

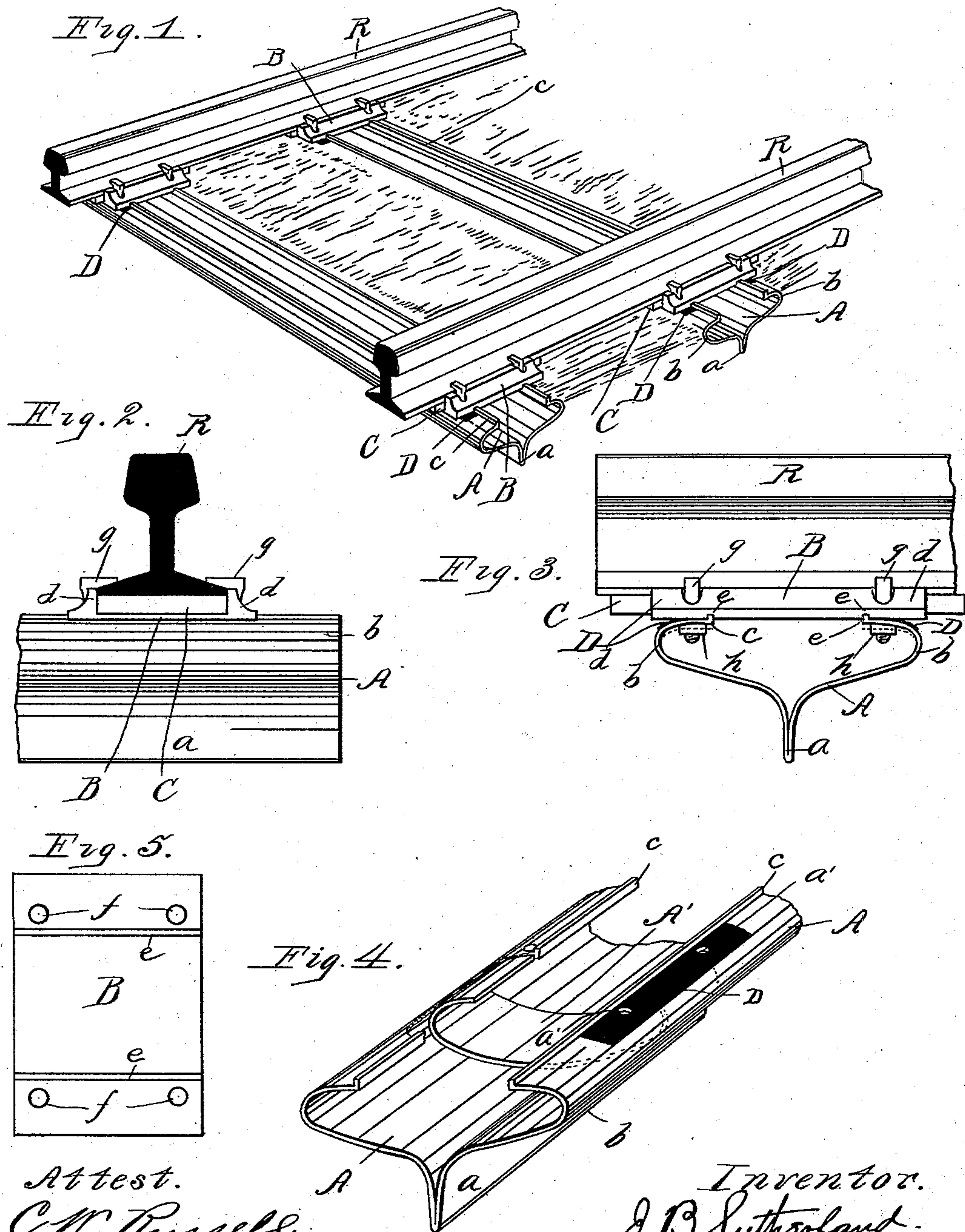
(No Model.)

J. B. SUTHERLAND.

RAILWAY.

No. 382,394.

Patented May 8, 1888.



Attest.  
C. M. Russell.  
B. P. Wheeler

Inventor.  
J. B. Sutherland.  
By B. P. Wheeler.  
att'y.



# UNITED STATES PATENT OFFICE.

JOHN B. SUTHERLAND, OF DETROIT, MICHIGAN.

## RAILWAY.

SPECIFICATION forming part of Letters Patent No. 382,394, dated May 8, 1888.

Application filed August 20, 1887. Serial No. 247,409. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN B. SUTHERLAND, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Railways; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to metallic railway-ties and to the attachment of the rail thereto.

The object of this invention is to provide at moderate cost a durable track and one in which the rails will be provided with a seat having the requisite flexibility.

The essential features of my invention will be fully described in the following specification, and particularly pointed out in the claims.

In the accompanying drawings, forming a part of the specification, Figure 1 is a perspective view of a railway-track section embodying my invention. Fig. 2 is a side elevation of a portion of my device, showing an end view of the chair in position thereto. Fig. 3 shows an end view of my metallic tie. Fig. 4 is an enlarged perspective view of my device, showing a modification in its construction; and Fig. 5 is an inverted plan view of the metallic chair.

A represents my improved tie, which I preferably form out of a single piece of sheet-steel and in the shape shown, this latter being obtained by first doubling the plate on itself on its central line to form the rigid web *a*, by means of which the tie is adapted to be anchored in the ballast of the road. On each side of this web *a* the plate extends out on a concavo-convex plane, as shown, to form the U shaped shoulders *b b*, which constitute the body proper of the tie. These shoulders give to the support the flexibility required to counteract the pounding of the wheels on the rail to secure to the tie sufficient strength in its supporting parts without impairing their flexibility. A vertical flange, *c*, is formed in each of the opposing edges of the plates, as shown. *a' a'* are bolt-holes which serve to fasten the tie to its companion parts, hereinafter described.

B is the rail-chair, which consists of a metal plate having flanges *d d* formed along the edges of its upper face and the grooves *e e* cut out across its under face.

*f f* are bolt-holes which are made to correspond with the holes *a' a'* in the tie. The upper edges of the flanges *d d* are made to embrace the base of the rail *R*, and between the lower face of said rail-base and the upper face of the chair *B* a cushion, *C*, of wood, papier-maché, or any other flexible material, is inserted to break the pounding of the wheels at the connecting-points, as well as to deaden the noise. The grooves *e e* are adapted to receive the flanges *c c* of the tie. *g g* are bolts by means of which the parts are connected together. They are made with a head lapping on the side of the rail, as usual, and with a thread on their lower end. The nuts *h h* complete the fastenings.

Between the tie *A* and the chair *B* may be interposed an additional cushion, *D*, which consists of a layer of tarred paper, or any other like material, which is perforated at suitable points for the passage of the bolts *g g*, which serve to retain the said cushion in position.

In Fig. 4 is shown a modified form of my improved metal tie. This consists in inserting in the tie as formed as above, and at the points of attachment of the rails thereon, a C-spring, *A'*, shaped so as to conform closely to the under face of the tie-body. These springs are adapted to be held in place in the tie by confining them between the bolts *g g*, fastening the chair to the tie. This modification allows of the use of a lighter plate in the construction of the tie *A*, which the springs *A'* are designed to re-enforce at the points of greatest resistance.

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

1. In combination with a metallic tie having a rigid web and lateral flexible wings provided with strengthening-flanges on their edges, a metallic chair having flanges *d d*, grooves *e e*, and holes *f f*, the rail *R*, the cushion *C*, the bolts *g g*, and nuts *h h*, substantially as and for the purposes set forth.

2. In combination with a metallic tie having a rigid web and lateral flexible wings, the

chair B, having flanges *d*, grooves *e e*, and holes *f f*, the rail R, cushion C, and flexible strip D, suitably perforated, the bolts *g g*, and nuts *h h*, substantially as specified.

- 5 3. A metallic railway-tie formed out of one single piece and having a central rigid anchoring web and lateral concavo-convex supporting-wings, and provided on its inner face at

thesupporting-points with a spring re-enforce, substantially as set forth. 10

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

JOHN B. SUTHERLAND.

Witnesses:

R. B. WHEELER,  
J. S. DEWEY.