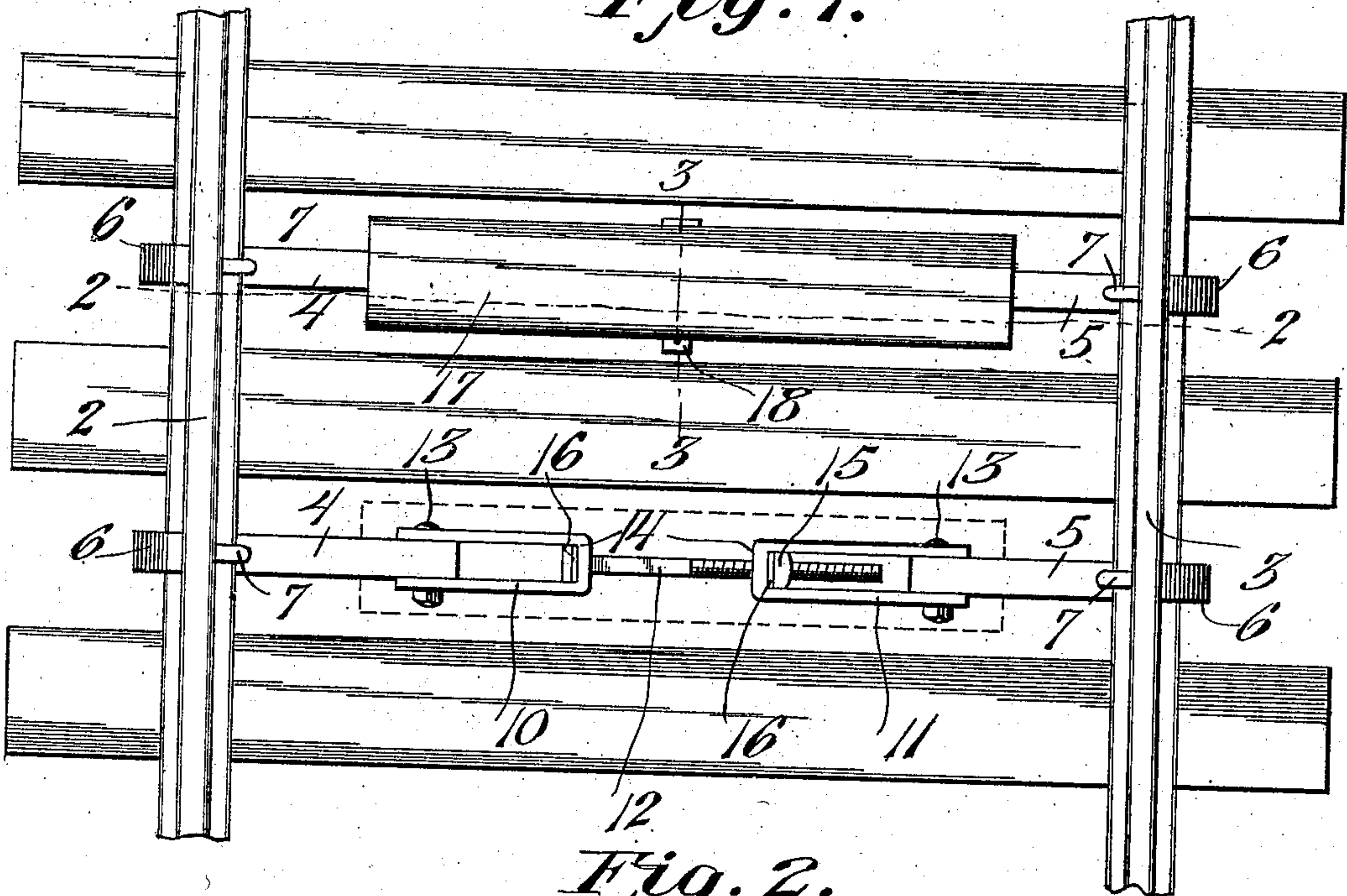


No. 815,059.

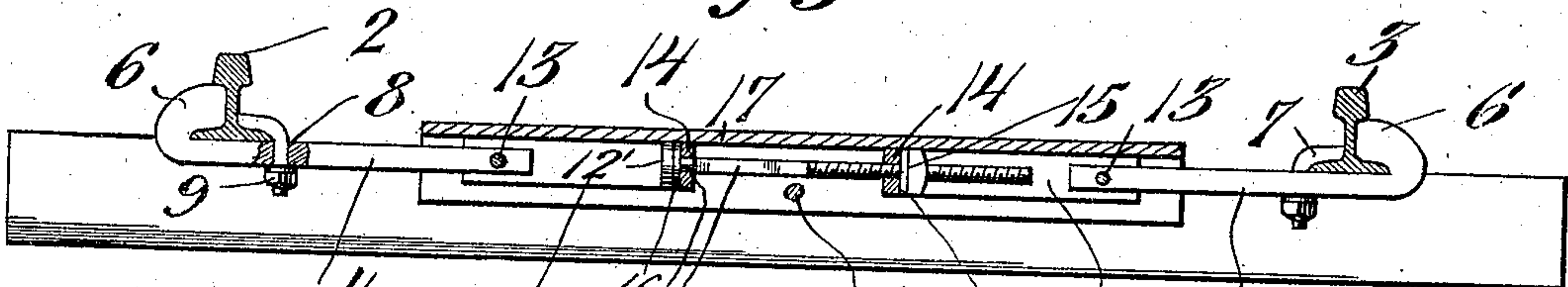
PATENTED MAR. 13, 1906.

N. E. BARNES.  
RAIL TIE AND BRACE.  
APPLICATION FILED OCT. 5, 1905.

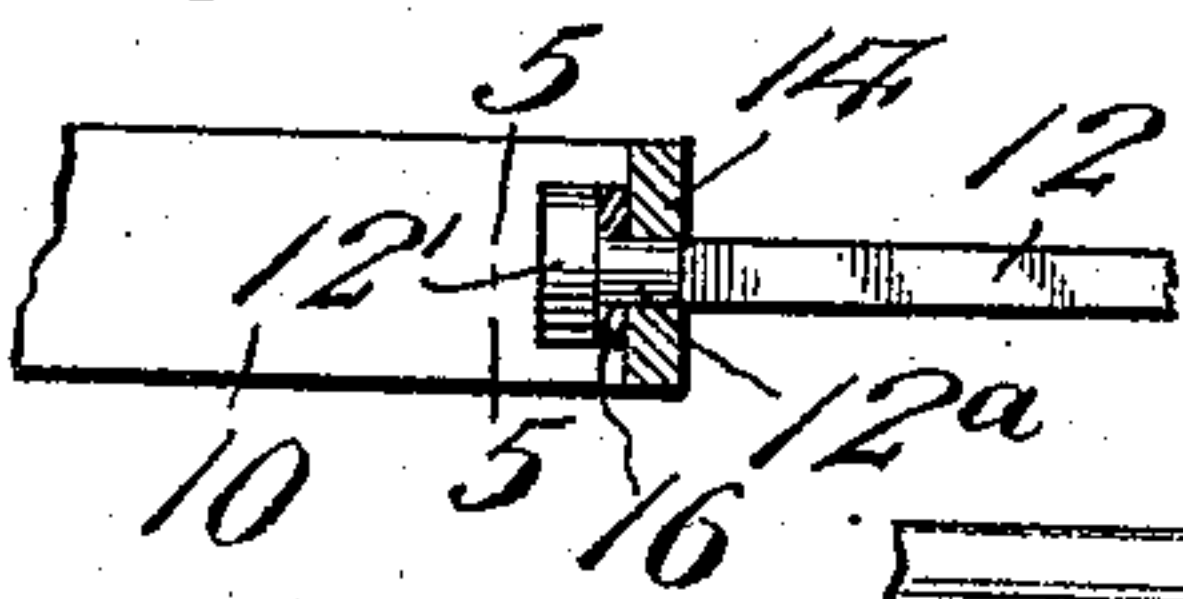
*Fig. 1.*



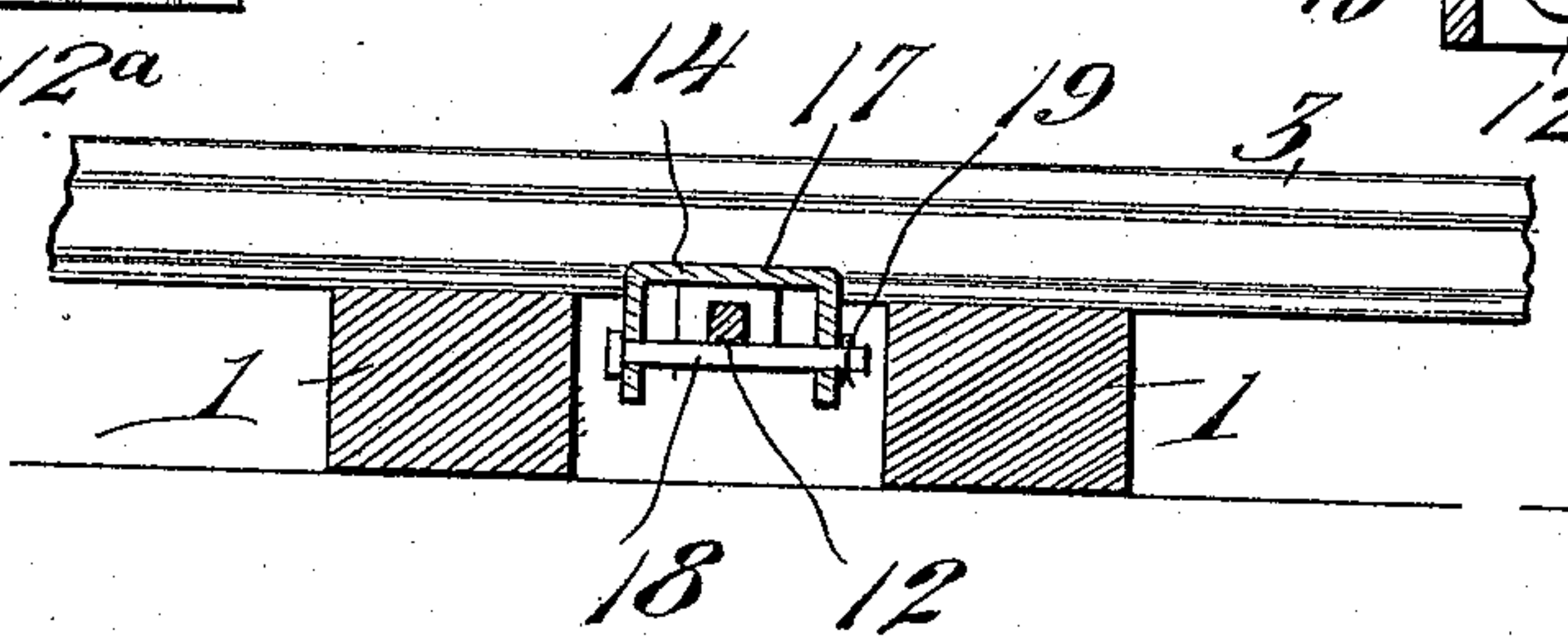
*Fig. 2.*



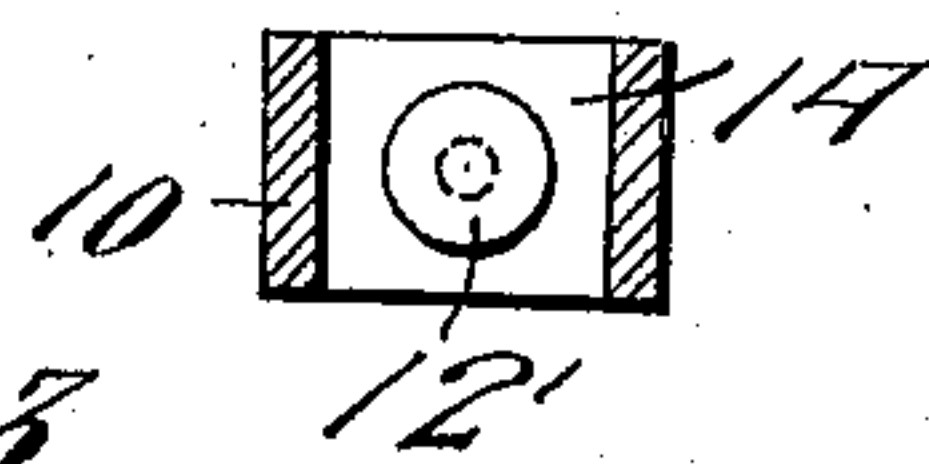
*Fig. 4.*



*Fig. 3.*



*Fig. 5.*



Witnesses

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# UNITED STATES PATENT OFFICE.

NED E. BARNES, OF WILLIS, TEXAS.

## RAIL TIE AND BRACE.

No. 815,059.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed October 5, 1905. Serial No. 281,495.

*To all whom it may concern:*

Be it known that I, NED E. BARNES, a citizen of the United States, residing at Willis, in the county of Montgomery and State of Texas, have invented new and useful Improvements in Rail Ties and Braces, of which the following is a specification.

This invention relates to rail ties and braces, and has for its object to provide a simple, durable, and inexpensive construction of brace for coupling the opposite rails of the road-beds of railways to prevent the rails from yielding unduly under lateral strain and spreading, while permitting the rails to be relatively adjusted as occasion requires, and, further, to provide a simple and effective shield for housing the connecting elements of the brace members from accidental injury and from rusting or deteriorating under the action of the elements.

In the accompanying drawings and forming a part of this specification, Figure 1 is a top plan view of a section of a road-bed, showing the rails connected by my improved tie and brace. Fig. 2 is a longitudinal section taken on line 2 2 of Fig. 1. Fig. 3 is a cross-section taken on line 3 3 of Fig. 1.

Referring now more particularly to the drawings, the numeral 1 designates the ties, and 2 and 3 the opposite rails of a rail-track structure.

The ties and braces constructed in accordance with my invention connect the rails at suitable distances apart and are used wherever excessive lateral strain falls upon the rails, particularly at curves, and each tie or brace comprises a pair of brace-bars 4 and 5, extending at their outer ends beneath the bases of the rails and having hooked terminals or clamps 6 engaging the outer sides of the webs and flanges of the rails. Each brace-bar is clamped to the adjacent rail by a clamping-bolt 7, which engages the inner side of the base-flange of the rail and has its threaded shank projecting downward through an opening 8 in the bar and provided upon the under side thereof with a clamping-nut and washer 9. The shank and opening 8 may be of rectangular form to prevent the clamp in practice from having axial movement and shifting out of engagement with the rail-flange.

The bars 4 and 5 are connected by intermediate coupling members 10 and 11 and a tie-bolt 12. The coupling members 10 and 11 are preferably of bail form and at their

open ends receive the inner ends of the brace-bars and are secured thereto by bolts 13. The heads or connecting members 14, which unite the inner ends of the arms of each bail, are apertured for the passage of the bolt 12, the head of which bears against the part 14 of one bail, while the threaded shank thereof extends through the corresponding threaded part 14 of the other bail and has applied thereto a nut 15, whereby the parts may be drawn together and tightened to the desired tension. This action is permitted upon the application of a wrench or other suitable tool to the shank of the bolt by reason of the fact that the head of the bolt, which is preferably of circular form, is arranged to have free rotary movement in the bail 10. Washers 16 may be applied between the parts 14 of the bails and the bolt-head and nut, if desired, and it will be seen that the construction described will permit the rails to be adjusted relatively to each other when occasion requires and will prevent them from having an excess of movement under lateral strain and spreading. If desired, the bolts 13 may loosely connect the bails or yokes 10 and 11 with the brace-bars 4 and 5 to form pivotal connections, which will permit the brace members to yield vertically with the rails, and thus allow the rails to have the desired resiliency.

In connection with the brace and tie I provide a simple form of housing comprising an inverted substantially U-shaped shield 17, of sufficient length to cover the inner ends of the brace-bars and coupling members connecting them. The top portion of this shield rests upon the upper edges of the bails or yokes 10 and 11, while the side flanges thereof project downward on opposite sides of the coupling members, and thereby shield the same from the access of snow, rain, and other matter which are liable to cause rust or deterioration of the parts and weaken the connection. This shield is held in position by a pin 18 passing transversely through central openings in the side flanges thereof and lying beneath the bolt 12, so that the latter will act as a stop to hold the shield from movement. One end of the pin is headed to bear against one of the side flanges, while the other end thereof is apertured for the reception of a suitable key or cotter-pin to retain it in position.

The ties and braces are preferably arranged in practice, as shown, between the adjacent ties of the road-beds, and the mode of



mounting the shield permits of its ready disconnection to enable the ties and braces to be readily applied, removed, and adjusted as occasion demands.

5 Having thus described the invention, what I claim is—

1. A rail tie and brace comprising brace-arms having clamps to engage the rails, and an intermediate adjustable coupling, said  
10 brace-arms being pivotally connected with the coupling to permit them to have limited vertical play with the rails.

2. A rail tie and brace comprising brace-bars having clamps to engage the rails, bail-  
15 shaped coupling members attached to the bars, and an adjustable coupling connection between said bail-shaped members.

3. A rail tie and brace comprising brace-bars provided with means of attachment to  
20 the rails, and an adjustable pivotal connection between the bars.

4. A rail tie and brace comprising brace-bars provided with means of attachment to the rails, bail-shaped coupling members con-

nected with the inner ends of the bars, and  
25 a coupling-bolt adjustably connecting said coupling members.

5. A rail tie and brace comprising brace-bars provided with means of attachment to  
30 the rails, a coupling connection between said bars, and a shield or housing covering the coupling connection.

6. A rail tie and brace comprising brace-bars provided with means of attachment to  
35 the rails, a coupling connection between said bars, an inverted-U-shaped shield or housing covering the coupling connection, and a fastening member engaging the shield and  
40 coupling connection to secure the shield in place.

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

NED E. BARNES.

Witnesses:

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