

S. W. EMERY.  
Safety-Cars.

No. 148,815.

Patented March 24, 1874.

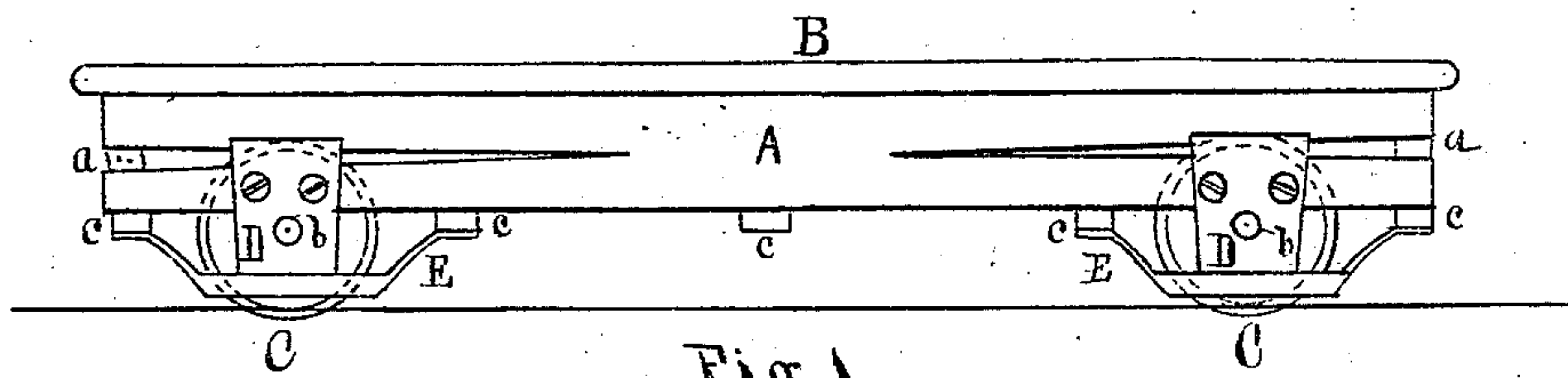


Fig. 1

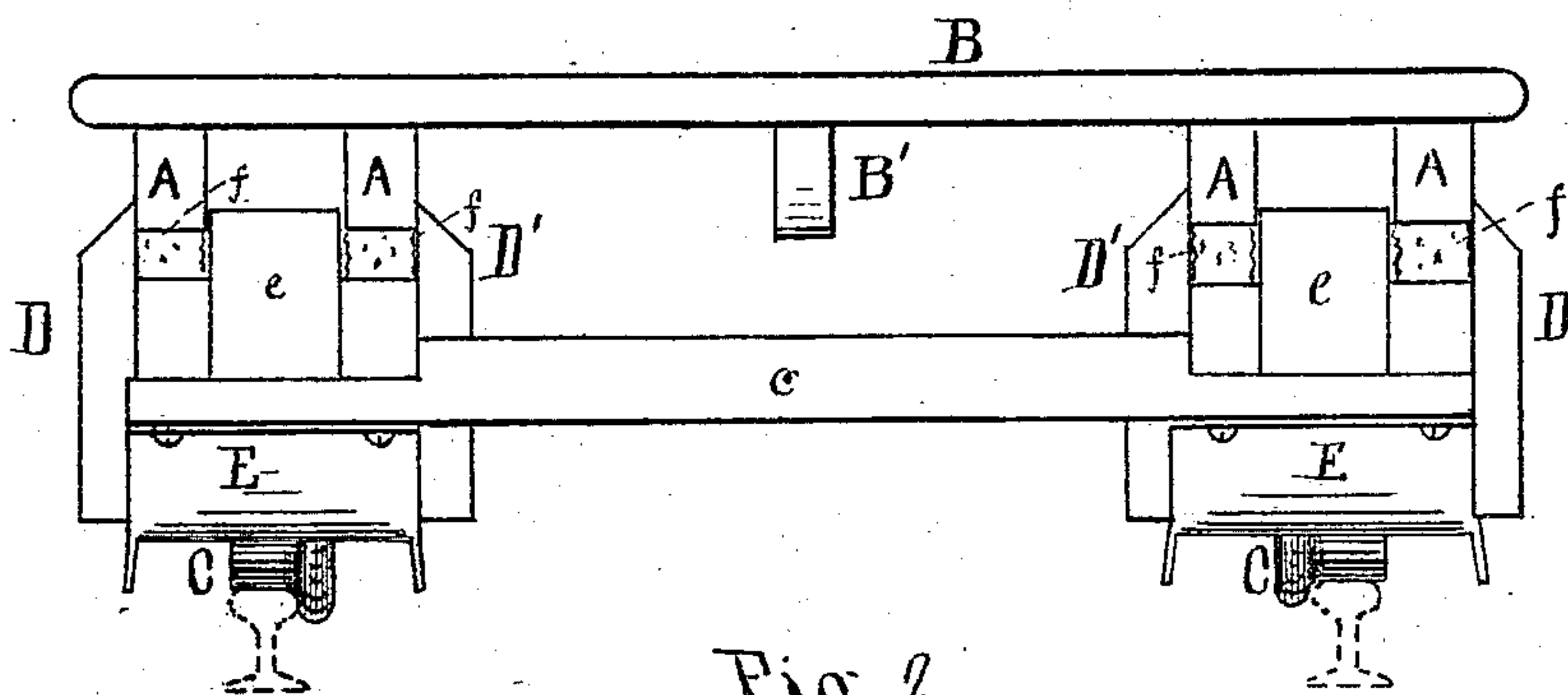


Fig. 2

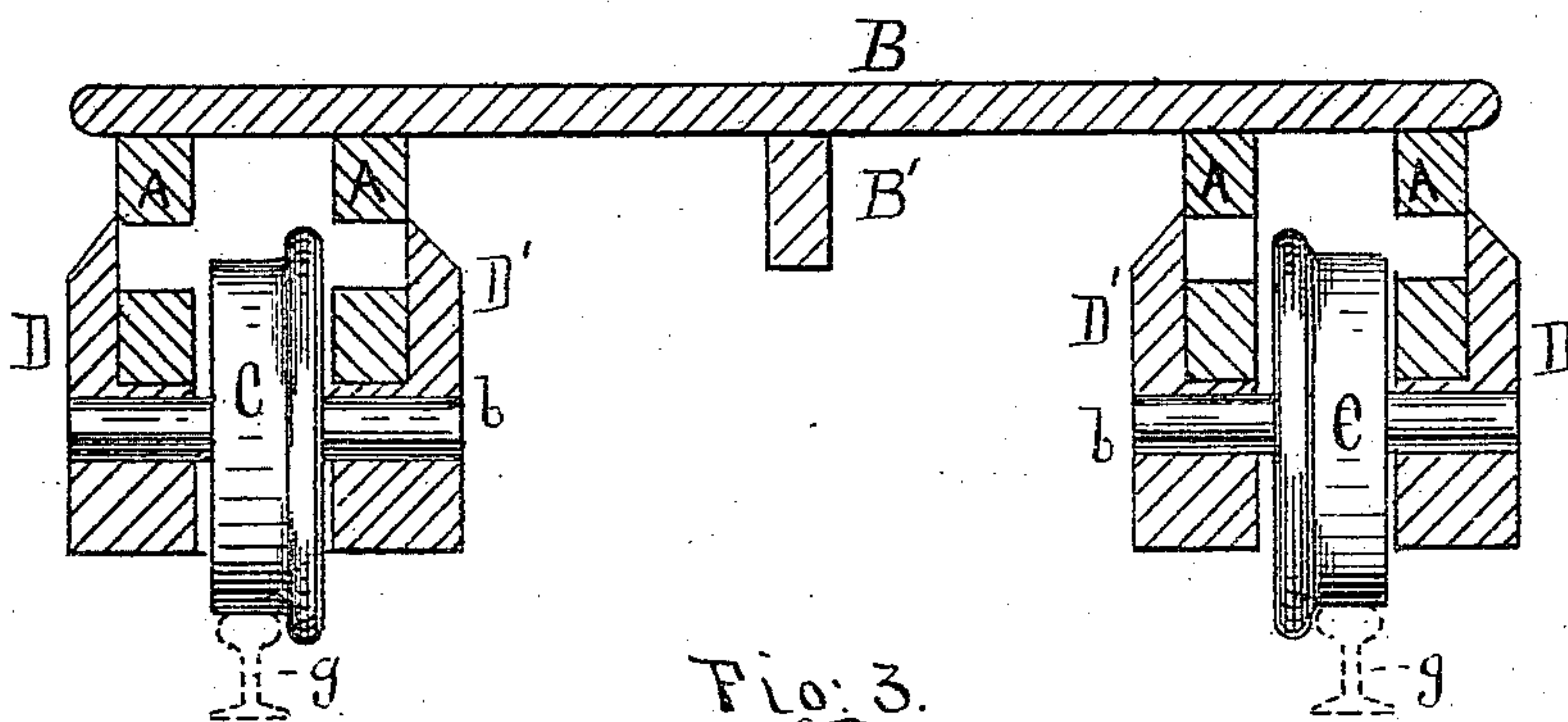


Fig. 3.

Witnesses

A. F. Raymond

Chas. Bryant

Inventor

Samuel W. Emery  
By his attorney  
J. L. Newton



# UNITED STATES PATENT OFFICE.

SAMUEL W. EMERY, OF PORTLAND, MAINE.

## IMPROVEMENT IN SAFETY-CARS.

Specification forming part of Letters Patent No. 148,815, dated March 24, 1874; application filed October 24, 1873.

*To all whom it may concern:*

Be it known that I, SAMUEL W. EMERY, of Portland, in the State of Maine, have invented an Improved Four-Wheel Railway Safety-Car, of which the following is a specification:

The invention relates to a four-wheel railway-car, constructed substantially as follows: The car has four or more sills, running lengthwise of the body, which rest upon the four axles of the wheels, so that each wheel, as it respects its upper half, is guarded on either side by said sills. Said sills are bifurcated or slotted at each end, wide at the end and narrowing to an angle or short side, leaving about one-fifth of the sills, as to their length, solid and without slot, though the slotted parts vary, according to the length of the car-body. Upon the upper part of the sills rest the platform and superstructure of the car-body, made in the ordinary way. Upon the lower outside part of each sill, at the wheel, are securely fastened housings, covering the journal-boxes, and the housings and sills inclose the wheel, with its independent axle extending through the journals, wheel, and housings. In connection with the wheels of the car it is designed to use the safety-shoe patented March 2, 1872, the same being secured and braced properly to the car. Ordinary braces are used from side to side to strengthen the car-body. The object of the invention is to furnish a cheaper and lighter car, possessing, at least, ordinary strength and durability; a safer car, the body thereof sitting lower and nearer the rails; a car that will round curves with less friction to the flanges, and have less friction upon the top of the rails; a car whose springs are chiefly the slotted sills themselves; and a car constructed without the dangerous swivel-truck now in general use on all steam-railways.

In the drawings, which are made a part of the specification, Figure 1 is a side elevation of the invention, in which the letter A represents a single sill with its slots *a a*; B, the platform on which the superstructure of the body is placed; C, a wheel; D, an outside housing, and D' an inside housing; E, the patented shoe, secured to the wheel, and as designed to be applied;

*b b*, the ends of the axles; *c*, braces of the car-body, running from side to side. The same letter represents similar or like parts. Fig. 2 is an enlarged end view of the car, with its wheels, and front view of the safety-shoe, also the supports *e e* attached to the lower parts of the sills with freedom to pass between the two upper parts of the sills; and *f f*, springs in the slotted parts of the same sill. Fig. 3 is a cross-section of Fig. 2 through the center of the wheels, axles, journals, housings, body, and rails *g g*, and B' is represented as a support to the body of the car.

Experiment demonstrates that the amount of friction upon the sides of the rails and flanges of the wheels, in rounding a curve, is in the ratio of the number of wheels to a car; that eight wheels cause twice the amount of friction that four wheels cause; that swivel-trucks, besides being heavy, are liable to turn sidewise when obstruction is met.

In this invention, the friction caused by the weight of the body of the car upon the axles is distributed no less than when eight wheels with swivel-truck are used. The car-body is light, and is hung low. The sill may be made of wood, and in one piece; or in two pieces, bolted together. It may also be made of part wood and part metal, or entirely of metal. The housings are made low, and, in case the shoe is attached, are securely fastened and braced thereto, and they also form a fixed center for the wheels; and thus the wheels may be bridged and completely covered at their sides.

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

1. A car-body with bifurcated sills A A, substantially as shown and described.

2. The bifurcated sills A A, in combination with the journal-boxes and housings D D D' D', substantially as shown and described.

3. The bifurcated sills A A, journal-boxes and housings D D D' D', and braces *c c*, in combination with the safety-shoe E, substantially as shown and described.

SAMUEL W. EMERY.

Witnesses:

A. L. RICHARD,  
J. L. NEWTON.