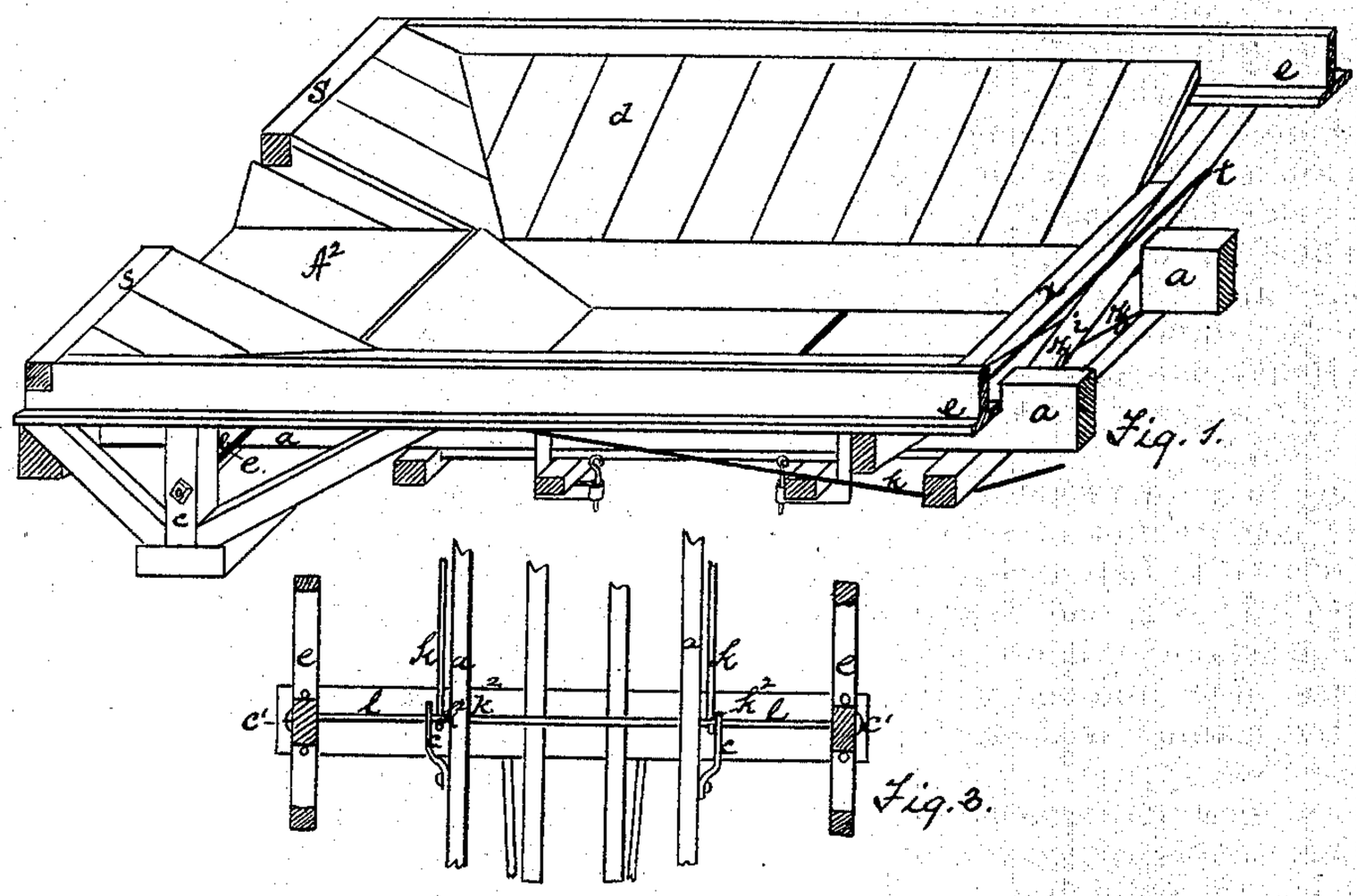
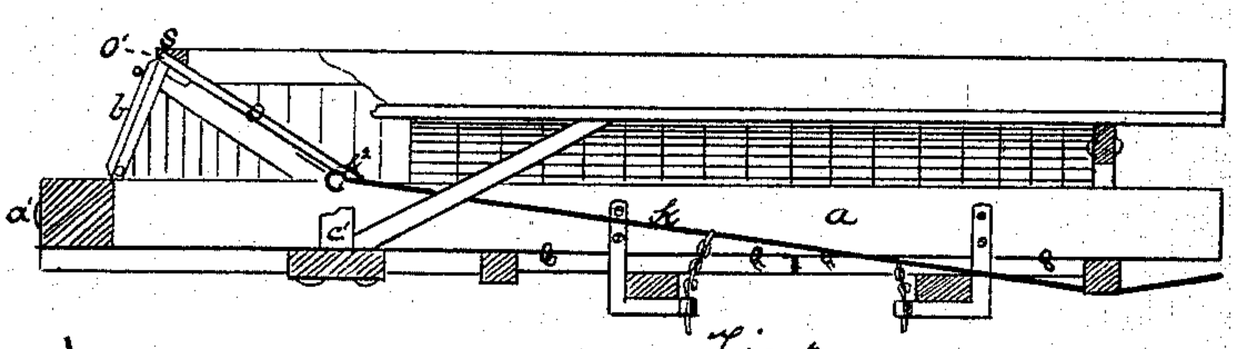
J. G. MACFARLANE.

Railroad-Cars.

No. 139,680. Patented June 10, 1873.





WITNESSES

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UNITED STATES PATENT OFFICE.

ISAIAH G. MACFARLANE, OF WILKINSBURG, PENNSYLVANIA.

IMPROVEMENT IN RAILROAD CARS.

Specification forming part of Letters Patent No. **139,680**, dated June 10, 1873; application filed April 12, 1873.

To all whom it may concern:

Be it known that I, ISAIAH G. MACFARLANE, of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Railroad Car; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a perspective view, showing the end of the car and the center braces. Fig. 2 is a side view, partly in section, showing the manner of fastening the longitudinal truss-rods; and Fig. 3 is a plan view of the end bolster, showing the fastenings of the longitudinal truss-rods.

Like letters of reference indicate like parts in each.

My invention relates to an improvement in the construction of railway cars, such as are described in Letters Patent granted to me on April 23, 1872, and September 17, 1872; and it consists in an improved construction of the center brace and end passage of the car, and in the manner of fastening the longitudinal truss-rods.

As heretofore constructed I find my car is objectionable on account of its depth and of the end rail extending across the end entrance. In order, therefore, to reduce the depth I must reduce the inclination of the center braces *z z*. In so doing I cause the load to have a more direct bearing on these braces, which before, by their inclination, threw the load more into the center of the car. To compensate for the increased strain the center braces must be strengthened proportionately. For this purpose I lengthen the braces *z*, and extend them from the side rails *e* to the opposite bottom rail *a*, and where they cross at *i* I mortise them into each other. Each brace *z* rests upon the adjacent bottom rail *a*. The ends of the braces are firmly secured to the side and bottom rails, and are further strengthened by the double tie-rod *t*, which, embracing them, runs across the car at the side of the brace *x*. The brace *x* is placed upon and firmly attached to the cross-braces *z*, and stands on a level with the floor of the end passage A^2, so as not to interfere with the carriage of long freight such as railroad rails. By reducing the depth of the car-body for the carriage of long freight I reduce its carrying capacity for coal and other like freight, but this loss is made up by the increased length of the car, which I make long enough to contain railroad rails.

I find in loading this car, as before constructed, with ordinary freight, that the end rail *s*, which extends across the passage A^2, is very much in the way. By reducing the inclination of the sides of the car I reduce the outward pressure on its sides, and render it unnecessary for the end rail *s* to extend across the car to aid in supporting the sides *d*. Hence I take out that portion of the end rail *s* which heretofore has extended across the passage A^2, so as to make an unobstructed entrance into the car. In the Letters Patent above mentioned the vertical door *b* and the end door *o* are both shown when closed as being fastened to the rail *s* by a pin or other suitable fastening. As now made the vertical door *b* is fastened by means of hooks and staples, or in any other suitable way, to the adjacent portions of the end rails *s*, and the end door *o* is secured in an inclined position (see Fig. 2) by resting the overlapping lip *o'* on the edge of the vertical door.

As before made the longitudinal truss-rods *k* extended between the bumper a^1 the whole length of the car. This involves an unnecessary length of rod, and is objectionable if the bottom rails *a* become sprung or swag in the middle, as is occasionally the case, since by the swagging down of the rails *a* at the center the ends are thrown up and the truss-rods form the chord of the arc thus made; and are consequently loosened. I now shorten the longitudinal rods and fasten them by means of an eye, k^2, to the rods *l*, which extend across the car between the bolster-stakes *c'*. By this means I save several feet of rod in each car, and render the rods *k* less liable to be affected by the swagging of the bottom rails. In order to prevent the eye-fastening k^2 from springing out on the rod *l* it is held in against the bottom rail *a* by the plate or keeper *c*, which is furnished with an eye,

through which the rod *l* passes. The rear end of the keeper *c* is rigidly fastened to the rail *a*.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The braces *z*, extending from the side rails *e* to the opposite bottom rail *a*, and mortised or let into each other, substantially as and for the purposes described.

2. The upper end rails *s*, extending from the sides of the car to and terminating at the sides of the through passage-way A^2, substantially as and for the purposes set forth.

3. The longitudinal truss-rods *k*, fastened to and in combination with the cross-rods *l*, substantially as and for the purposes described.

In testimony whereof I, the said ISAIAH G. MACFARLANE, have hereunto set my hand.

ISAIAH G. MACFARLANE.

Witnesses:

A. S. NICHOLSON,

JAMES I. KAY.