

(No Model.)

T. R. GABEL.  
COMBINED TIE PLATE AND RAIL BRACE.

No. 530,175.

Patented Dec. 4, 1894.

Fig. 1.

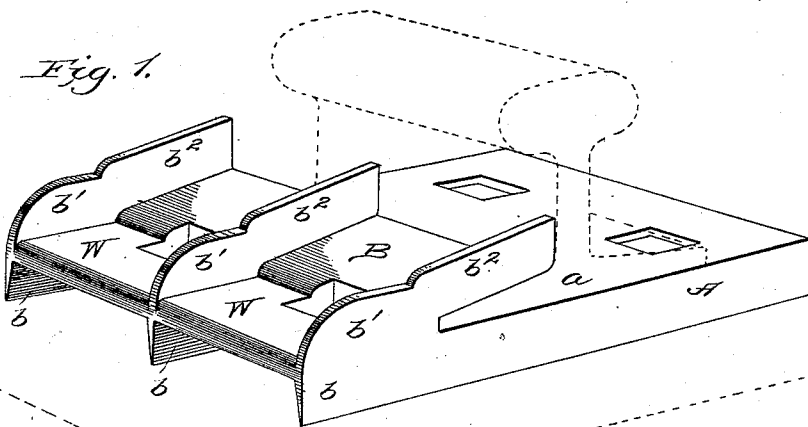


Fig. 2.

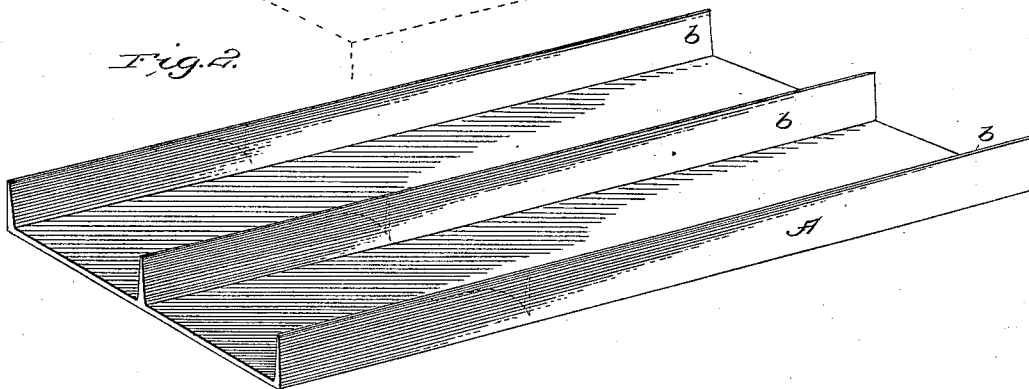
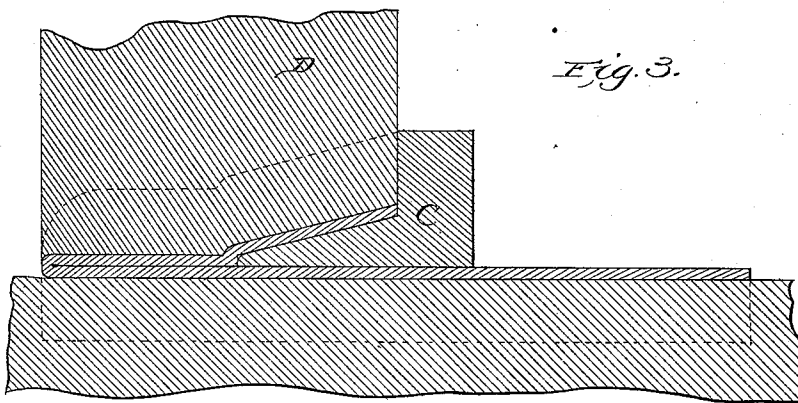


Fig. 3.



Witnesses:

Harry S. Pomeroy.  
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Inventor:  
Thomas R. Gabel  
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Atty.

# UNITED STATES PATENT OFFICE.

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## COMBINED TIE-PLATE AND RAIL-BRACE.

SPECIFICATION forming part of Letters Patent No. 530,175, dated December 4, 1894.

Application filed May 24, 1894. Serial No. 512,368. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS R. GABEL, a citizen of the United States, residing at Albuquerque, in the county of Bernalillo, Territory of New Mexico, have invented certain new and useful Improvements in a Combined Tie-Plate and Rail-Brace; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1, is a perspective view of a tie plate and rail brace embodying my invention, with portions of a rail and tie dotted in to show the relation of the tie plate and brace thereto. Fig. 2, is a view of a piece of tie plate bar, the dotted lines indicating how the same may be cut in the manufacture of my improved tie plate, and Fig. 3, is a sectional view of an anvil, mandrel and drop die which may be employed in manufacturing said combined tie-plate and rail brace.

Like symbols refer to like parts wherever they occur.

The object of my invention is the production of a light, strong and resilient combined tie-plate and rail brace, adapted to obviate the hammering of the rail by the wheels of passing trains, to support the rails against the side thrust of the moving wheels, and counteract any tendency of the tie-plate to buckle under the tread of the loaded wheel.

It is now well understood that in the laying and maintaining rail road tracks, some form of tie-plate should be employed to conserve the way, and that in order to utilize the resiliency of the tie, as well as for economic reasons, such tie plates should be as light as is consistent with strength and stiffness; and it is also well understood that the best results are obtained when the tie-plate is trussed on its under surface by a rib or ribs parallel with the fiber of the tie and transverse of the rail seat; and furthermore, a support or abutment on the upper face of the tie-plate to resist the lateral thrust of the rail is recognized as desirable. To meet these several indications, I form the tie plate with an upwardly and inwardly directed section or web which conforms to the foot flange of the rail and bears by its free edge against the web of the rail at substantially right angles thereto, said brace

web being reinforced by truss ribs, which are, preferably, continuations of the truss ribs of the under side of the tie plate, and such a construction embodies the first feature of my invention.

In order to reinforce the tie plate at that point or on the line which receives the thrust from the foot flange of the rail, I bull-doze or weld the fold of the plate from the edge of the tie-plate to the foot of the brace, and such a construction embodies a second feature of my invention.

I will now proceed to describe my invention more fully so that others skilled in the art to which it appertains may apply the same.

In the drawings A indicates the tie-plate proper, B the rail brace thereof and W the welded fold extending from the edge of the tie-plate to the rail seat and foot of the rail brace.

The rail brace B, which extends from the welded fold W to the vertical web of the rail, is made to conform to and rest upon the top of the foot flange of the rail and by its free edge bears against the web of the rail so as to support the rail under the side thrust of a passing wheel.

On the under side of the tie-plate and extending transversely of the rail seat  $a$  are one or more truss ribs  $b$  which also extend inward upon the upper face or fold of the welded portion as at  $b'$ , and thence upward and forward on the web rail brace B, as at  $b^2$  so as to stiffen the web brace B against buckling, the web in turn supporting and maintaining the rib or ribs  $b^2$  against lateral strain. As a result of the construction pointed out a combined tie plate and rail brace will be obtained, wherein are found a trussed tie-plate and trussed web rail brace, the tie-plate reinforced parallel to the line of thrust of the rail. Such a tie-plate and rail-brace are preferably constructed by first rolling or otherwise forming a bar having on one face one or more longitudinal ribs of the general character shown in Fig. 2, then notching the rib or ribs of said bar, as indicated by the dotted lines on said figure, next folding the plate upon itself for a short distance, and finally, inserting a mandrel C having the outline of the foot flange and vertical web of a rail—(as indicated in Fig. 3) and

finally subjecting the plate at a welding temperature,—to a drop die D or equivalent means which will weld the folds from the edge of the rail seat to the foot of the rail brace and parallel with the rail seat.

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

1. A tie-plate, having a trussed web rail-brace, which conforms to the foot-flange of a rail with its free edge adapted to bear against the web of the rail substantially as and for the purposes specified.

2. A tie-plate having a truss rib on its under surface, and provided on its upper surface with a trussed web rail-brace, which conforms to the foot-flange of the rail with its free edge adapted to bear against the web of the rail,

substantially as and for the purposes specified.

3. A combined tie-plate and rail-brace, having a welded fold extending from the edge of the tie-plate to the foot of the rail-brace, substantially as and for the purposes specified.

4. A tie-plate having a trussed web rail-brace, and a welded fold or reinforce which extends from the foot of the rail-brace to the edge of the tie-plate, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 14th day of May, 1894.

THOMAS R. GABEL.

Witnesses:

P. C. ALLEN,

F. B. SUTTON.