

J. D. HAZLET & G. W. HAIGHT.  
RAILWAY TIE.

APPLICATION FILED DEC. 6, 1907.

899,976.

Patented Sept. 29, 1908.

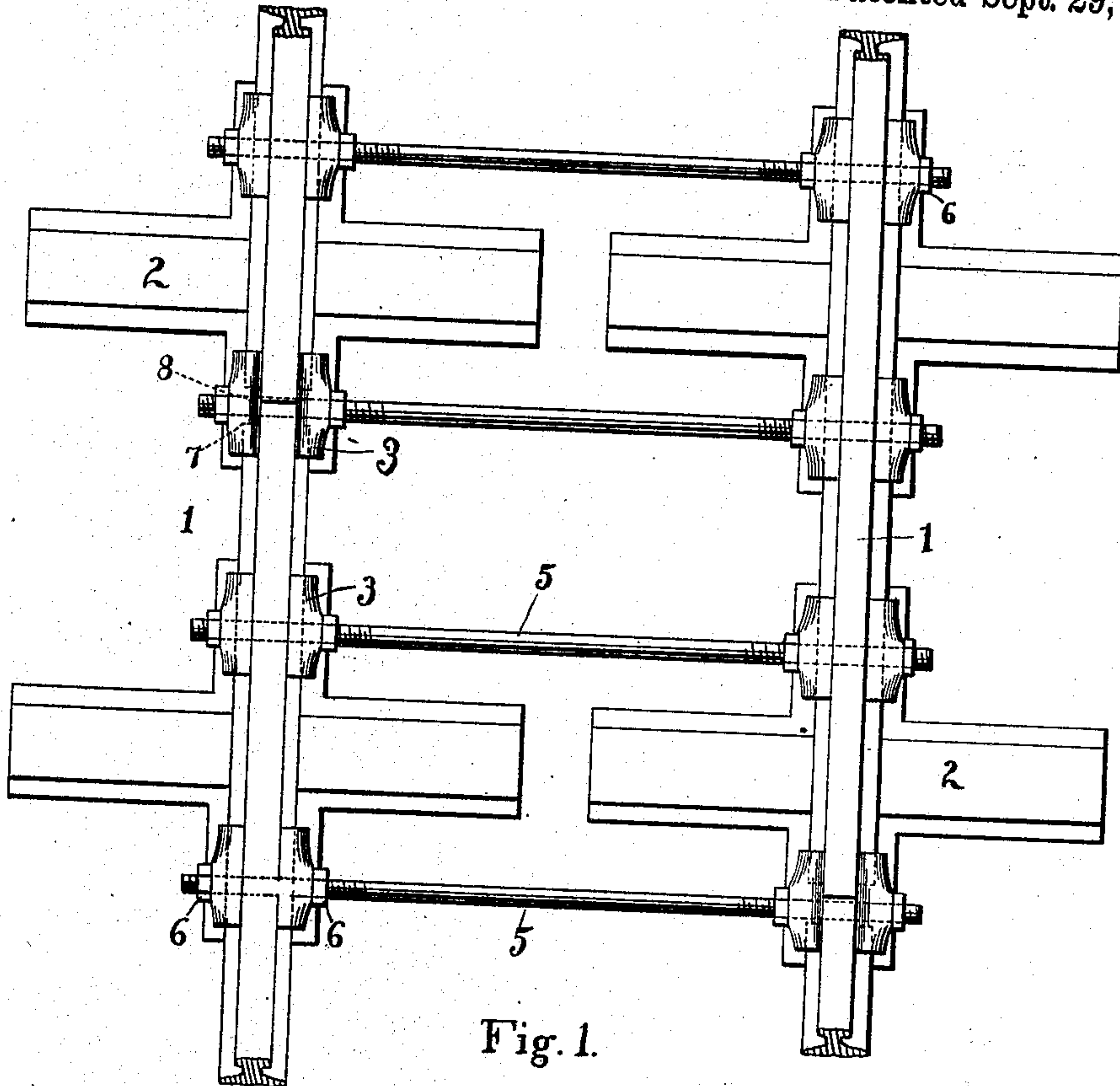


Fig. 1.

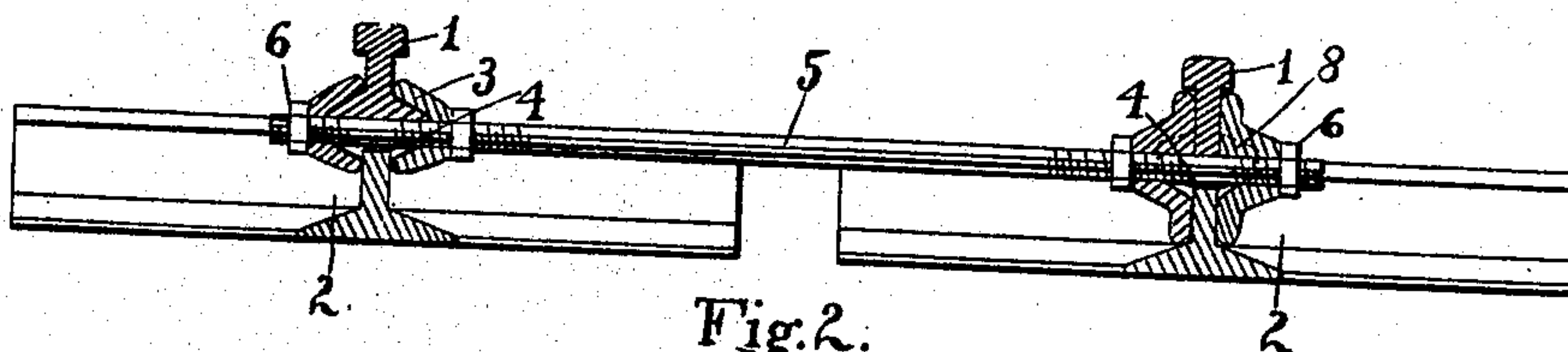


Fig. 2.

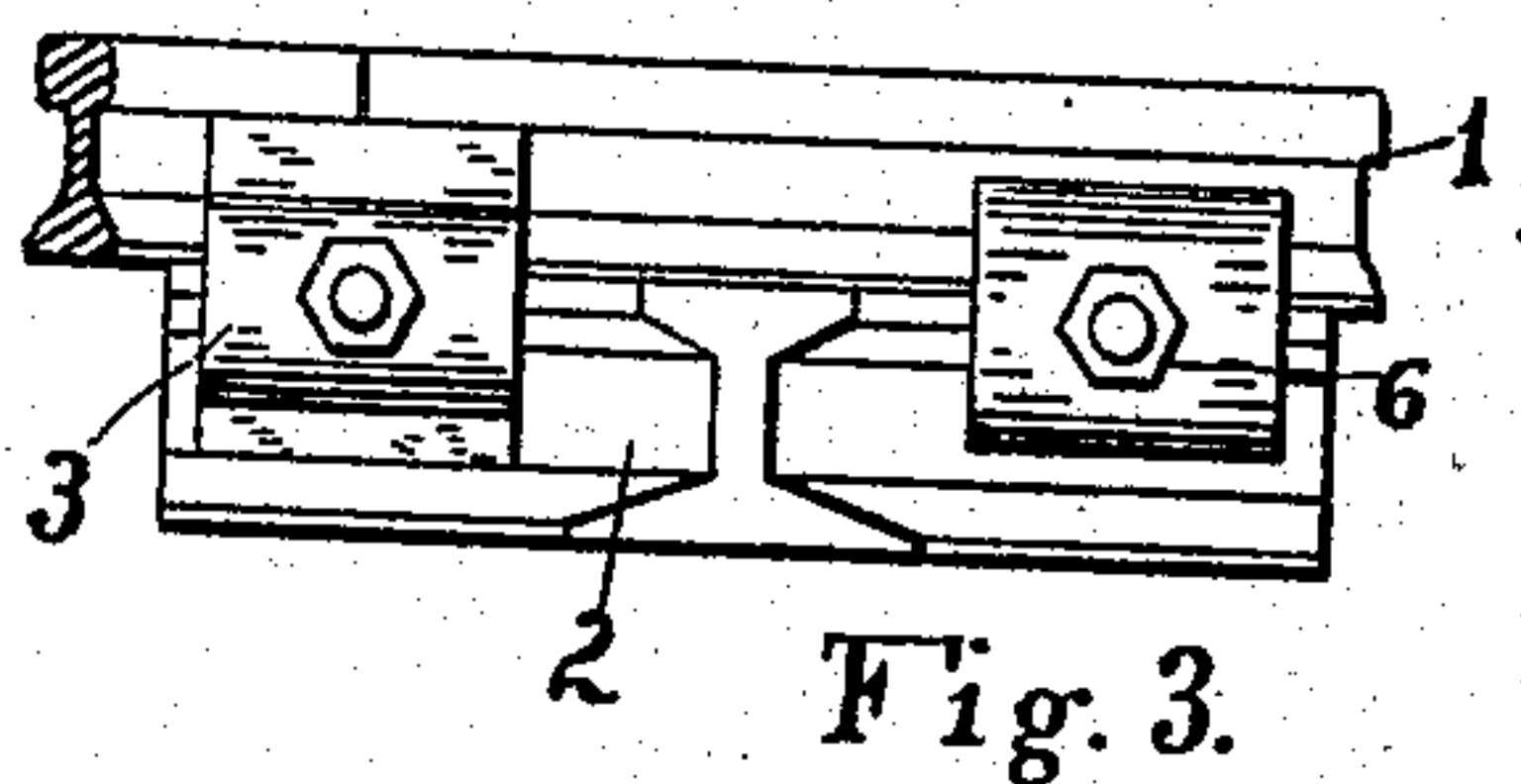


Fig. 3.

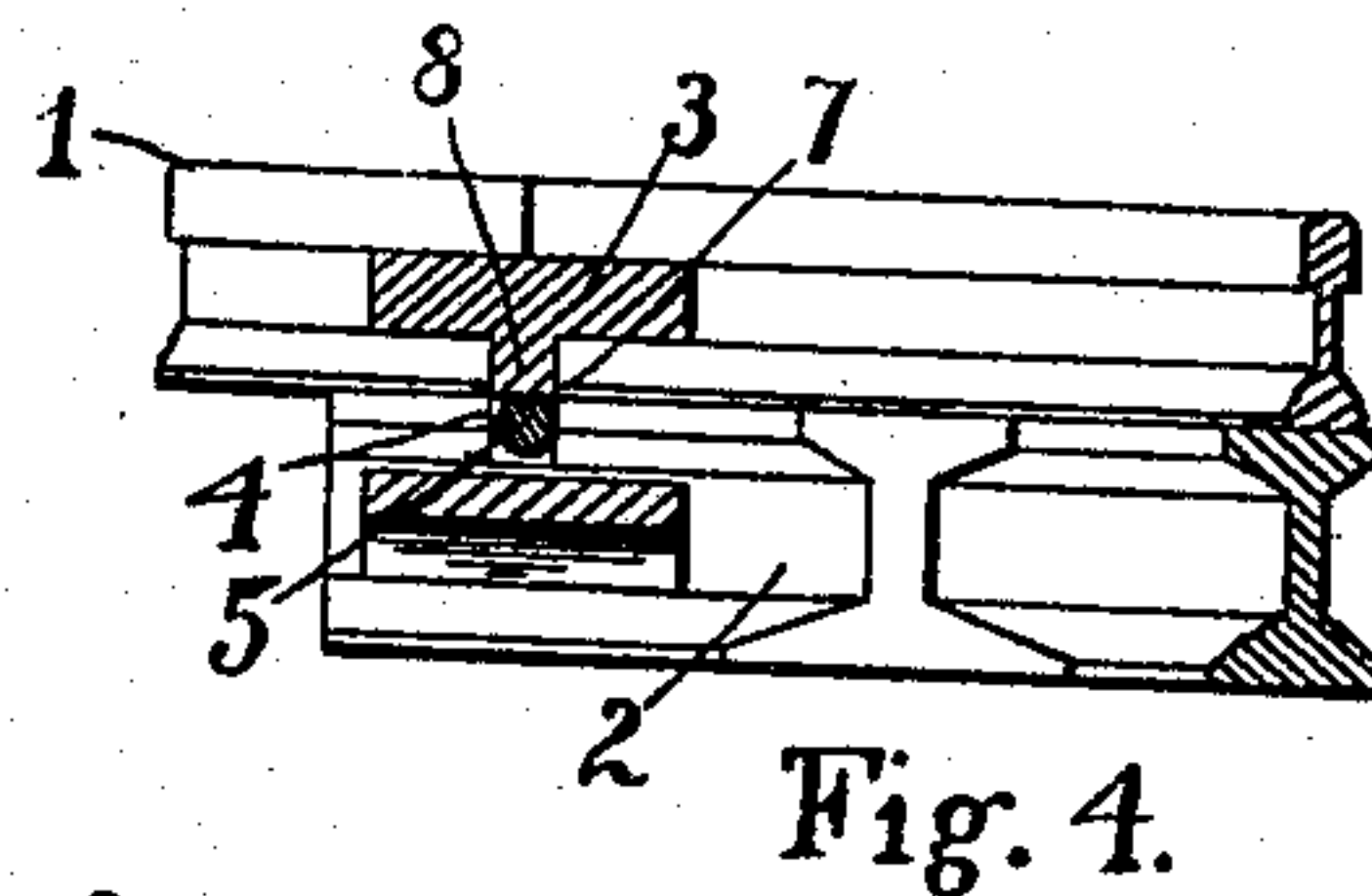


Fig. 4.

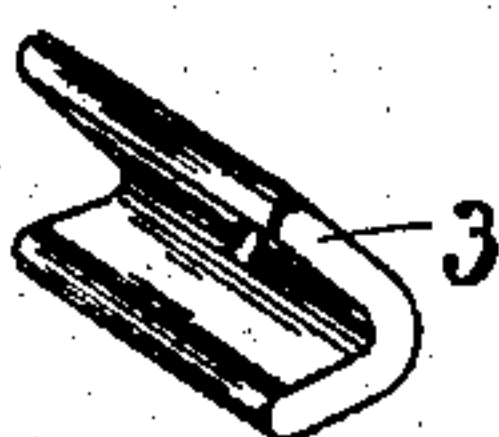


Fig. 5.

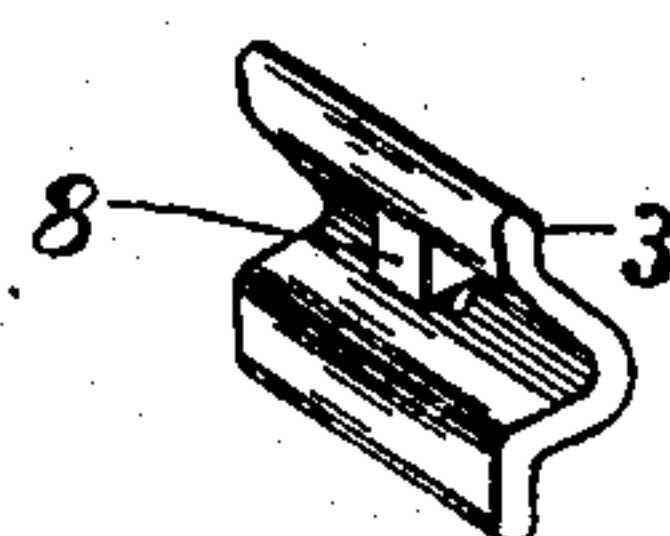


Fig. 6.

Attest:

*Bent. Middleton*  
*Edward A. Tolson*

Inventors.

*John D. Hazlet*  
*George W. Haight*

By *Spear, Middleton, Davidson & Spear*  
Atty's.



# UNITED STATES PATENT OFFICE.

JOHN D. HAZLET AND GEORGE W. HAIGHT, OF FRANKLIN, PENNSYLVANIA.

## RAILWAY-TIE.

No. 899,976.

Specification of Letters Patent.

Patented Sept. 29, 1908.

Application filed December 6, 1907. Serial No. 405,344.

*To all whom it may concern:*

Be it known that we, JOHN D. HAZLET and GEORGE W. HAIGHT, citizens of the United States, residing at Franklin, Pennsylvania, have invented certain new and useful Improvements in Railway-Ties, of which the following is a specification.

Our invention relates to railway construction and particularly to railway ties and means for securing the rails thereto.

One object of our invention is to provide a tie which will have a measure of independent self-adjustment to the conditions existing at one side of the road bed from that existing at the other side of the road bed. Further to provide a construction which will resist the side strain or tendency to spread to which the rails are subjected without danger of shearing off the holding devices which is possible to occur with the structures now in use. We aim also to provide a structure which will permit the use of channel iron members as the ties and provide means whereby the connection between the tie members or between the rails will be accessible at all times and also visible at the top of the road bed for inspection or repair.

The invention consists in the features, combination and arrangement of parts hereinafter described and particularly set forth in the appended claims.

In the accompanying drawings,—Figure 1 is a plan view of our invention. Fig. 2 is a cross sectional view of a pair of rails with our invention associated therewith. Fig. 3 is a side view of a rail with our invention in place. Figs. 4, 5 and 6 are views of detail parts.

In these drawings, 1 indicates the rails of an ordinary railway. These rails are supported upon tie members, each of which is composed of two members, 2, these members being each of substantially cross form having arms extending in a direction transversely of the rail and arms extending longitudinally of the rail, there being one of these tie members under each rail. These tie members of cross form are preferably made of angle iron in cross section, which may be either cast or rolled though we do not limit ourselves to this form of tie member, as in some cases wood may be used and the members of cross form built up from short pieces of material, if desired. The transversely extending arms of the cross shaped members extend beyond the rail and also to a point near the center of

the track. The rails rest upon the upper faces of the cross shaped members extending along the arms thereof and they are held in place by clamps 3 of substantially U shape in cross section which grasp with their upper edges the base flanges of the rails, and with their lower edges the upper flanges of the cross shaped tie members. The longitudinally extending arms of the cross shaped tie members are provided with notches in their upper surfaces or edges at 4 and the clamps are located at the points where these notches are formed and through these clamps and the notches in the tie members, tie rods 5 extend. These tie rods reach from one rail to the other, terminating on the outer sides of the rails. They are screw threaded at their ends and also at intermediate points adjacent the inner clamps to receive nuts 6 which bear upon the clamps and press the same securely upon the flanges of the rails and upon the flanges of the tie members to hold the rails securely to the ties.

It will be observed from this construction that the rails are held in place by the clamps and thus the use of spikes or bolts is rendered unnecessary, and the accidents arising from the shearing action of the rails against the spikes or bolts will be avoided by our invention. It will be observed also that by extending the clamps so as to fit against the flanges of the rails and also under the heads, the said clamps will act as fish plates and thus provide a joint for the rails without the use of bolts passing through the web of the rail.

The tie rods resist by their tensile strength the tendency of the rails to spread and in this respect we have presented an advance over the ordinary structure in which the rails are held by spikes or bolts so placed that the tensile strength of these bolts or spikes is not available, and we therefore provide a construction which will resist the tendency to spread and tendency to shear. The tie bolts have a degree of flexibility so that one tie member is adapted to accommodate itself to any settling of the road bed on that side without affecting the tie member on the other side of the road bed, and further, without damage to the tie as a whole which is not true where the tie extends from one side of the track to the other, in which case if one side settles breakage is apt to occur at an intermediate part of the tie.

The rods or tie bolts with our present con-



struction are located substantially in the plane of the flanges of the rails, and thus lie at the top of the road bed where they are accessible for repairs, adjustments or inspection.

One function of the clamps held by the tie rods which pass through the notches in the cross tie members is to prevent creeping of the rails, for it will be seen that the tie bolts are held against any displacement laterally by the notches of the cross tie members. It will also be seen that by our construction the force exerted against the rails tending to press them outwardly will automatically tighten the rails against the clamps and cause them to grip the tie and rail with a force exactly in proportion to the amount of strain imposed upon them. By our construction the clamps may serve to hold together the ends of a broken rail.

The cross tie members have their laterally extending arms in position to get a long bearing on each side of the rail and by connecting the longitudinal arms of the cross shaped members together a long flexible tie rod may be employed, and these rods are attached to the cross shaped members at points where they will be least affected by any settling or lateral tipping of the cross shaped members.

In order to prevent creeping of the rail we form notches or cut away the rails at suitable points, preferably at the ends to form shoulders on the flanges of the rail against which a lug or flange on the inner side of the fish plate will fit, and these lugs serve to prevent creeping of the rails, for as the fish plates are held rigidly against longitudinal movement by means of the tie-bolts passing through the notches in the ties the engagement of a part of the fish plate which is stationary with the rail will hold the rail against movement longitudinally.

We claim as our invention:

1. In combination, the supporting members for the rails, a pair of clamps for each rail to hold the same to the supporting members, said supporting members having notches opening upwardly, and means for holding the clamps together, said means passing through the notches in the supporting members, substantially as described.

2. In combination, the flanged supporting

members for the flanged rails, a pair of clamps for each rail to hold the same to the supporting members, each of said clamps engaging a flange on the supporting member and a flange on the rail, said supporting members being notched, means for holding the clamps together, said means passing through the notches in the supporting members, and consisting of the tie rods extending from the pair of clamps at one rail to the pair of clamps at the other rail, substantially as described.

3. In combination with the tie members of substantially cross form, of I-form in cross section, clamps for holding the rail to each longitudinal arm of the cross shaped members, and tie rods extending between the rails for holding the clamps to the said longitudinal arms and to the rails, substantially as described.

4. In combination with the tie a tie bolt, a clamp held to the tie against movement longitudinally of the rail, said clamp having a projecting portion engaging a shoulder on the rail, substantially as described.

5. In combination with the tie having a notch therein, a clamp having a portion to act as a stop against longitudinal movement of the rail, and a holding bolt engaging the clamp to hold the rail to the tie, the said bolt passing through the notch to prevent longitudinal movement of the clamp, substantially as described.

6. In combination with tie members of substantially cross form having arms to underlie the rails and form a support therefor, and having arms extending transversely of the rails to be embedded in the roadbed, clamps for holding the rails to the underlying arms of the cross shaped ties said clamps being independent of the tie members and rails and tie rods for holding the clamps to the said underlying arms and for connecting one tie member with another, substantially as described.

In testimony whereof, we affix our signatures in presence of two witnesses.

JNO. D. HAZLET.

GEORGE W. HAIGHT.

Witnesses:

ALFRED L. HAIGHT,  
W. G. MAPLE.