

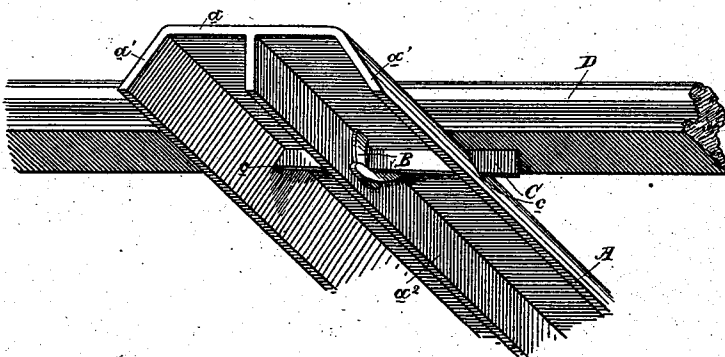
(No Model.)

W. H. DONALDSON.  
METALLIC RAILWAY TIE.

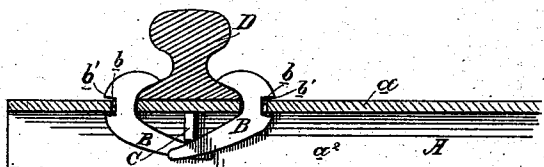
No. 381,059.

Patented Apr. 10, 1888.

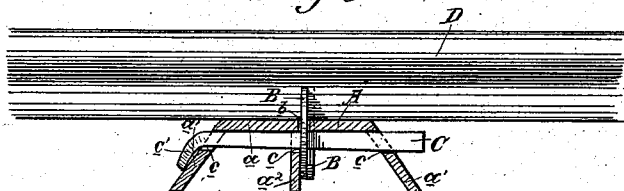
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses,  
J. H. House,  
H. C. Lee.

Inventor,  
W. H. Donaldson  
By Devey & Co.  
attys

# UNITED STATES PATENT OFFICE.

WALTER H. DONALDSON, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF  
ONE-HALF TO ROBERT B. REID, OF SAME PLACE.

## METALLIC RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 381,059, dated April 10, 1888.

Application filed July 14, 1887. Serial No. 244,344. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER H. DONALDSON, of the city and county of San Francisco, State of California, have invented an Improvement in Metallic Railway-Ties; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of metallic railway ties or sleepers; and my invention consists in the construction and combination of devices which I shall hereinafter fully describe and claim.

The object of my invention is to provide a strong and stiff tie or sleeper and means for securing the rails thereto, which obviate the necessity of spikes and bolts, said means also providing for fixing the gage with precision.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my tie, looking up from below. Fig. 2 is a longitudinal section of same. Fig. 3 is a cross-section of same.

The tie A is constructed of rolled or cast metal, of a cross-section as shown in Fig. 3, consisting of a top plate, *a*, with outwardly-beveled flanges *a'*, and a longitudinal central or T web, *a''*. The top flanges and web are perforated with rectangular slots *b c*, for the reception of the wedges and the dogs or clamps, hereinafter described.

The fastenings consist of two dogs or hooks, B, and are constructed of forged iron or cast-steel and fit easily in slots *b* on upper face or plate, *a*, of the tie, the hooked portion or upper end engaging with flange of rail D and the lower or straight portion passing below the tie and crossing each other, both in effect forming bent levers, the fulcrum of which is the small shoulder or notch *b'* on the back side which engages with the edge of rectangular slots *b*. A soft steel or iron wedge, C, is driven through the slots *c* in the flanges and web of the tie at right angles to plane of the dogs or levers B, and in its progress deflects the ends of said dogs or levers, bringing the upper and shorter end in contact with the rail-flanges, which they grip with a pressure the intensity of which is equal to the power of the levers moved by the wedge. The smaller extremity, *c'*, of the wedge will project through web of

tie about an inch and be clinched over against the flange *a'* to prevent withdrawal.

This form of tie has great strength and stiffness and is the best shape for carrying the requisite weight of metal. The employment of the fastenings described does away with all bolts and spikes. They are simple, durable, and effective, and are not liable to get out of place or become disarranged from any cause. They also enable the gage of the road to be determined with accuracy, for, the slots in the ties being previously made, their proper position is defined with precision and the rails cannot be laid out of gage. The gage is also preserved by these fastenings, for the rails are securely held and cannot spread.

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

1. In combination with a railway-tie and the rail thereon, clamps or dogs pivoted in the top of the tie, and having their upper ends hooked and engaging the base-flanges of the rails and their lower ends passing beneath the top of the tie, and wedges driven transversely through the tie and bearing on the lower ends of the dogs, whereby they are deflected and their upper ends made to clamp the rails, substantially as described.

2. In combination with a railway-tie and the rails thereon, clamps or dogs pivoted in slots in the tie, and having their upper ends hooked and engaging the base-flanges of the rails on their inner and outer sides and their lower ends passing in opposite directions and crossing under the top of the tie, and transverse wedges through the tie and acting on the lower ends of the dogs to cause their upper ends to clamp the rails, substantially as described.

3. A metallic railway tie or sleeper having a top plate with longitudinal slots and downturned side flanges with transverse slots; in combination with clamps or dogs pivoted in the slots of the top plate, and having their upper ends hooked and engaging the flanges of the rails and their lower ends crossing under the top plate, and wedges driven through the slots of the side flanges and bearing on the lower ends of the dogs, whereby their upper

ends are clamped on the flanges of the rails, substantially as herein described.

4. A metallic railway tie or sleeper having a top plate with longitudinal slots, downturned  
5 side flanges with transverse slots, and a central longitudinal web with transverse slots, in combination with clamps or dogs pivoted in the slots of the top plate, and having their upper  
10 ends hooked and engaging the flanges of the rails and their lower ends crossing under the top plate, and wedges driven through the slots

of the side flanges and central web and bearing on the lower ends of the dogs, whereby their upper ends are clamped on the flanges of the rails, substantially as described.

In witness whereof I have hereunto set my  
hand.

WALTER H. DONALDSON.

Witnesses:

S. H. NOURSE,  
H. C. LEE.