

J. E. BLISS.

RAIL TIE.

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991,474.

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Fig. 1.

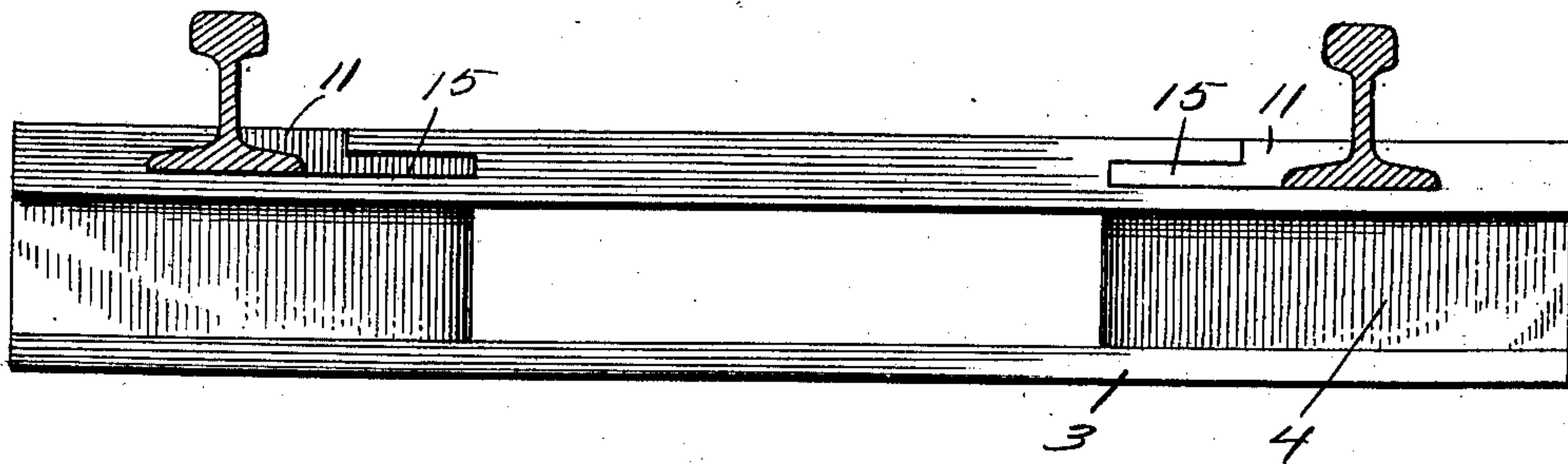


Fig. 2.

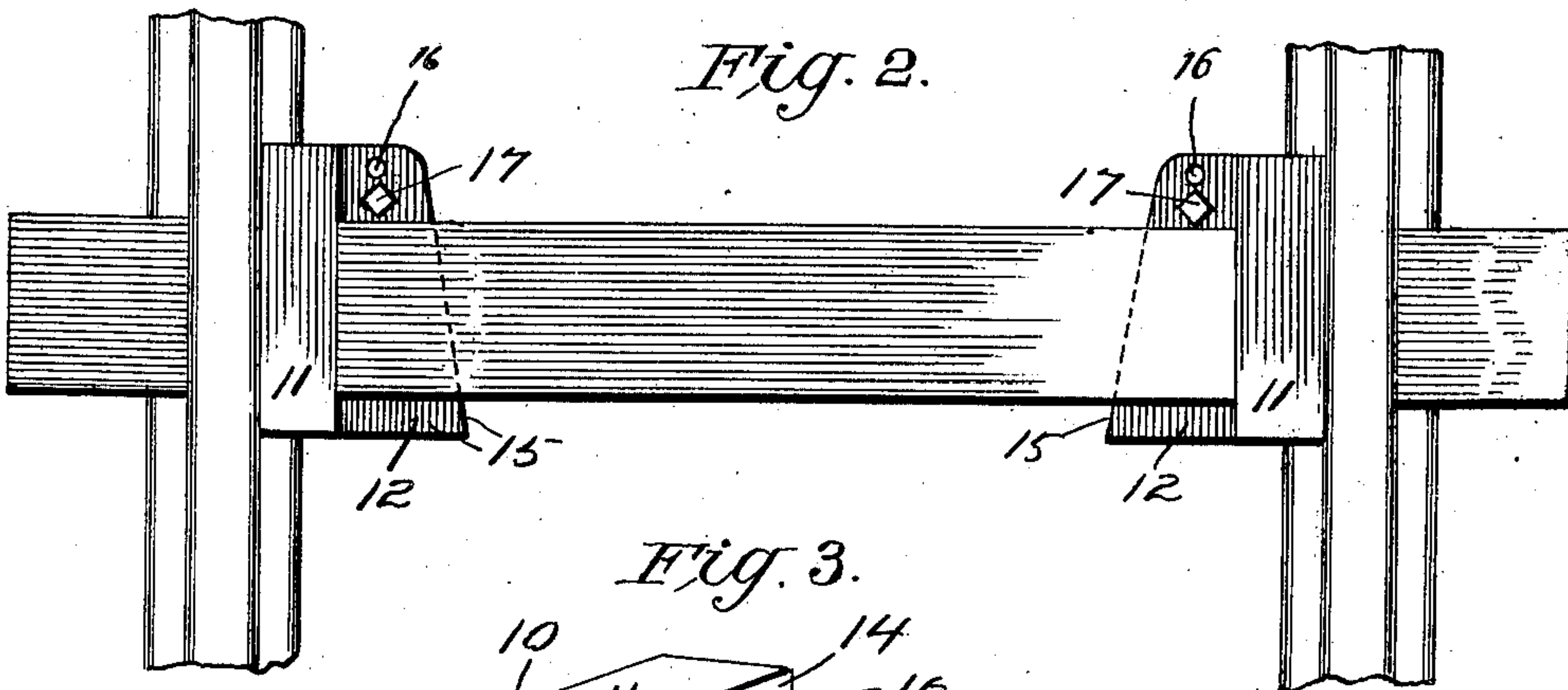


Fig. 3.

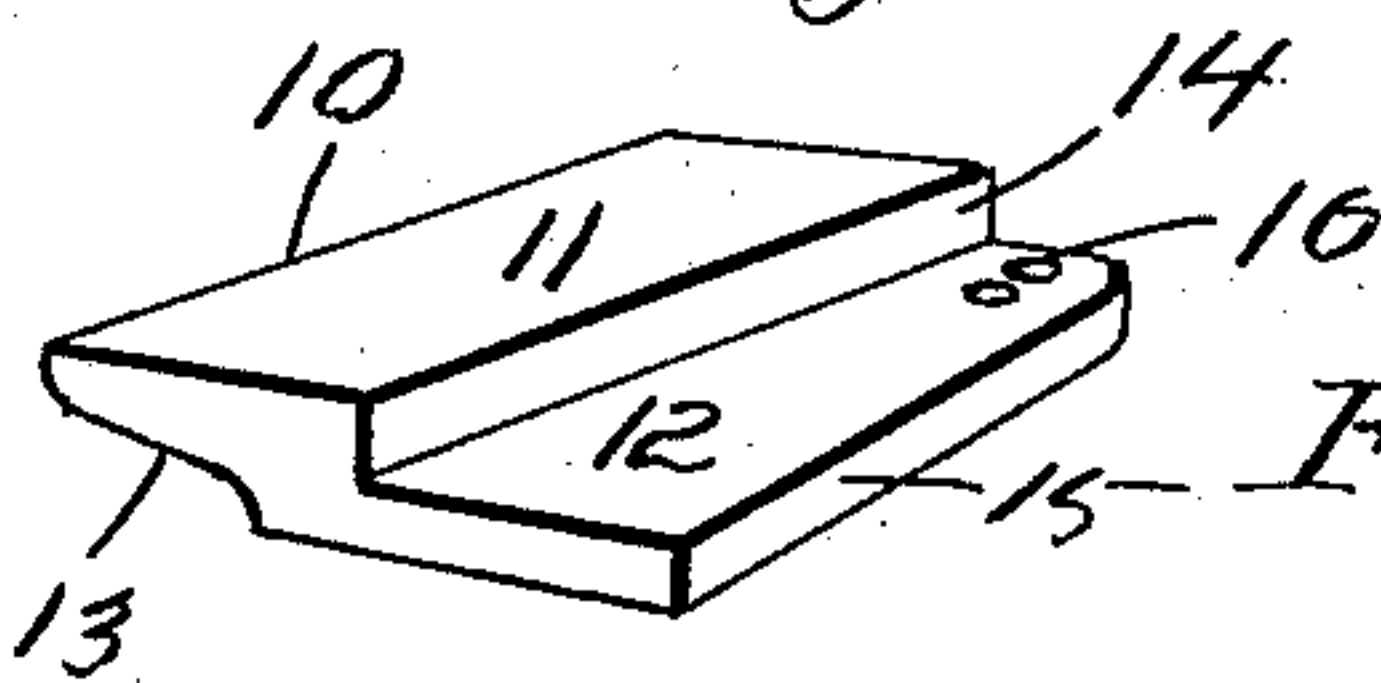
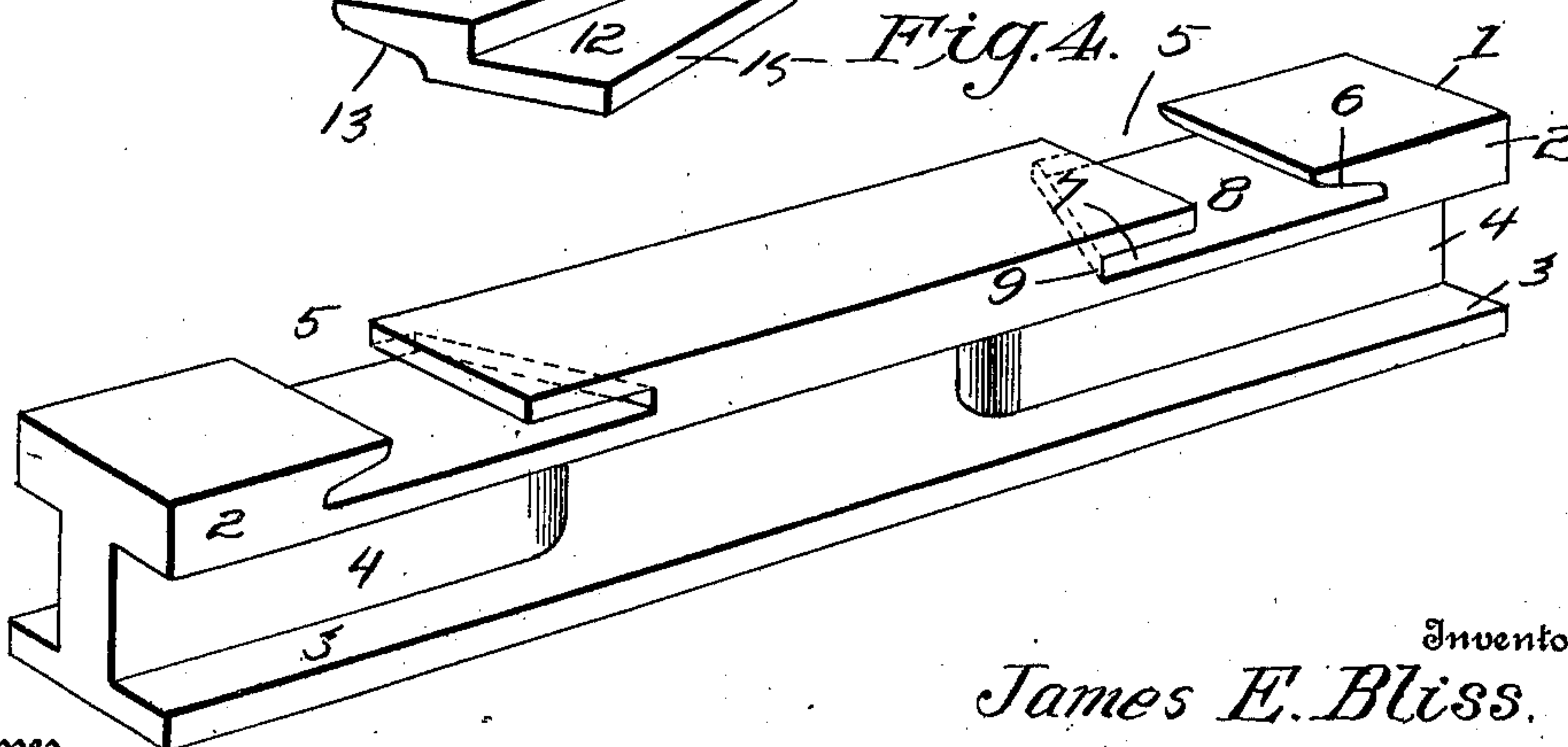


Fig. 4.



Witnesses

Joe A. Ryan  
D. W. Gould.

Inventor

James E. Bliss.

By Victor J. Evans

Attorney



# UNITED STATES PATENT OFFICE.

JAMES E. BLISS, OF FAUST, NEW YORK.

## RAIL-TIE.

991,474.

Specification of Letters Patent.

Patented May 9, 1911.

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*To all whom it may concern:*

Be it known that I, JAMES E. BLISS, a citizen of the United States, residing at Faust, in the county of Franklin and State of New York, have invented new and useful Improvements in Rail-Ties, of which the following is a specification.

The invention relates to an improvement in rail ties formed to provide an effective support for railroad rails and including a means whereby the rails may be permanently secured to the tie to prevent displacement.

The main object of the present invention is the provision of a railroad tie of metallic structure, the upper flange of the tie being formed with rail receiving seats and wedge blocks being provided to engage the seats and rails to secure the latter against disconnection from the ties.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which:—

Figure 1 is a view in side elevation illustrating the application of my improvement. Fig. 2 is a plan of the same. Fig. 3 is a perspective of the wedge block. Fig. 4 is a perspective of the tie.

Referring particularly to the accompanying drawings, my improved tie 1 comprises a metallic structure which preferably, though not necessarily, is in the form of an eye beam including an upper flange 2, a lower flange 3, and an intermediate connecting web 4. In order to avoid unnecessary weight the web 4 of the tie is cut out at the central portion, which in addition to eliminating undesirable weight forms a central aperture through which the material of the road bed may be filled as an aid in securing the tie in position.

At appropriate points the upper flanges of the tie are formed with what I term rail seats 5 on which the respective rails are to be secured. These seats are, of course, of identical construction and each is formed by cutting the material of the flange to form a recess which is undercut at its opposing side edges or walls. At the outer edge the undercut portion of the recess, as 6, conforms in size and sectional contour to the size and contour of one-half of the base flange of the rail, while the opposing undercut side, as 7, is of rectangular form in section, as shown. The base wall 8 of the recess constitutes an

unbroken surface throughout the width of the recess proper with the undercut portion, while the entrance opening to the seat is of sufficient width to just permit the entrance of the base flange of the rail. The side wall of the undercut portion 6 extends directly transverse the tie, while the side wall 9 of the undercut portion 7 extends at an incline to the direct transverse line.

In connection with the seat I use a wedge block 10, Fig. 3, which block includes two relatively offset sections 11 and 12. The lower surface of the section 11 is shaped, as at 13, to snugly fit and bear upon the base flange of the rail, and the offsetting of the sections 11 and 12 presents at their juncture a shoulder 14 which is designed in use to bear against the side wall of the entrance opening to the seat overlying the undercut portion 7. The free or outer edge of the section 12, which is the lowermost section of the wedge block is inclined with respect to the longitudinal plane of the block, as at 15, which inclined edge is designed to cooperate with the inclined wall 9 of the undercut portion 7 in seating the block. The section 12 at the reduced end is formed with a series of openings 16 in either of which is adapted to be secured a bolt or locking pin 17 to prevent accidental disconnection of the block.

In use the rail is first inserted in the seat and moved laterally until the outer base flange thereof engages beneath the undercut portion 6 of the seat. The wedge block is then inserted with the surface 13 bearing upon the relatively inner portion of the base flange and the shoulder 14 abutting against the side edge of the seat. The wedge block is forced inward until the reduced portion projects beyond the proximate edge of the flange 2 to permit the introduction of the bolt 17, this seating of the wedge tending by virtue of the cooperation between the edge 15 of the block and wall 9 of the seat to bind the rail securely in place. The pin 17 tends to prevent displacement of the wedge under any of the jars or vibrations to which the rail or the tie may be subjected in use.

It will be understood, of course, that while the rail seats 5 are formed so as to receive the wedge blocks 10 on the inner side of the rail it is equally effective to use said wedge blocks on the outer side of the rail, the seats being appropriately formed for such reception of the blocks. Furthermore, the tie may be of the true eye-form throughout its



length, the web being unbroken. Again the tie may be formed to include the upper flange 2 only, thus adapting the tie as such to be used on bridge structures, elevated structures, and the like.

While preferring the use of an eye-beam, it is to be distinctly understood that I do not limit myself thereto, as other forms of beams may be used with equally advantageous results.

The improvement provides a simple structure by which the rails are firmly supported, with which the rails may be readily connected or disconnected and which maintains a certain and effective gage under any and all conditions.

Having thus described the invention what is claimed as new, is:—

A railroad tie comprising an eye beam having an upper flange formed with rail seats, the opposing side wall of each seat being undercut, the edges above the undercut portion extending in parallel relation and directly transverse the length of the tie, the sectional contour of the undercut portion of the outer side wall of each seat conform-

ing to the sectional contour of one-half of the base flange of the rail, the sectional contour of the other undercut portion of each seat being of rectangular outline with its bottom wall in alinement with the bottom wall of the seat and its inner wall inclined relatively to the transverse plane of the tie, a wedge block having a section to engage the rectangular undercut portion and formed with an inclined edge to engage the inclined wall of said undercut portion, and a relatively offset portion to overlie and bear upon the remaining half of the base flange of the rail, said wedge block having a length exceeding the transverse dimension of the tie and being formed in that portion adapted to project beyond the tie when the block is in place with an opening, and a bolt to cooperate with said opening to prevent displacement of the wedge block.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES E. BLISS.

Witnesses:

WM. CRUIKSHANK,  
NATHAN COHN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."