tie is six inches in height. On the outside of the rail-beds, lugs against which the rails are placed project upward from the tie of which they are a part, being cast solid therewith. To render the tie as light as practicable, the upper corners are left full under rail-beds only, between which and outside of which, concave hollows are formed. The top of the tie, where the corners are lacking, is one and one-half inches wide. The inside flange of

the rail will be held down to the tie by means of a wrought-iron spike F, (Fig. 2) five-eighths of an inch by one inch, six and one-eighth inches long, with side-head G catching over the flange of the rail one and one-eighth inch, driven down through corresponding mortise or hole C, and held down in position by a spring-steel key H (Fig. 3), three eighths of an inch by eleven sixteenths of an inch just below the head, and three-eighths by five eighths at the prongs, driven through a corresponding dove-tail mortise D, Fig. 6, through a notch I in the spike which it draws down the one-sixteenth of an inch, the notch in spike being two and three-sixteenths inches from head, while key-hole, or mortise D is two and one-fourth inches down from top of tie. This key is six and three-eighths inches long, and is held in position by the tines or prongs J, which are pressed together while being driven, but spring out when they enter the dove-tail of the mortise and hold the key from slipping back. This dove-tail opens from three-eighths of an inch, four and one-half inches from entrance, to seven eighths at outside.

The dotted lines on the figures of the spike and key show neck K, where the claw-bars can be inserted to withdraw them.

Fig. 8 shows the mortises C and D which are cast in the tie.

The side and back views of the spike and key, Figs. 2, 3, 4 and 5, and also Fig. 6, are full size.

It is designed to anneal the tie, if, upon trial, it is found to be brittle enough to break with heavy pressure.

I am aware that metal ties have already been cast; and I therefore do not claim the invention of them.

What I do claim, and desire to secure by Letters Patent, is—

The combination with the tie having the mortise of tapering form, the recessed wrought-iron-spike F, and the spring-pointed key H, substantially as and for the purpose set forth.

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Witnesses:

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