

No. 891,805.

PATENTED JUNE 23, 1908.

C. A. REED.  
RAILROAD TIE.  
APPLICATION FILED JUNE 1, 1907.

2 SHEETS—SHEET 1.

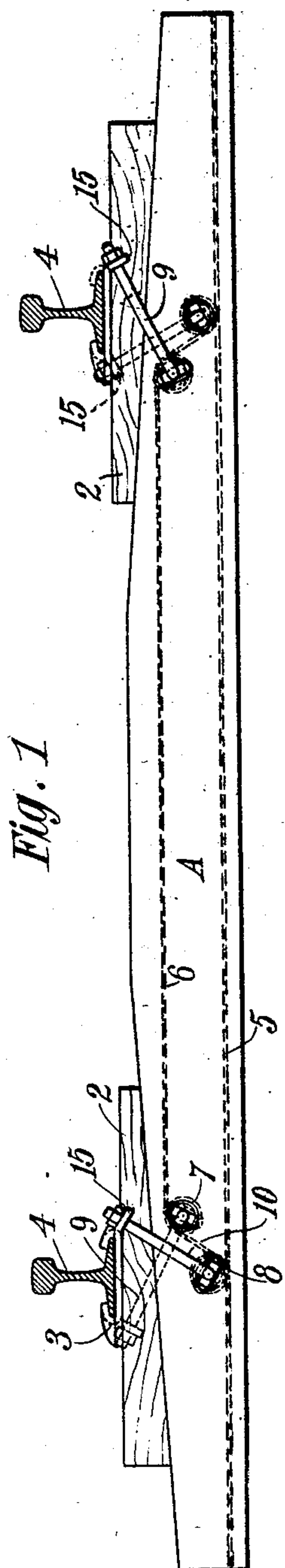


Fig. 1

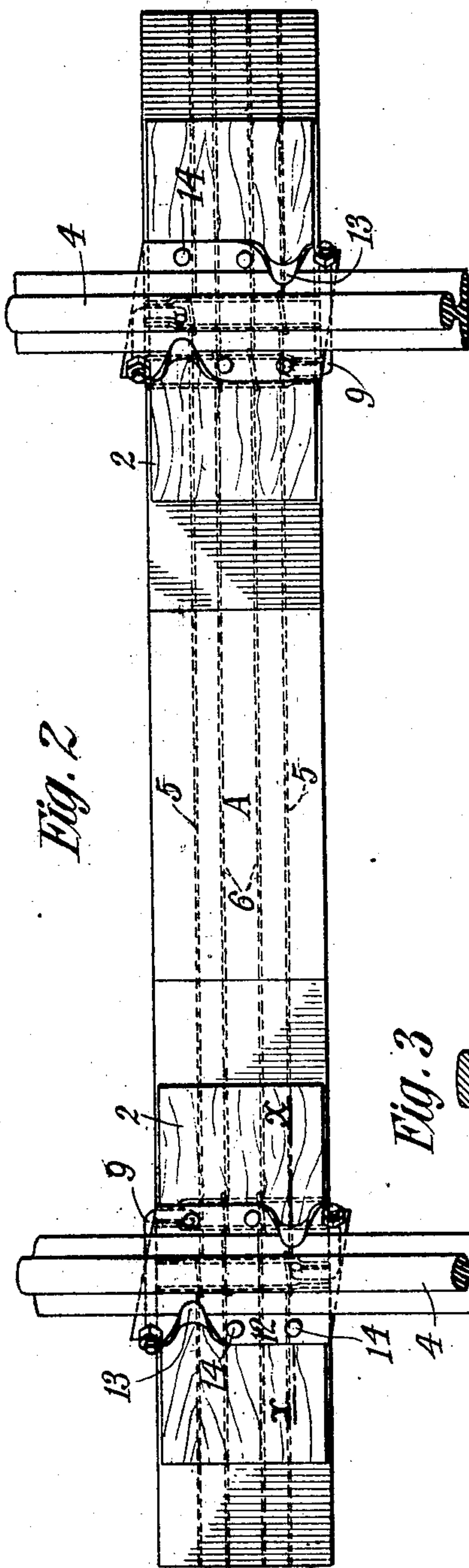


Fig. 2

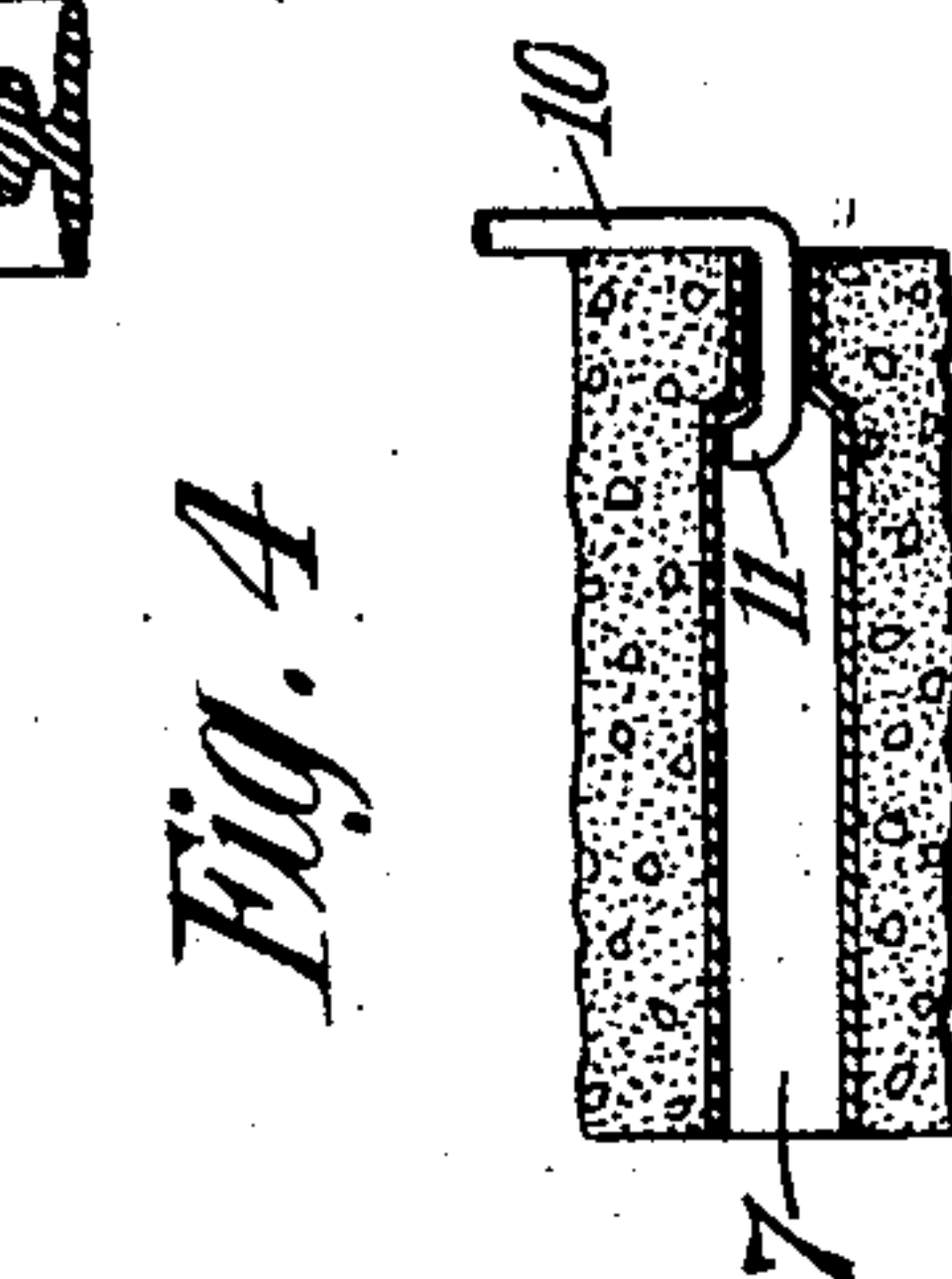


Fig. 4

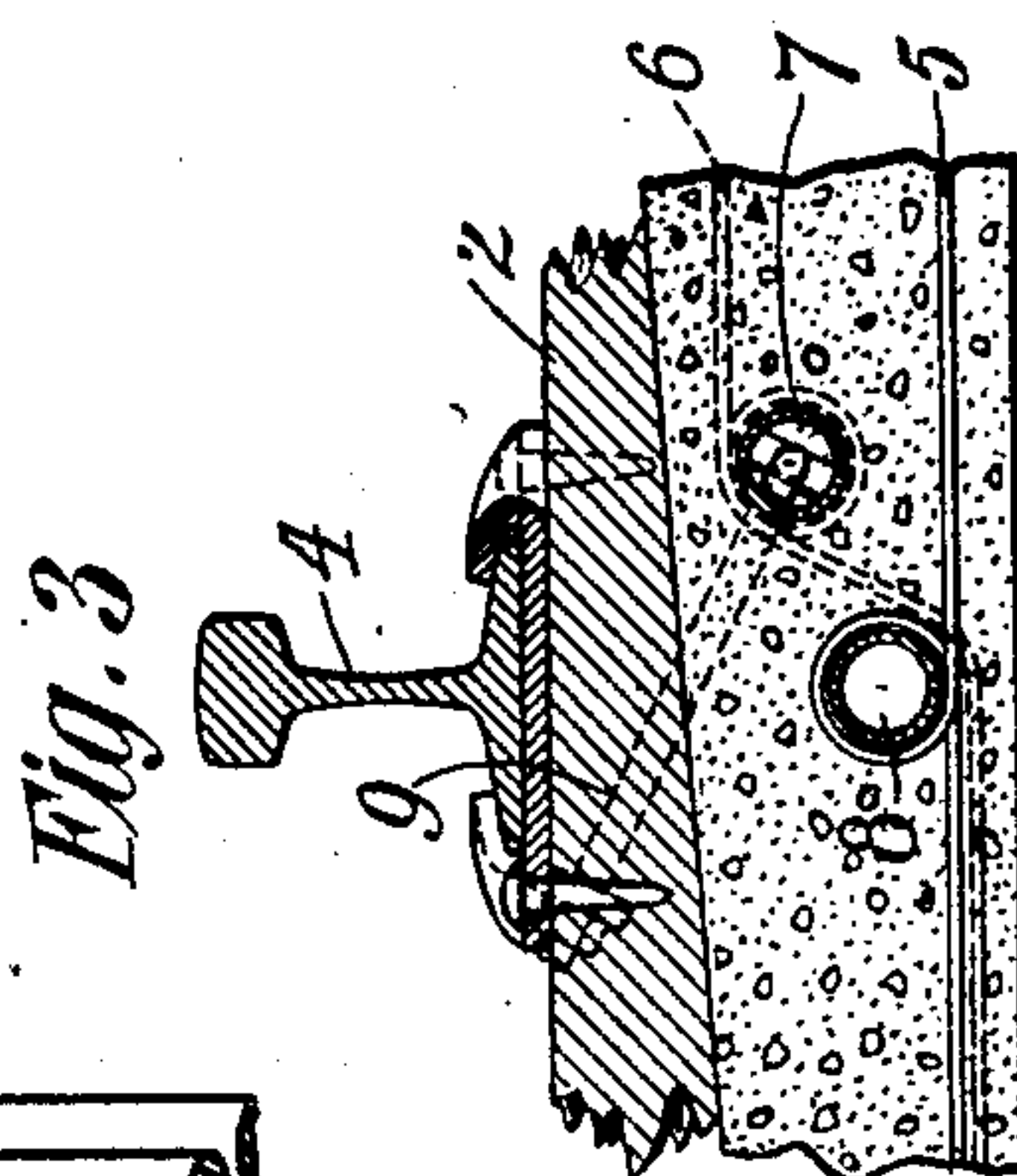


Fig. 3

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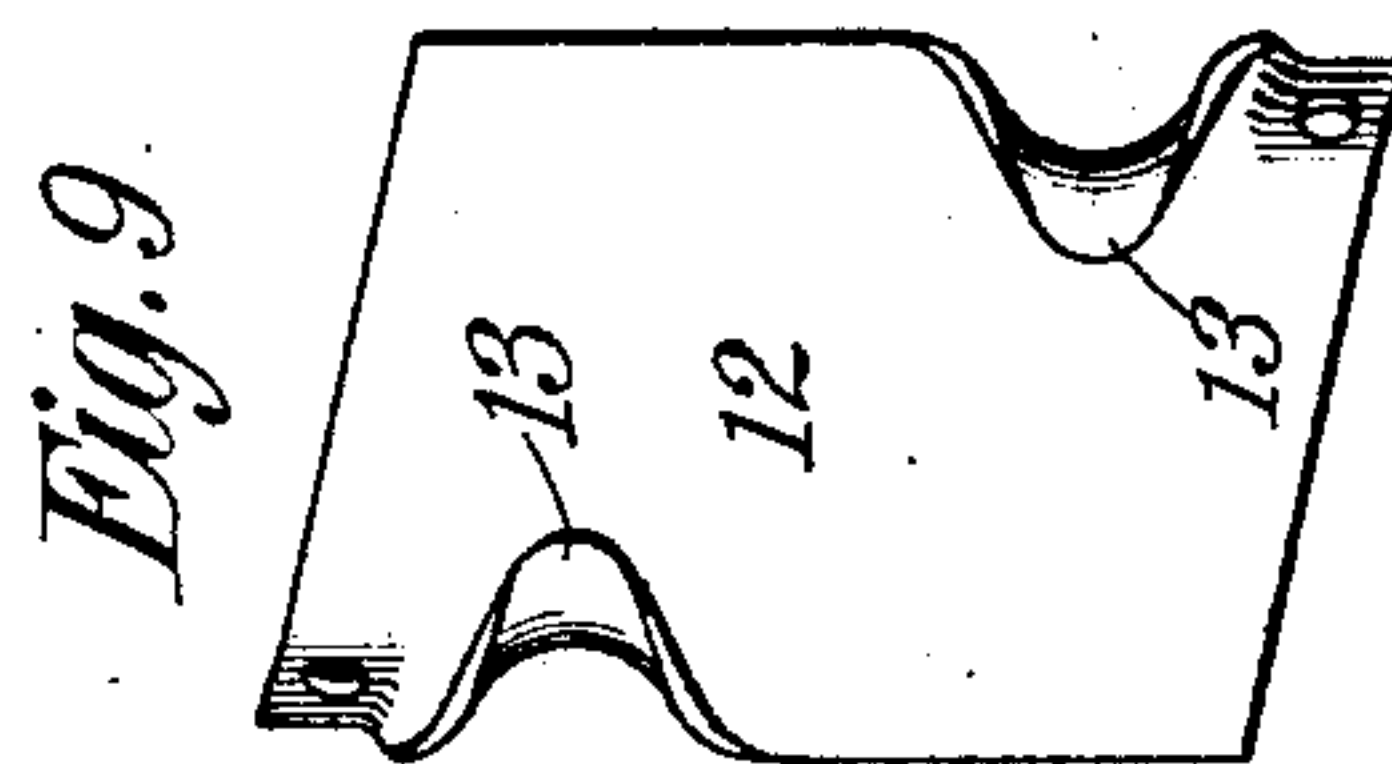
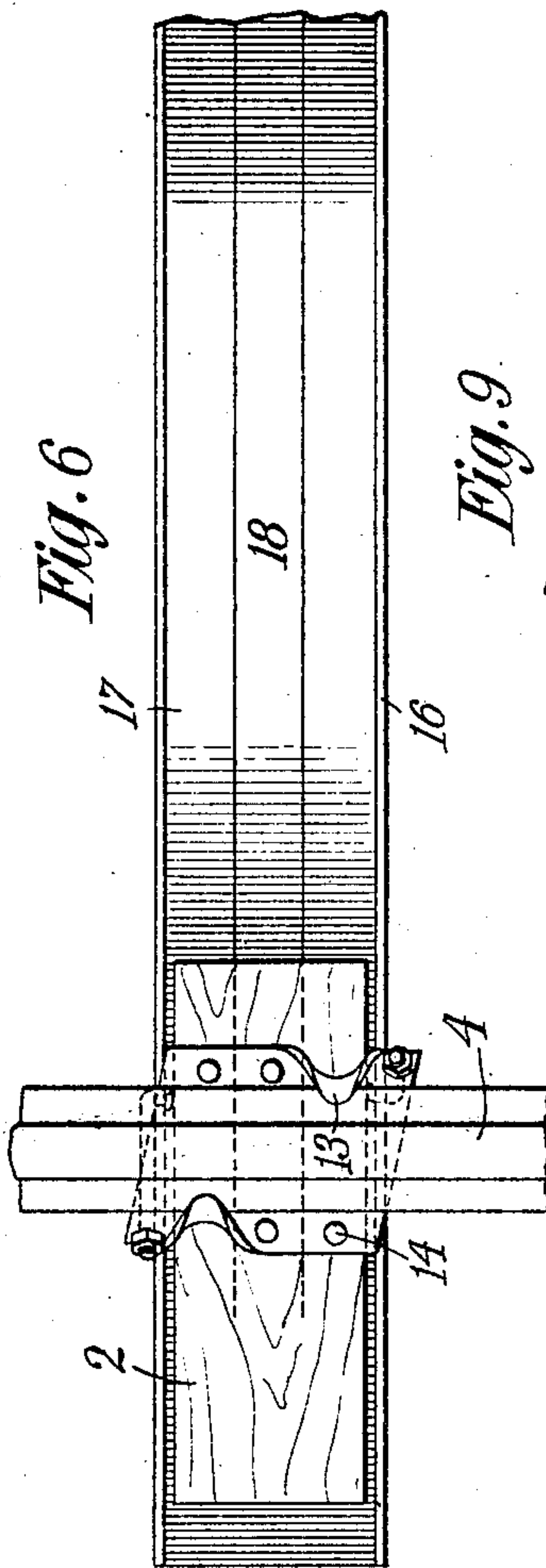
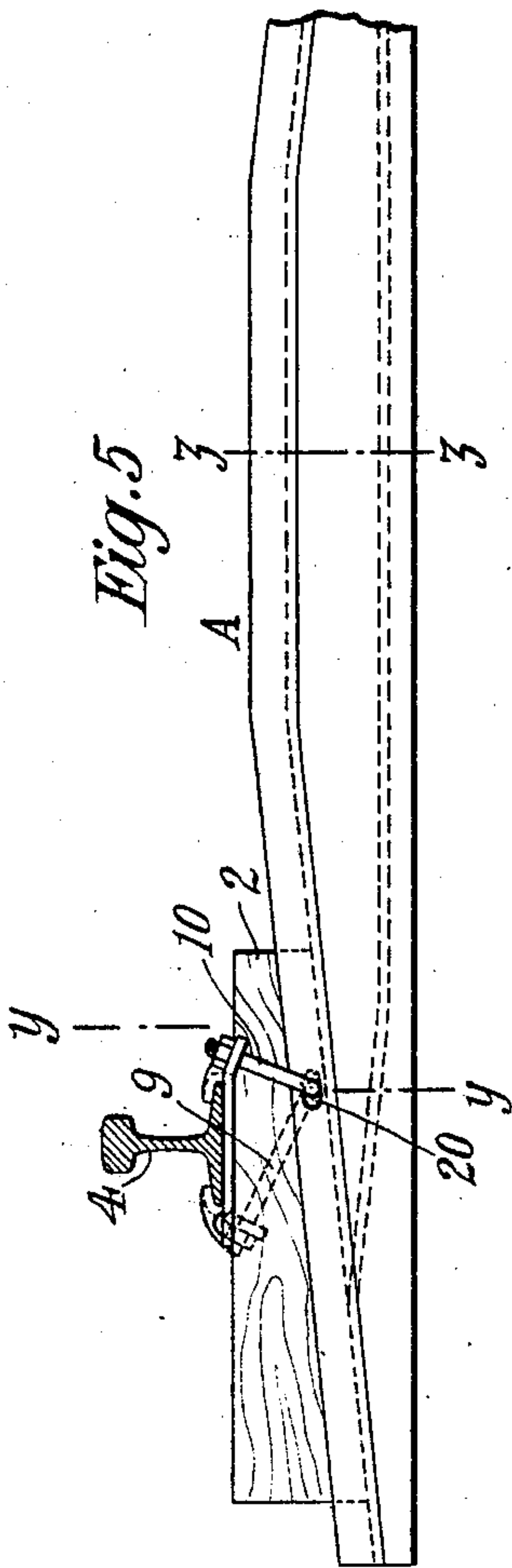
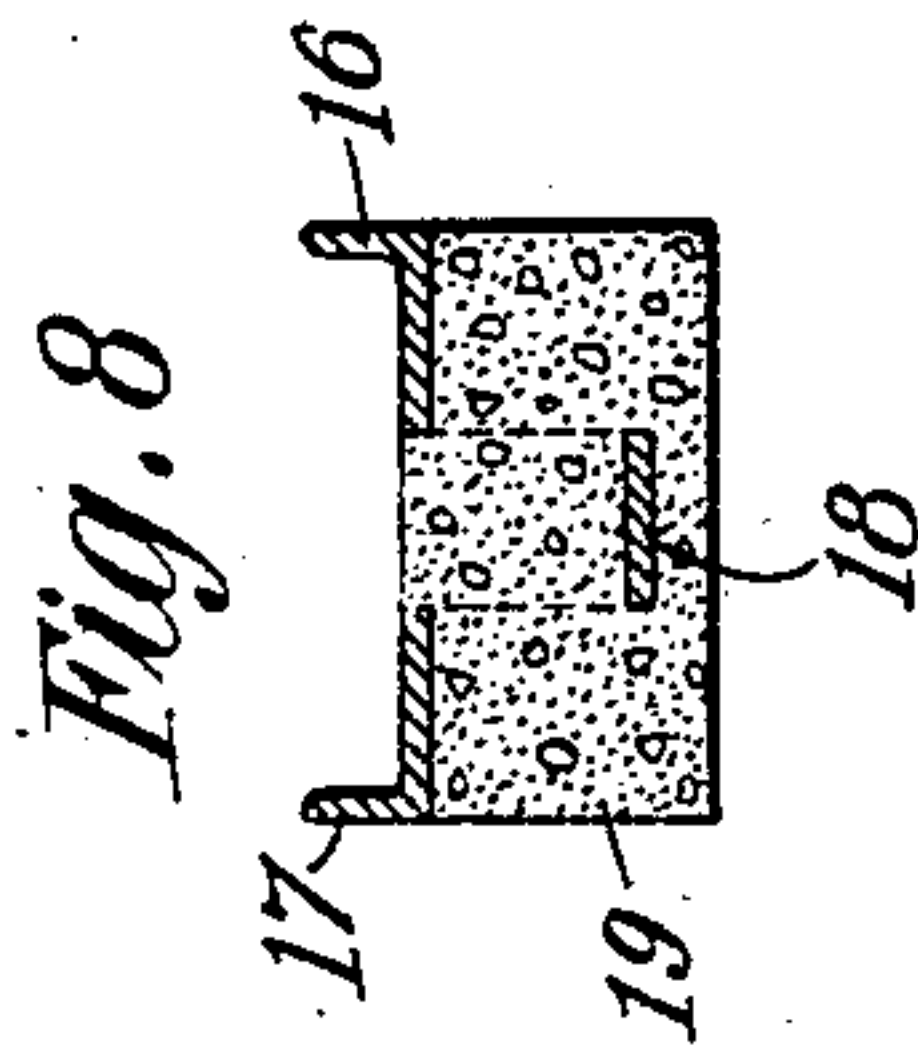
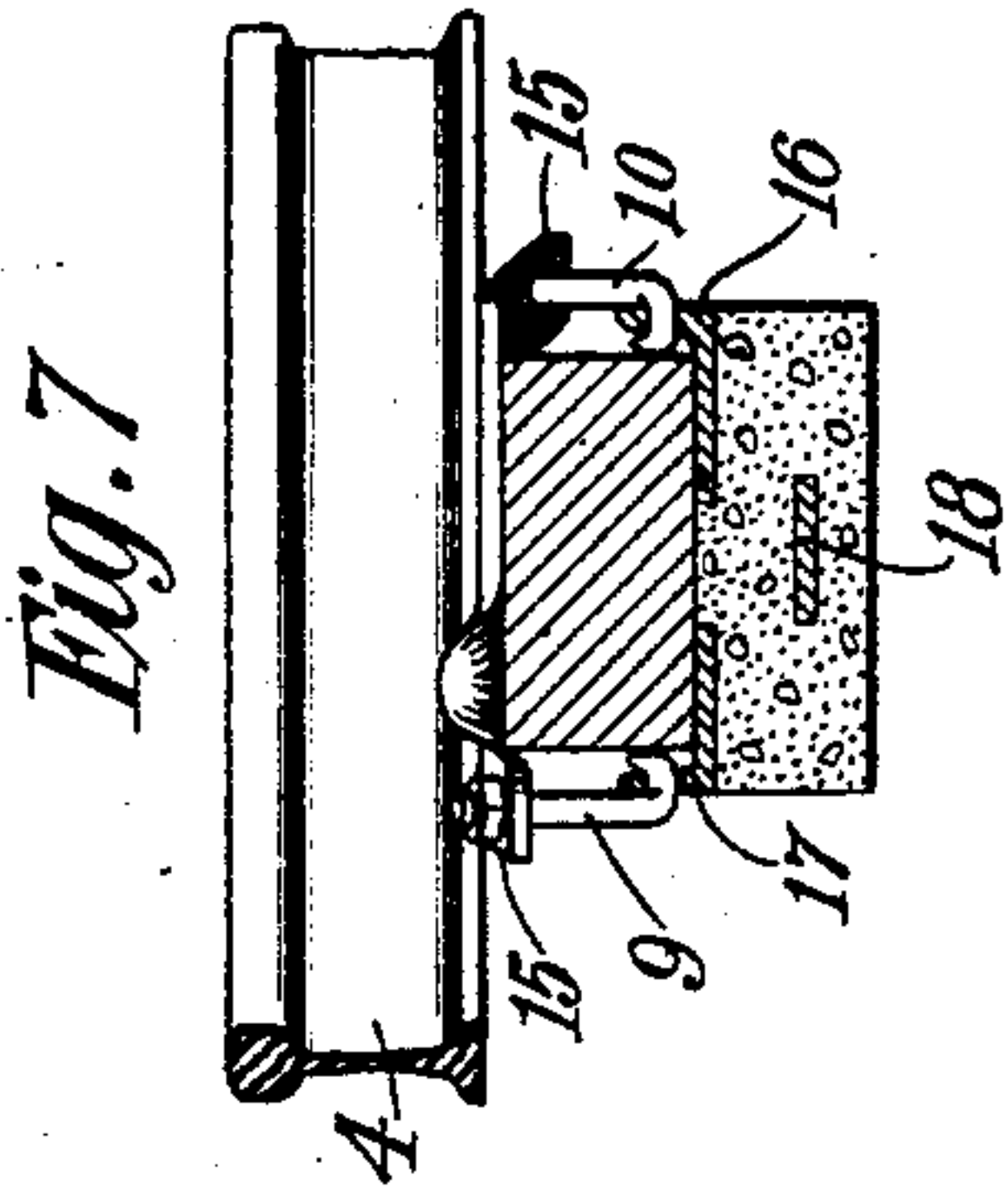
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Witnesses:  
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Chas. A. Reed Inventor  
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# UNITED STATES PATENT OFFICE.

CHARLES A. REED, OF ST. PAUL, MINNESOTA.

## RAILROAD-TIE.

No. 891,805.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed June 1, 1907. Serial No. 376,833.

*To all whom it may concern:*

Be it known that I, CHARLES A. REED, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented new and useful Improvements in Railroad-Ties, of which the following is a specification.

My invention relates to improvements in railway ties and attachments therefor, its object being to provide an improved type of tie which will furnish the most substantial and rigid support for the rails, while permitting ready adjustment of the rails to grade and gage, and consists in the feature of construction hereinafter described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 represents a side elevation of one type of my improved tie, showing the means for securing and adjusting the rails thereon to gage and grade. Fig. 2 is a plan view of the same. Fig. 3 is a detail vertical section on line  $x-x$  of Fig. 2. Fig. 4 is a sectional detail of the means for connecting the rail-securing bolts to the tie. Fig. 5 is a partial side elevation of a modified construction. Fig. 6 is a partial plan view of the same. Fig. 7 is a detail cross-section on line  $y-y$  of Fig. 5. Fig. 8 is a similar cross-section on line  $z-z$  of Fig. 5. Fig. 9 is a detail of the tie plate.

As shown in the drawings, the tie A is beveled on top toward each end. Upon each of these beveled portions is fitted a compensatingly beveled shim 2 upon which is seated the tie plate 3 carrying the rail 4.

In the construction shown in Fig. 1, the tie A is made of concrete reinforced by rods or other structures 5 and 6, and extending longitudinally there-through respectively near the top and bottom of said tie. Arranged transversely in the tie and underneath the rails are tubes 7 and 8 preferably flattened at each end as shown, and adapted to receive respectively the hooked bolts 9 and 10, the hooked ends of which have turned tips 11 (see Fig. 4) which when entered into the flattened ends of the tube and turned as shown in Fig. 4 are secured from being withdrawn. To resist the strain upon the bolts 9 and 10 the reinforcing member 5 is preferably given a turn around the tube 8 and the member 6 similarly turned around the tube 7 and thence downward underneath the tube 8 as shown. Upon the shim 2 is seated the tie plate 12, preferably provided near diagonally

opposite corners with up-turned lips 13 shaped to overlap and engage the base of the rail 4. This plate is inserted underneath the rail by being turned at an angle to permit the rail to pass between the lips 13 and is then turned into the position shown in Fig. 2 with the lips engaging the rail base. The shim is secured in place as by means of spikes 14 driven through the plate into it. At diagonally opposite corners the plate 12 has down-turned lips 15 with openings there-through to receive the bolts 8 and 9 which when firmly fastened by their nuts anchor the rail in place.

In the modified construction shown in Figs. 5 to 8 the top of the tie is a channel bar 16 with its flanges 17 extending upward. This channel bar is bent into the same form as the upper portion of the concrete tie in Fig. 1 so as to give a beveled surface at each end of the tie. The channel bar is slit longitudinally intermediate of its ends, forming a central or tongue part 18 which is then bent downward into the position shown in Figs. 5, 7 and 8. The channel bar is seated upon, and the tongue embedded in, a mass of concrete, or asphalt or bitumen and sand or broken stone composition, which by reason of its rough surface will cling firmly to the surrounding material in which it is embedded and by its frictional resistance and weight will tend to hold the tie from displacement when set. In this construction the bolts 9 and 10 are hooked into slit openings 20 in the flanges 17 of the channel bars.

The method of assembling the parts in original or new construction is as follows: The tie being set, the shims 2 are laid in approximate position, the rails laid upon the shims and the tie plates inserted underneath the rails and turned into engaging position and the bolts passed through the same and secured by their nuts. The rails are then adjusted to gage and grade the shims being driven to proper position to raise the rails to the required height, and the tie plates spiked to the shims and the nuts secured on the bolts. In repair work, the ties are inserted under the rails, and the shims, tie plates and bolts then secured in place. It will thus be seen that in the original construction of the track and in all subsequent readjustment the rails can be brought to proper grade and gage by simply loosening the bolts and readjusting the shims as may be required, and



then tightening the nuts upon the bolts to adjust the rail to gage. It is apparent that by means of the bolts arranged in the position of guys, the shearing strain of the rails under the thrust of car wheels, is transmitted to the tie instead of falling wholly upon the rail spikes.

I claim:

1. In combination, a beveled railway tie, a compensatingly beveled rail supporting shim, and connections between the rail and tie.

2. In combination, a railway tie having beveled rail supporting surfaces, compensatingly beveled shims adapted to be slidably adjusted on said beveled surfaces, and means for securing the rails upon said shims adjusted to grade.

3. In combination, a beveled railway tie, compensatingly beveled shims adjustable thereon, rails seated upon said shims, and means securing said rails to said tie adjusted to gage and grade.

4. A bevel surfaced railway tie, rails arranged thereon, beveled supports for said rails slidably adjustable upon the beveled surfaces of said tie, tie plates carrying said rails upon said supports, and means interconnecting said plates and tie adapted to anchor said rails in place and to adjust them both as to grade and gage.

5. In combination, a concrete or composite tie, tubes arranged transversely therein, bolts engaging said tubes and adapted to secure a rail upon said tie, and means interposed between said rail and tie for adjusting the height or grade of said rail.

6. The combination with a railway rail and its supporting tie, of interconnecting means adapted to adjust the rail thereon to

grade, and to transmit shearing strain from the rail to the tie.

7. The combination with a railway rail and its supporting tie, of interconnecting means adapted to adjust the rail thereon to grade and gage, and to transmit shearing strain from the rail to the tie.

8. In combination with a railway tie of the class described, means for securing a rail thereon in laterally adjusted positions comprising a rail engaging and supporting plate and diagonally disposed securing bolts for said plate by the adjustment of which said plate can be shifted longitudinally of said tie.

9. In combination, a railway tie having a beveled end, and a compensatingly-beveled, rail-supporting device adapted to be adjustably seated on the beveled surface of the tie.

10. In combination, a railway tie having beveled ends, compensatingly-beveled devices adjustably seated on said beveled ends, a rail supported on said devices, and means for anchoring the rail in place.

11. In combination, a railway rail, a concrete, beveled, railway tie, and an oppositely-beveled, wooden shim interposed between the rail and tie to adjust the former to grade.

12. In combination, a railway rail, a beveled, concrete, railway tie, a similarly beveled, wooden shim interposed between said rail and tie to adjust the rail to grade, and means for anchoring the rail in place.

In witness whereof, I have hereunto set my hand at the city of New York, this 17th day of May, 1907.

CHARLES A. REED.

Witnesses:

A. B. CORTHELL,  
C. R. PLACE.