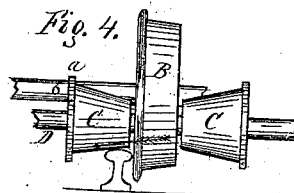
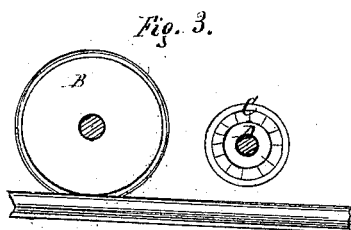
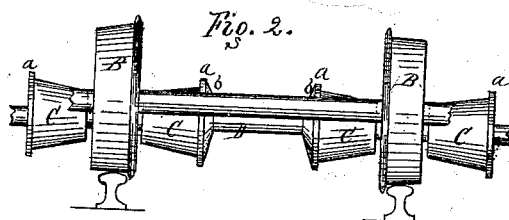
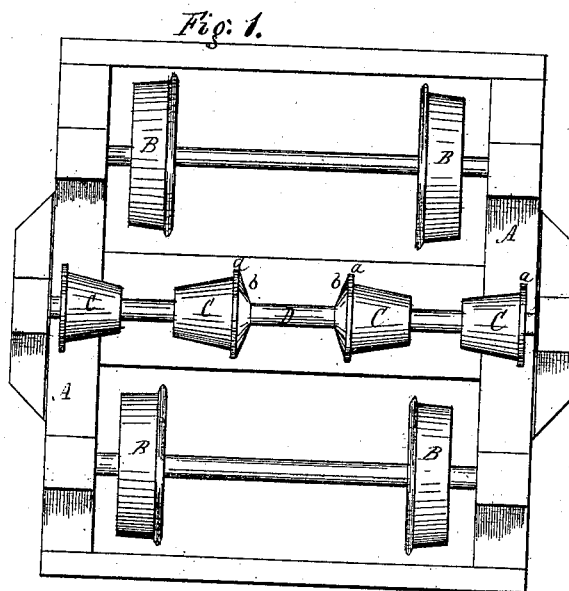


L. D. BOYCE & G. H. JONES.  
RAILWAY CAR TRUCK.

No. 111,172.

Patented Jan. 24, 1871.



Witnesses.  
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# United States Patent Office.

LOUIS D. BOYCE AND GEORGE H. JONES, OF ROCHESTER, N. Y.

Letters Patent No. 111,172, dated January 24, 1871.

## IMPROVEMENT IN RAILWAY CAR-TRUCKS.

The Schedule referred to in these Letters Patent and making part of the same.

### To all whom it may concern:

Be it known that we, LOUIS D. BOYCE and GEORGE H. JONES, both of the city of Rochester, county of Monroe and State of New York, have invented a certain new and improved arrangement of the wheels on Railway Car-trucks, of which the following is a specification.

### Nature of the Invention.

This invention consists in the employment of cones arranged, as hereinafter described, upon an axle, which lies between the ordinary wheels, said cones being elevated so as not to come in contact with the rails in ordinary travel, but serving to catch the rails, if the truck is thrown from place, and thus prevent the tread-wheels from falling to the ground.

It is an improvement upon the patent of George H. Jones, one of these applicants, dated July 6, 1869.

### General Description.

In the drawing—

Figure 1 is a bottom view of a car-truck provided with our improvement.

Figure 2, a diagram, showing an elevation of the ordinary wheels and the cones which constitute our improvement.

Figure 3, an elevation at right angles to fig. 2.

Figure 4, a diagram, showing the tread-wheels thrown from the rails, and the cones resting in their place.

A represents a car-truck; and

B B B B, the ordinary car-wheels.

C C C C represent the cones, which form our improvement.

These cones are secured to an axle or shaft, D, which is intermediate with the ordinary axles, and may be either attached to the truck or to bearings from the bottom of the car itself.

In the latter case the cones will not deviate from the line of motion of the car, as the truck does, in turning curves; hence, if the latter is thrown from the track, the cones moving in a straight line forward, would be most likely to catch the rails again.

These cones stand with their small ends toward each other, but separated by a space which is equal to or a little less than the thickness of the car-wheels. They are of considerable length, as shown, and have flanges, *a a*, at their large ends, which serve to retain them on the rails when they come in contact therewith.

The heads of the inner cones are also beveled off, as shown at *b b*, for the purpose of passing pieces of angular rail, as will presently be described.

They are so elevated as to ride above and entirely clear of the rails when the truck is in place, and in this feature consists one of the advantages of our improvement.

The operation is as follows:

When the truck is in place the cones, from their elevated position, ride entirely clear of the rails, as before stated; but if the truck is thrown off the cones will strike the rail either on one side or the other, as shown in fig. 4, and keep the wheels from striking the ties.

The considerable distance the cones are apart will cause them to surely catch the rail, even if a portion of the rail be broken out, and these cones then take the place of the wheels in sustaining the truck.

This arrangement of the elevated cones, whereby they run clear yet catch the rail in case of accident, forms one feature of novelty; and another consists in making the bevel of the cones to stand inward toward the main wheels, the effect being that, when off the rails, as in fig. 4, the tendency of the bevels will be to draw the main wheels inward laterally against the rail, as shown by the arrow; thus producing friction, and constituting an automatic brake of the wheels themselves.

The great weight of the car pressing these wheels inward against the rail is more effective in stopping the train than any ordinary brake now in use.

This invention differs essentially from the patent of July 6, 1869, before referred to, from the fact that in that case no cones are used, but an arrangement of intermediate wheels, which are not elevated above the level of the ordinary tread-wheels, but project below them and embrace the rail.

Their object is to replace the car by lifting the tread-wheels on again.

In the present invention the trucks are not replaced, but simply sustained from contact with the ground.

The wheels in the old form are impracticable with present railroads, as they will not pass the "frogs" and other projecting parts of the track. Neither will those wheels produce the effect of a brake, as in the present device.

We are aware that in the case of E. Stanley, 1852, grooved wheels in the shape of pulleys are used intermediately with the main wheels, but they fit closely down over the rails to embrace them, and hence are liable to the same objection of coming in contact with the frogs, and are impracticable in use on common railroads.

Furthermore, they are not made of a width to act to catch the rails when the main wheels are thrown off; neither can they act to bring the main wheels against the side of the rails, to act as a brake, as in our invention. Indeed, their only object seems to be to embrace the rail and run thereon, and serve as an additional safeguard against running off the track.

Devices in the form of sled-runners have also been used, but as their gauge is less than that of the car-wheels they cannot answer the purpose of our improvement, but would at once fall to the ground when the wheels went off.

A special novelty in our invention consists in making the gauge of the cones from outside to outside, considerably greater than that of the wheels, which is done by separating them so as to leave a space between, in which case the outer ones project outside the tread-wheels, as shown.

This separation gives such a scope of action that even if a rail be broken out the cones will strike the rails again at the end of the break, and thus elevate the wheels from the ground.

*Claim.*

We do not claim broadly the use of intermediate wheels between the car-wheels, for taking the tread if the main wheels are thrown off; but

What we claim, and desire to secure by Letters Patent, is—

The combination, with the ordinary wheels of a car-truck, of the reverse cones C C, arranged in pairs on the intermediate elevated shaft, D, their small ends adjoining, but separated from each other, to produce a surface of greater width or extent than that of the ordinary wheels, and having the bevels turning inward to produce a brake-action of the main wheels against the rails when off the track, as herein described.

LOUIS D. BOYCE.  
GEO. H. JONES.

Witnesses:

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J. P. BARNES.