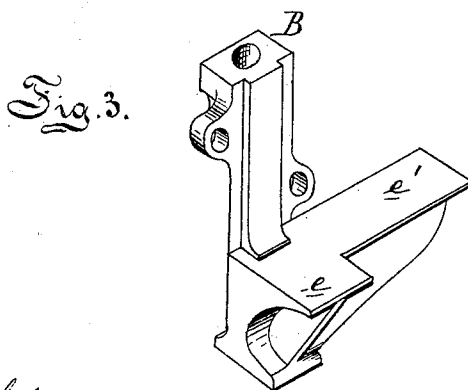
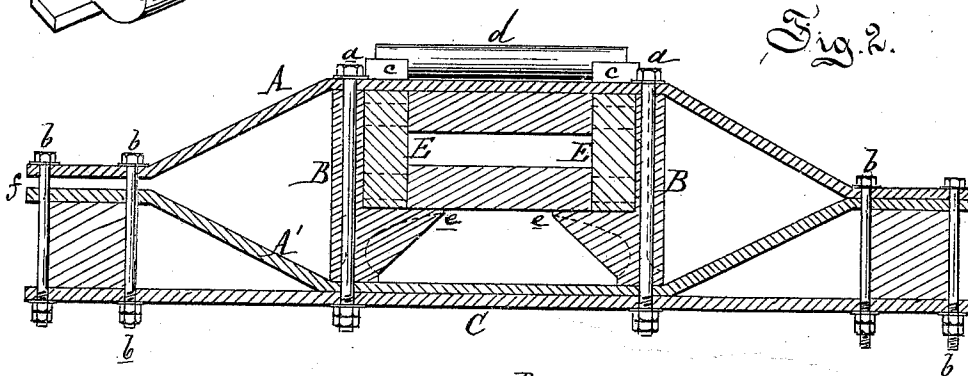
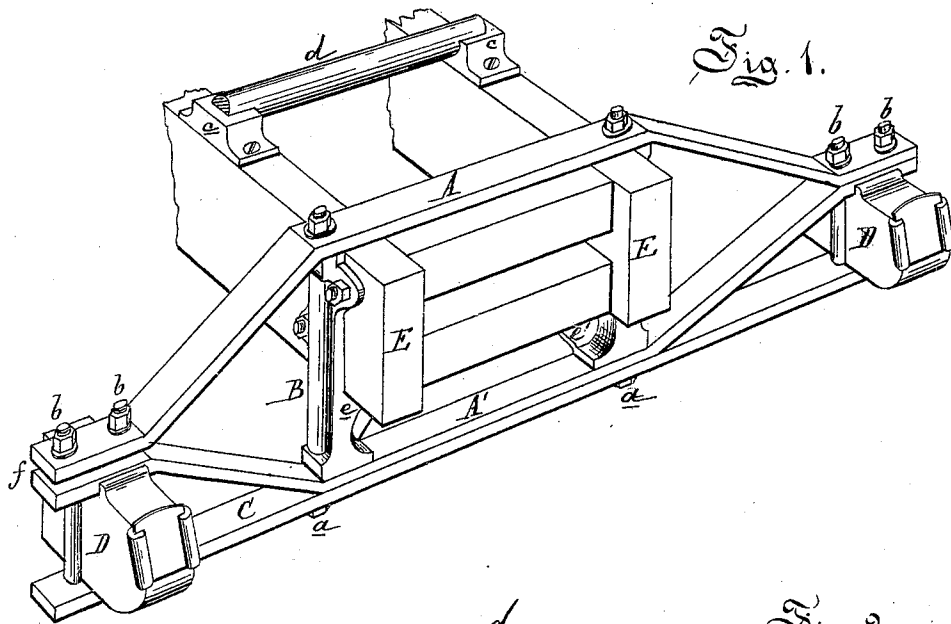


D. SUTHERLAND.

CAR-TRUCK.

No. 176,093.

Patented April 11, 1876.



Attest:
Edward Barthel
Thos. S. Day

Inventor:
D. Sutherland
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UNITED STATES PATENT OFFICE.

DAVID SUTHERLAND, OF DETROIT, MICHIGAN.

IMPROVEMENT IN CAR-TRUCKS.

Specification forming part of Letters Patent No. **176,093**, dated April 11, 1876; application filed October 5, 1875.

To all whom it may concern:

Be it known that I, DAVID SUTHERLAND, of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Railway-Car Trucks, of which the following is a specification:

The nature of my invention relates to an improvement in swing-beam trucks; and consists in casting the truss-struts with a ribbed bracket extending inwardly from each along the lower edge of the center timbers as far as the hangers, so as to support the latter at the point where it has to sustain its load.

Figure 1 is a perspective view of one side of my improved truck. Fig. 2 is a longitudinal vertical section through the center of the truss. Fig. 3 is a detached perspective view of a truss-strut.

In the drawing, A represents the upper chord, and A' the lower chord, of a truss-frame, separated by the cast struts B B in their middle part, and held together by the bolts *aa*, one of which passes through an opening longitudinally cored in each strut, and through both chords, and also through a tie-bar, C, in the usual way of putting together the truss-frames for a swing-beam truck.

D D are the axle-boxes, interposed between the ends of the truss and the tie-bar, and are held in position by the end bolts *b b* passing down at each side of each box to bind the whole together.

E E are the center timbers, one at each side of the bolster, (not shown,) carrying the saddles *c*, in which is laid the hanger-pin *d*, from which the swing-beam is suspended by hangers.

Each strut is cast with a bracket, *e*, extending from its inner edge across the bottom edge of the center beam, which it supports; but as the stress of the imposed weight is borne at a point some distance inward from the strut—to wit, under the saddle—these timbers are liable to give way under the pressure. To overcome any tendency in the center timbers to flexure at this point, I cast each strut with a second ribbed bracket, *e'*, extending laterally under the edge of the timber to a point under the saddle, which effectually

accomplishes the object, and, besides, renders the truck much stiffer, and less liable to work loose at the joints.

In making and putting together the truss-frames, it has heretofore been the practice to bend the ends of the chords until they would meet over the axle-boxes, and then bolt the chords together. This practically throws the stress of an imposed load entirely upon the strut-bolts, which take all the tensile strains, while the end bolts *b* are subjected to none except that put upon them in binding the ends of the truss-frame together.

The result is, in practice, frequent breakage of the truss-bolts *a*, or the stripping of their threads, and an item of expense for repairs and renewals; but, independent of this, if the bolts do not give out, it is found necessary to tighten up their nuts at frequent intervals, owing to the elongation of the bolts under the great stress which they alone carry, and to divide this stress and distribute it uniformly throughout the length of the truss is the object of the second part of my invention. Therefore, in forming the chords for a truss, instead of bringing their ends together, I leave them or shape them so that they are sprung apart over the boxes for about two inches, as seen at *f*. When the struts are in position and the nuts on the strut-bolts are screwed home, I then bring the ends of the chords together by means of the end bolts *b*, which are put under tension thereby. Then, any load put into the truss by the struts will also be divided up and be borne by all the bolts in the truss, for the reason, first, that a considerable stress must be placed on the top chord before any strain will be transmitted through the struts to the lower chord; second, any strain or stress put into the lower chord will be divided, first, between the strut-bolts, and, second, between the outer bolts through the tie-bar, which exerts then a shearing strain upon the lower ends of said outer bolts, when the load will then be borne by the boxes under the ends of the truss.

Heretofore, owing to the flexibility of the truss, from the fact that it was not strained

upon the struts before taking a load, it would sag under the stress and throw all the strain into the strut-bolts, while now I relieve the latter from a major part of such strain by making the truss a rigid structure, in the manner described.

What I claim as my invention is—

The truss-struts B of a swing-beam truck, cast with the lateral bracket *e'*, substantially as and for the purpose set forth.

DAVID SUTHERLAND.

Witnesses:

H. F. EBERTS,

H. S. SPRAGUE.