

(No Model.)

E. BRANDWOOD.  
RAILROAD CROSS TIE.

No. 442,416.

Patented Dec. 9, 1890.

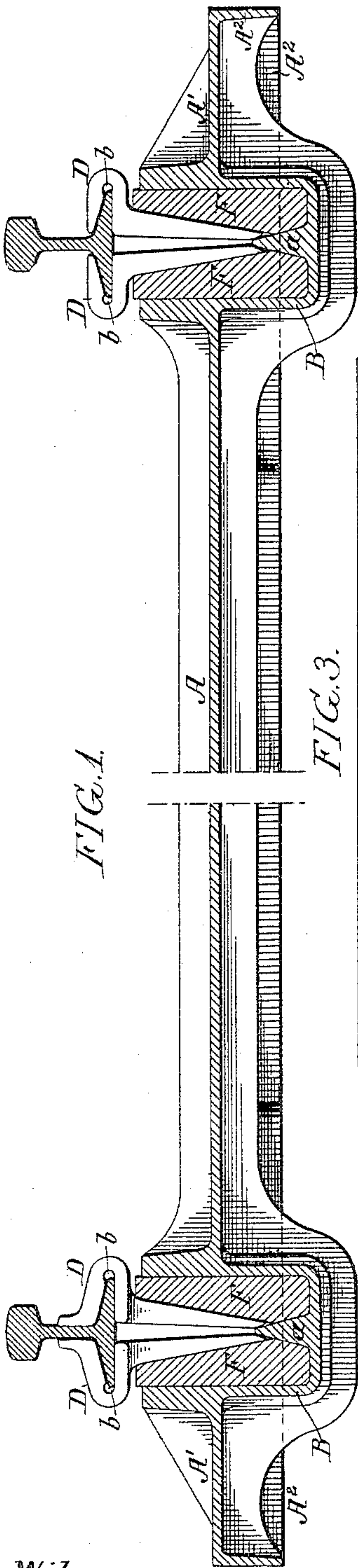


FIG. 1.

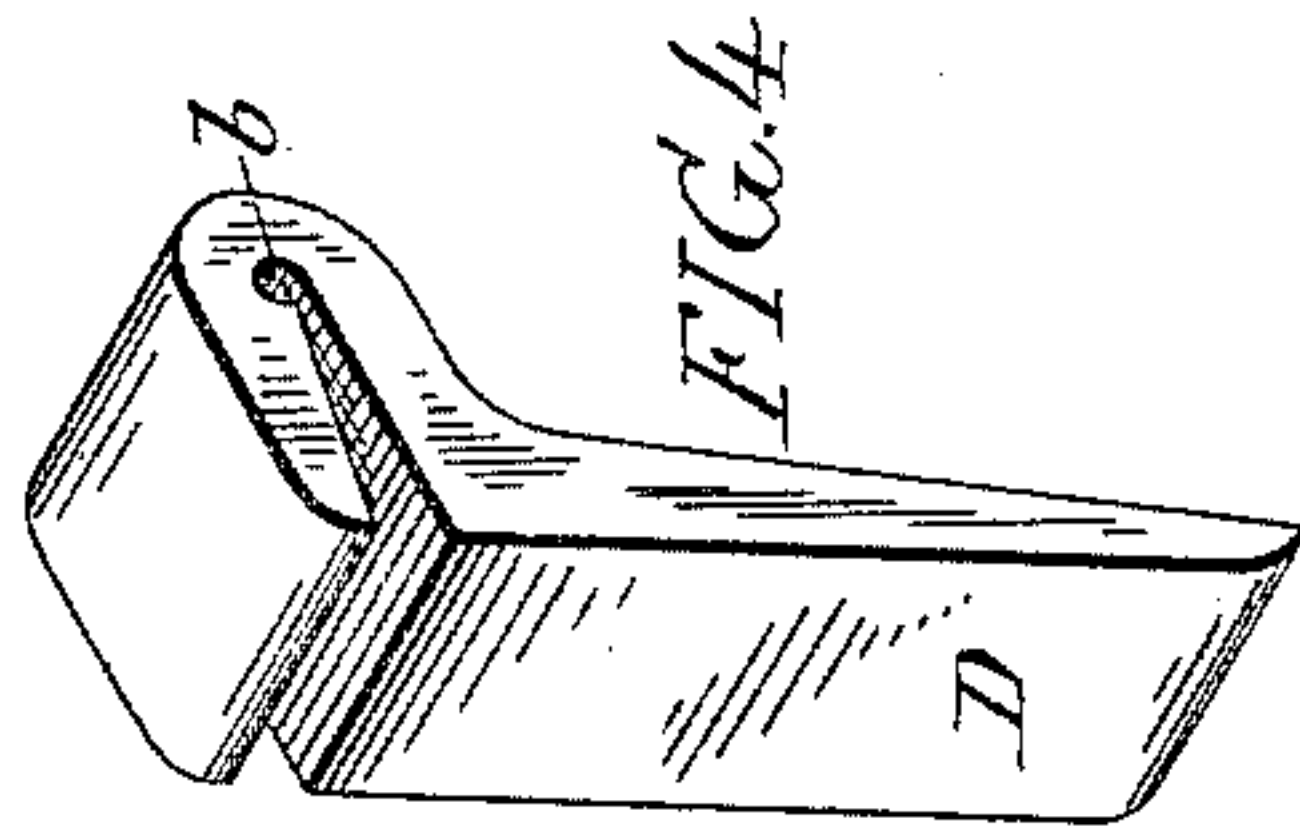


FIG. 4.

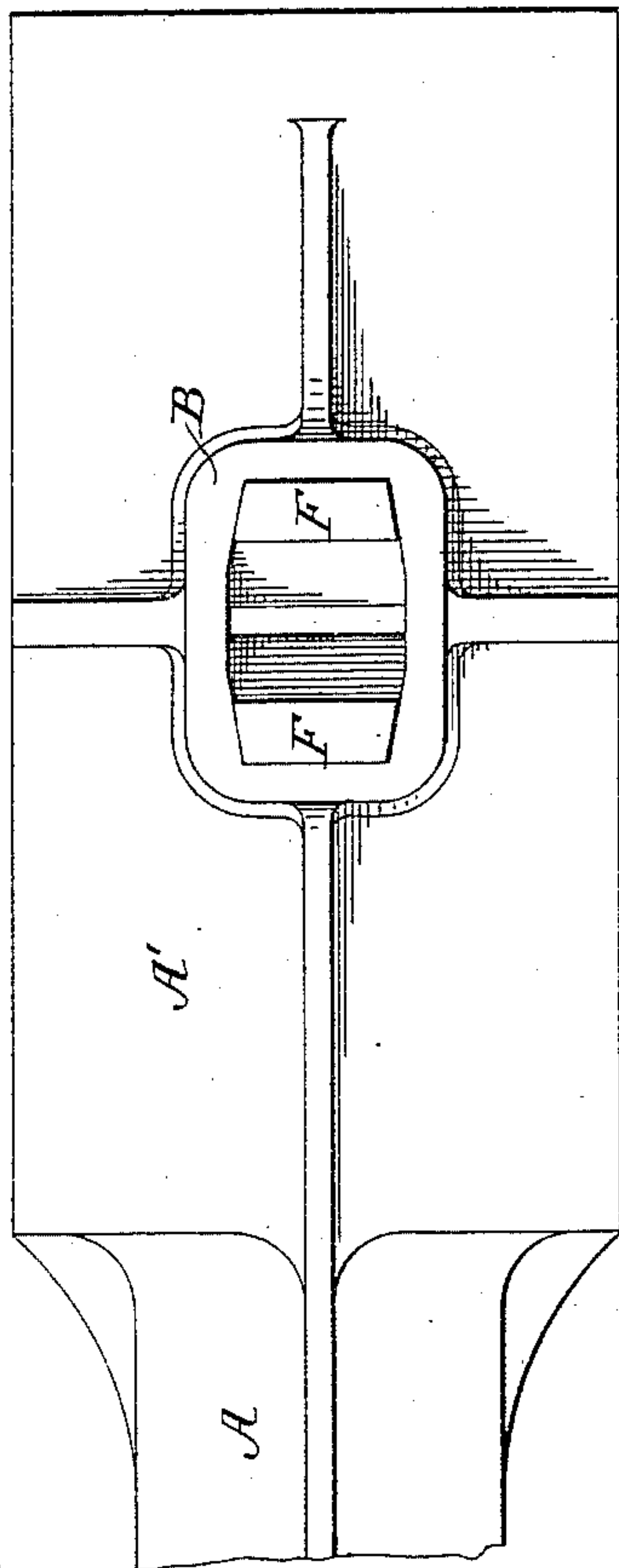


FIG. 3.

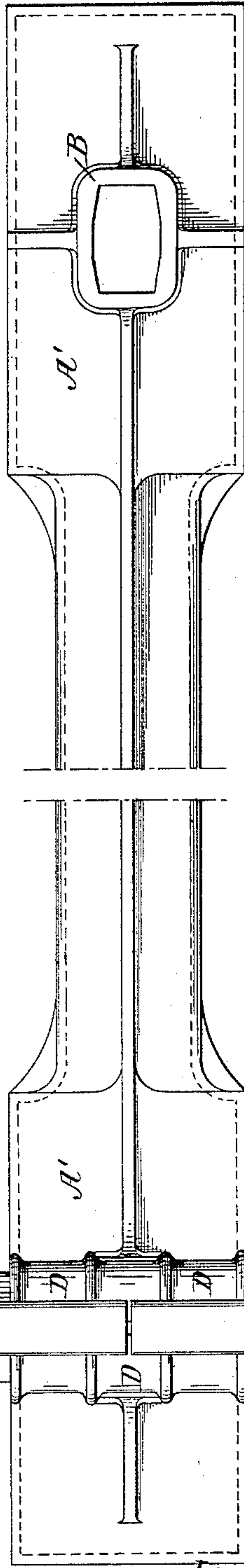


FIG. 2.

Witnesses:  
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# UNITED STATES PATENT OFFICE.

EDWARD BRANDWOOD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
JAMES G. CARSON, OF SAME PLACE.

## RAILROAD CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 442,416, dated December 9, 1890.

Application filed July 15, 1890. Serial No. 358,814. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD BRANDWOOD, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Railroad Cross-Ties, of which the following is a specification.

My invention consists of certain improvements in the metallic cross-tie and fasteners for railroad-rails for which Letters Patent of the United States No. 206,647 were granted to Thomas W. Travis on the 30th day of July, 1878, the object of the invention being to provide for the ready removal of the wooden clamp-supporting blocks of the fasteners from the boxes of the tie. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of my improved railroad cross-tie and fastener. Fig. 2 is a plan view of the same, with the rail and its fastening devices removed from one of the boxes of the tie. Fig. 3 is an enlarged plan view of one of said boxes and the clamp-supporting blocks, the clamps being removed; and Fig. 4 is an enlarged perspective view of one of the rail-clamps.

The cross-tie described in the above-mentioned patent of Thomas W. Travis consisted of a plate A, which served to connect a pair of boxes B, and the fastening devices for each rail consisted of a pair of clamps D D, embracing the flanges of the rail and having depending portions projecting down into the box and having a bearing at their lower ends against a wedge *a* in the bottom of said box, the clamps being supported upon opposite blocks F F of wood contained in the box.

In order that the cross-tie and its boxes may be firmly embedded in the ballast of the roadway and securely retained thereby, I expand the tie A at each end, so as to form a plate A', extending around the box B and having around its edges depending flanges A<sup>2</sup>, which form continuations of the depending flanges at the opposite edges of the central portion of the tie, so that the ballast may be packed

firmly between these flanges and the box, the secure retention of the tie on the road-bed being thereby insured.

Owing to the heavy and repeated downward and outward thrusts to which the wooden clamp-supporting blocks F are subjected, said blocks in the ordinary Travis tie became so firmly seated in the boxes B that the removal of the blocks when it was desired to replace the same was a very tedious matter, the blocks having to be picked to pieces before they could be dislodged, so that the replacing of a set of blocks between successive trains was often impracticable. In order to overcome this defect, I flare the boxes B slightly from each end toward the center, as shown in Figs. 2 and 3, the blocks F being likewise made slightly flaring, so that when the rail-clamps are removed from between the blocks the latter can be readily driven toward the center of the box, and thus loosened so as to be removed and replaced in a very short time.

An objection to the rail-clamps formerly used in connection with the Travis tie was a tendency to fracture at the outer end of the recess in the clamp which received the flange of the rail, a sharp angle being usually formed at that point. This objection I overcome by forming an enlarged opening *b* at the outer end of the recess, as shown in Fig. 4, so that the sharp angle at the outer end of the recess is avoided.

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

The combination of the rail-clamps and the cross-tie having clamp-receiving boxes flared from each end toward the center, with clamp-supporting blocks adapted to said flared portions of the boxes, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD BRANDWOOD.

Witnesses:

EUGENE ELTERICH,  
HARRY SMITH.