

No. 30,702.

PATENTED NOV. 20, 1860.

S. H. WITMER.  
SECURING RAILROAD RAILS TO THE CROSS TIES.

Fig: 1.

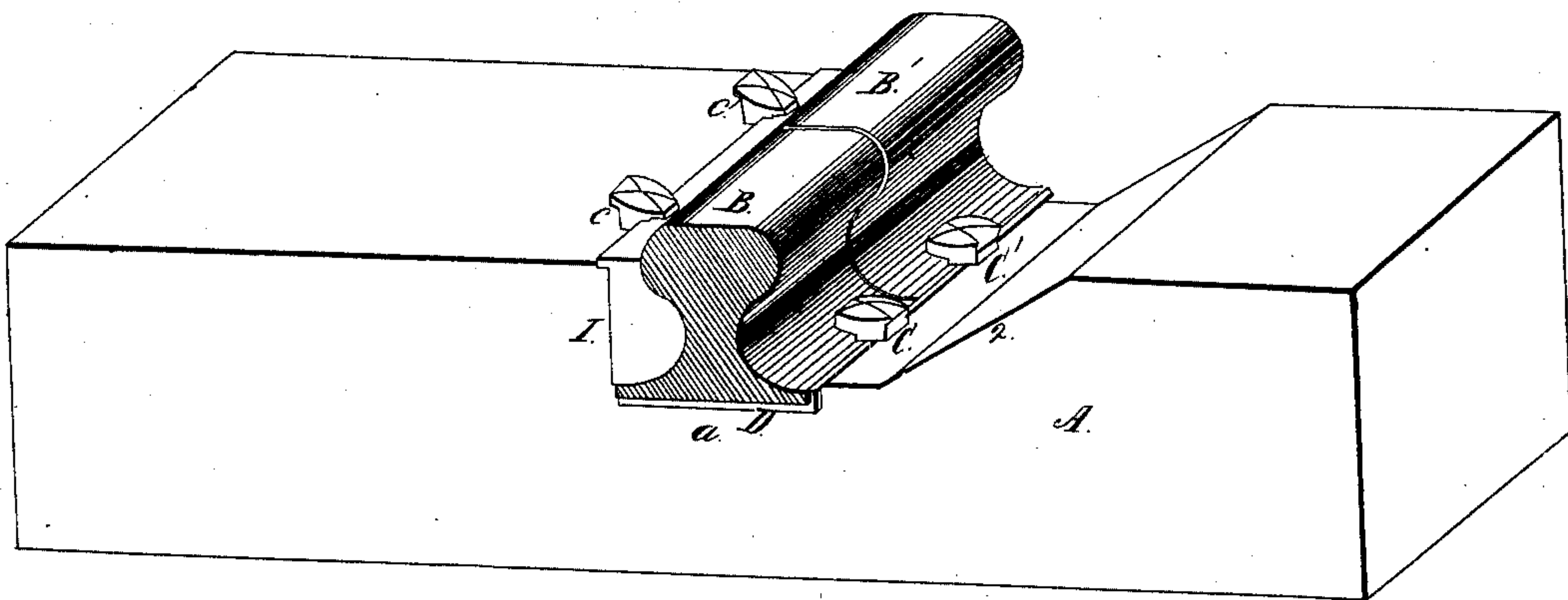


Fig: 2.

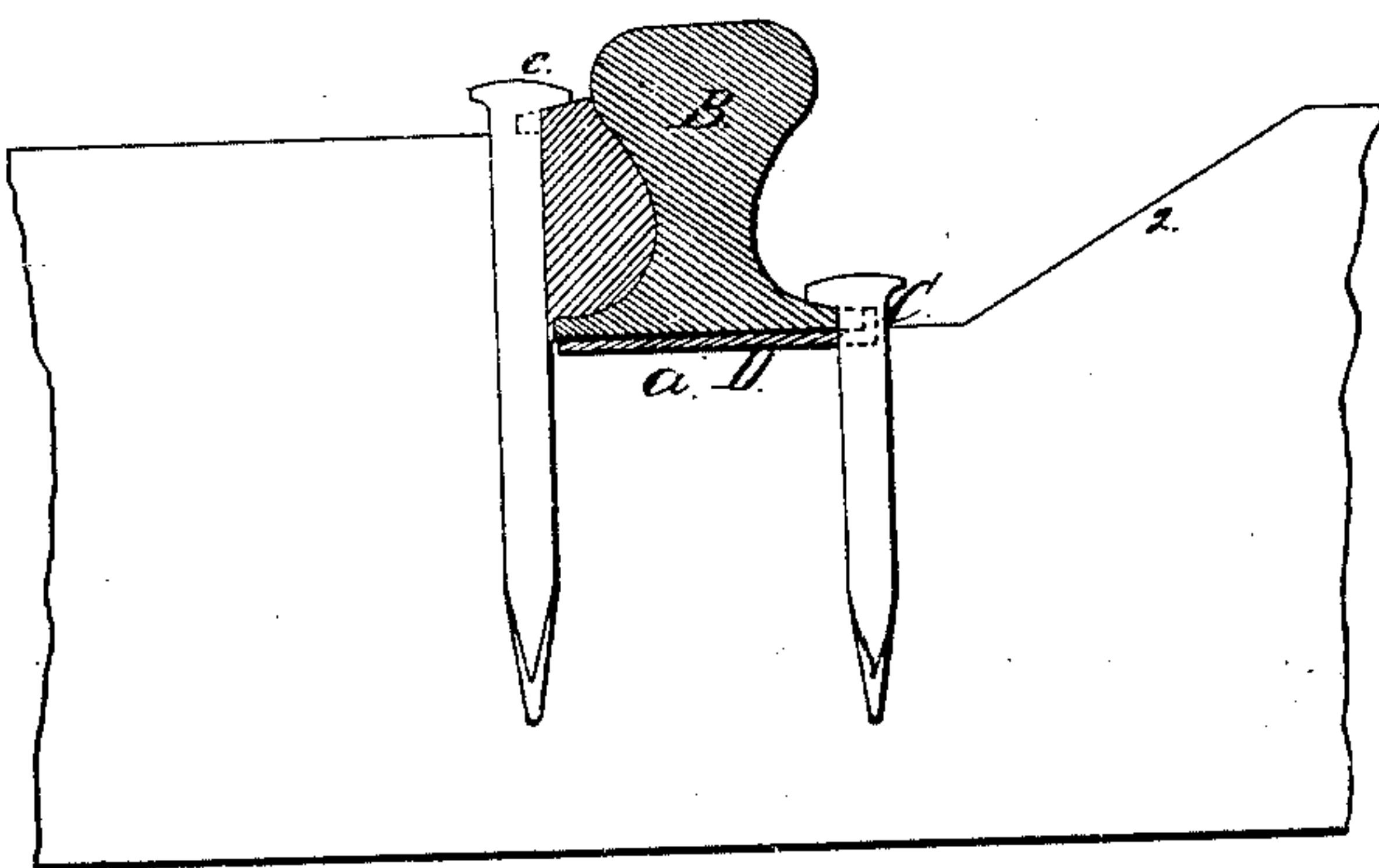


Fig: 3.

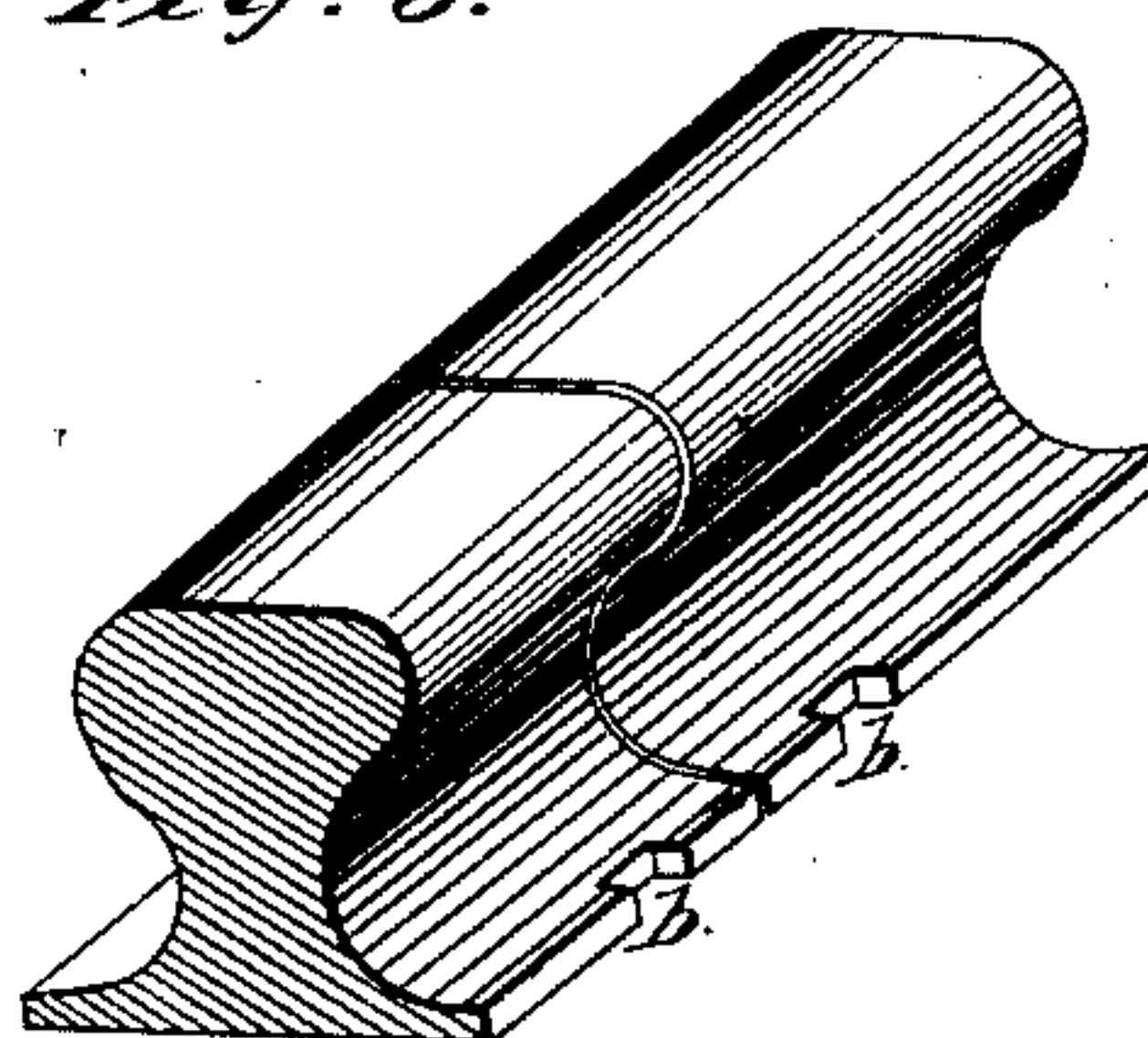


Fig: 4.

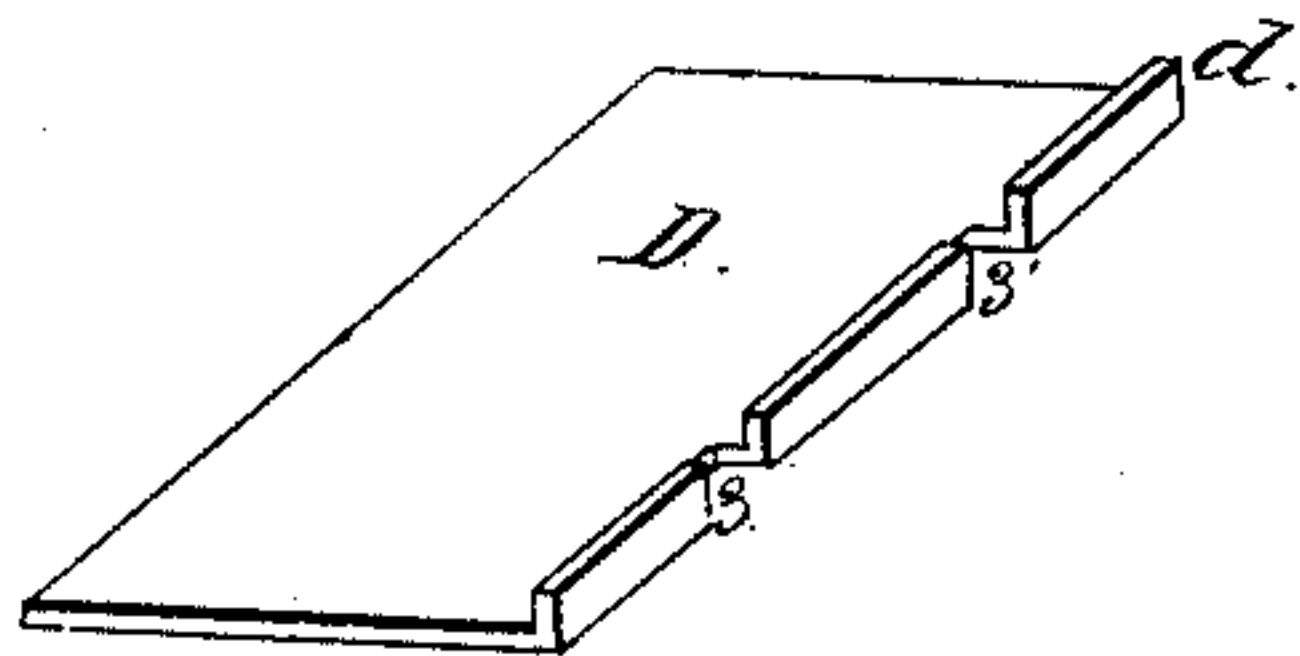
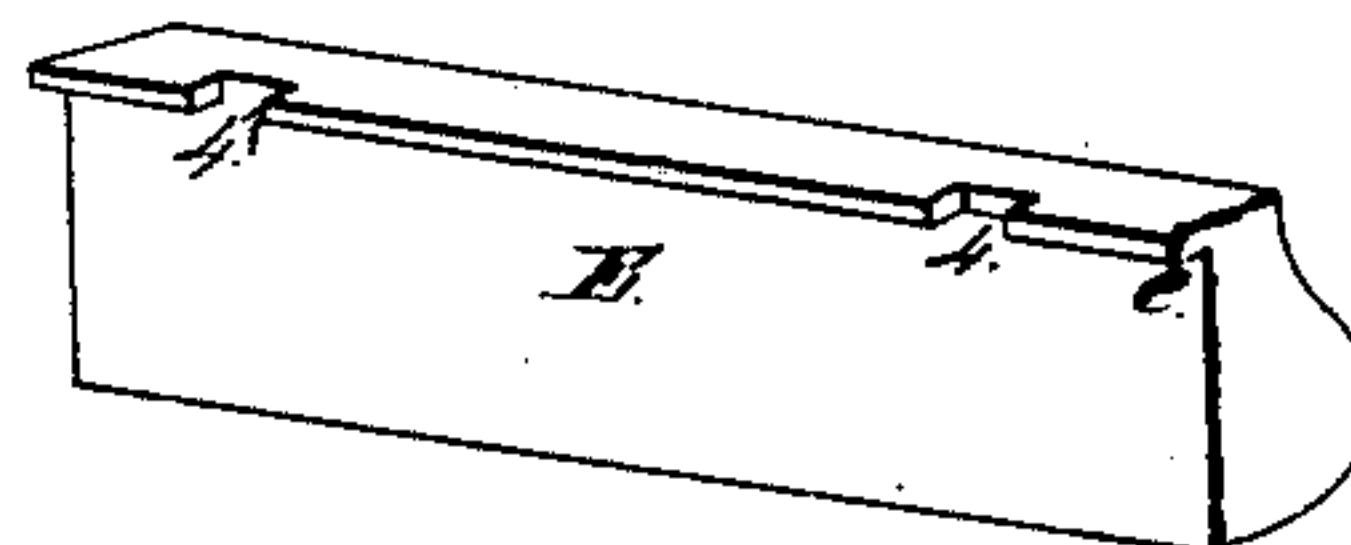


Fig: 5.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

S. H. WITMER, OF CINCINNATI, OHIO.

## SECURING RAILROAD-RAILS TO THE CROSS-TIES.

Specification of Letters Patent No. 30,702, dated November 20, 1860.

*To all whom it may concern:*

Be it known that I, SAMUEL H. WITMER, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Method of Securing Railroad-Rails to Wooden Cross-Ties; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification.

My invention has for its object a cheap and secure mode of joining T rails to the customary wooden cross tie by means of an arrangement of peculiarly-formed confining plates in a transversely gained tie as hereinafter explained.

Figure 1— is a perspective view of portions of two contiguous rails in place. Fig. 2— is a transverse section of the same. Fig. 3— shows portions of two contiguous rails separately. Figs. 4 and 5— are detached views of the confining plates.

A represents a wooden cross tie whose vertical thickness is about two inches greater than the common tie. In the upper edge of the tie I form two deep gains or notches  $a$  vertical (1) on their outer sides and at the extreme bottom of their inner sides whence they flare or bevel upward as shown at (2).

B, B', are portions of two contiguous rails, whose inner flanges have notches  $b$ , to receive the inner pair of spikes C, C'.

D is a rectangular plate (used by me in practice of  $\frac{3}{16}$  boiler iron) one of whose longitudinal edges is bent squarely upward, so as to form a lip  $d$  which lip is notched  $3\ 3'$  to receive the two front spikes C, C'.

The plate D  $d$ , I call the bed plate or shoe.

E is a casting called the gib adapted to fill and fit the interval between the waist or web of the rail and the vertical wall 1 of the gain  $a$  in the cross tie. The upper outer edge of the gib E has a lip or flange  $e$  which

is notched ( $4\ 4'$ ) to receive the outer spikes  $c\ c'$ . The bevels 2 enable the ready drawing of the spikes.

The notches 3, 3', 4, 4', prevent the longitudinal displacement of the confining pieces D  $d$ , and E  $e$ , yet on the withdrawal of the spikes the shoe and gib can be readily removed for purposes of repair, &c.

I form the two gains of each tie very speedily and accurately by feeding it beneath four circular saws for the vertical walls of the gains and then beneath a pair of rotary cutters for the beveled portions. This arrangement is accompanied by obvious and very decided economical and working advantages.

The lateral bearing being sustained by the ends of the fibers across the entire breadth of the tie and for a considerable portion of the depth of the rail, the latter is perfectly solid and immovable thus avoiding a serious source of wear and destruction to which tracks and rolling stock are now liable—and the whole attachment can be made for less than the bare cost of the customary wrought or cast chair.

I do not claim any form of attachment in which the main lateral strain is not received by the end fibers of the cross tie, nor any which depends for its security on the cohesive force of the metal fastenings but

I claim as new and of my invention herein.

The combination of the deep vertical gain 1, gib E  $e$ , shoe D  $d$ , and beveled sides 2, the whole being constructed and operating in the manner and for the purposes set forth.

In testimony of which invention, I hereunto set my hand.

S. H. WITMER.

Witnesses:

GEO. H. KNIGHT,  
FRANCIS MILLWARD.