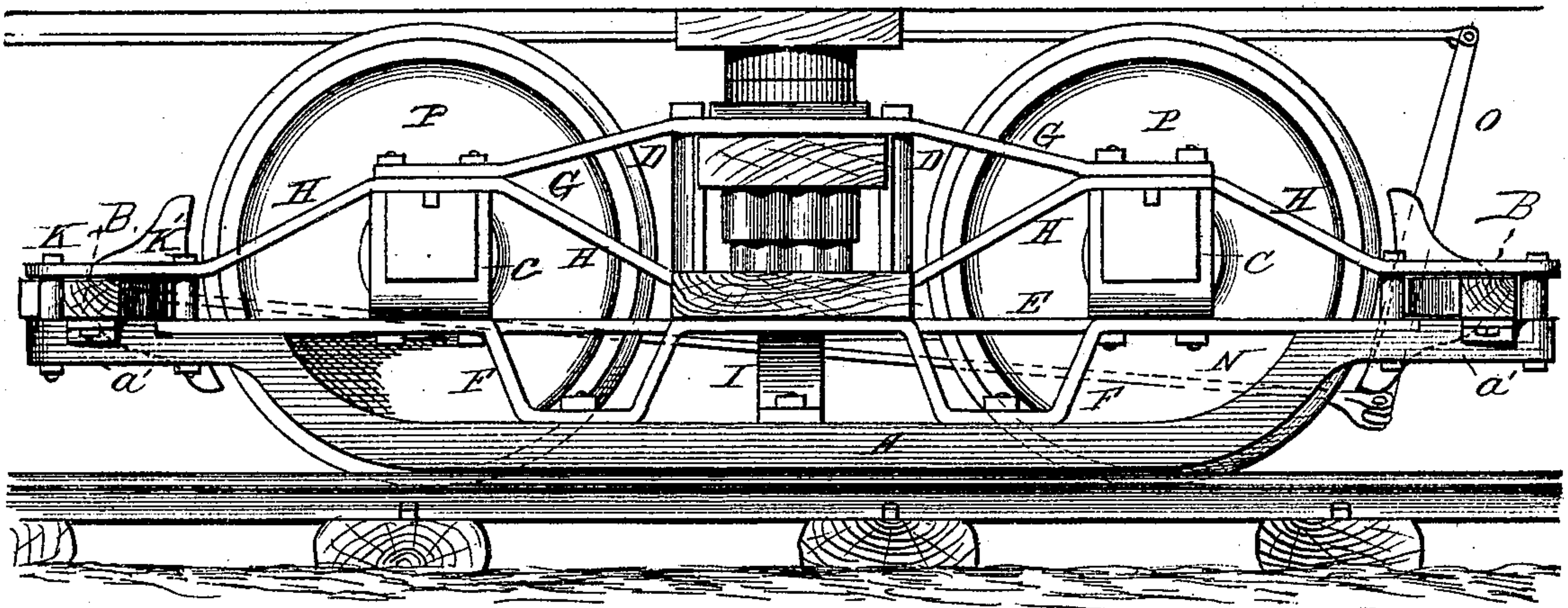
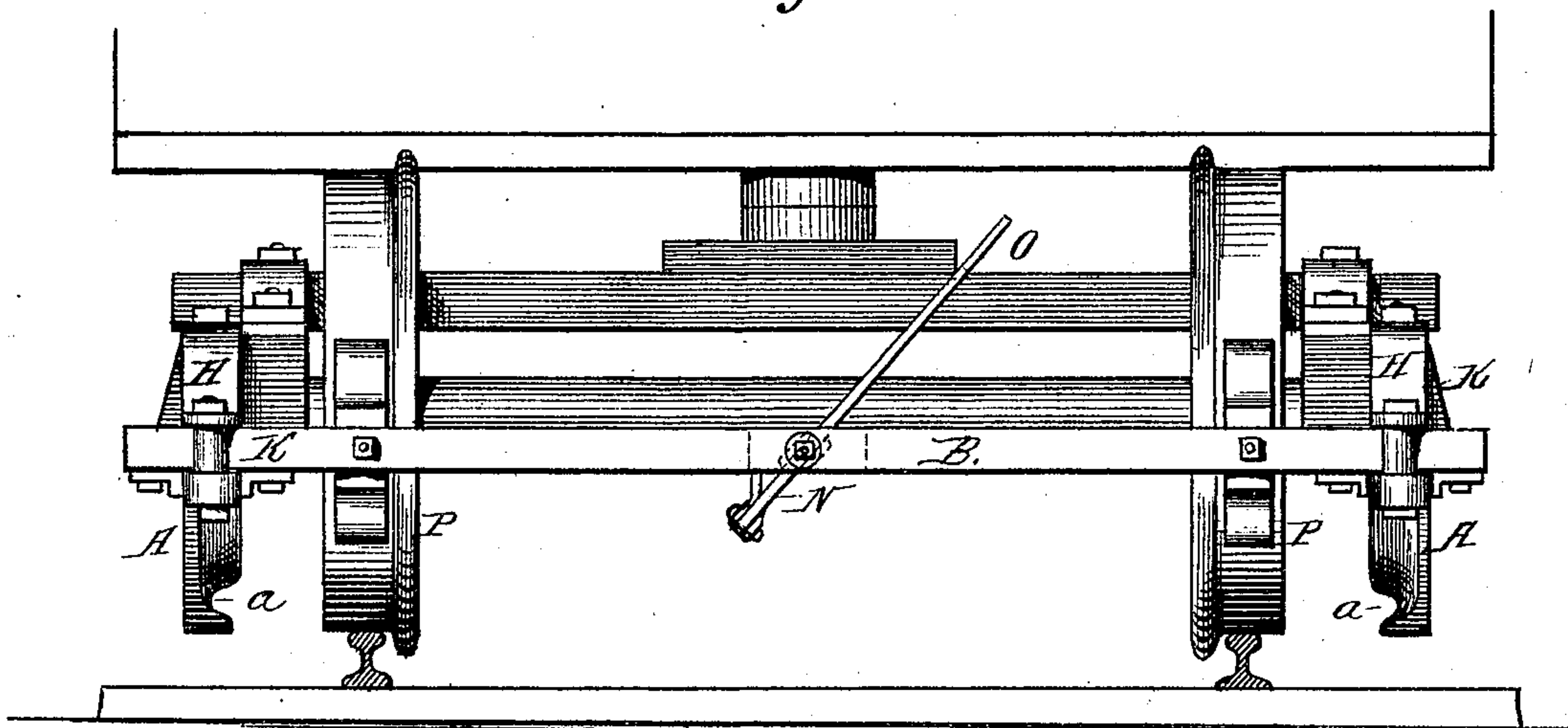


**L. O. ROOT.**  
**RUNNERS FOR RAILROAD CARS.**  
 No. 171,581. Patented Dec. 28, 1875.

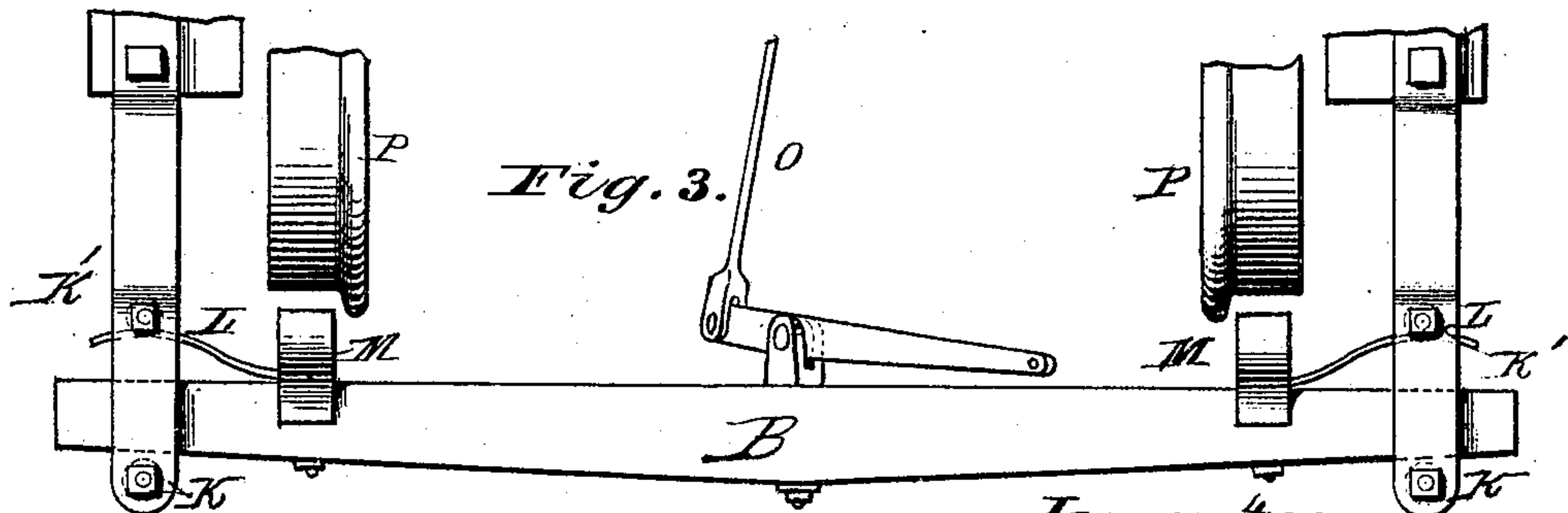
*Fig. 1.*



*Fig. 2.*



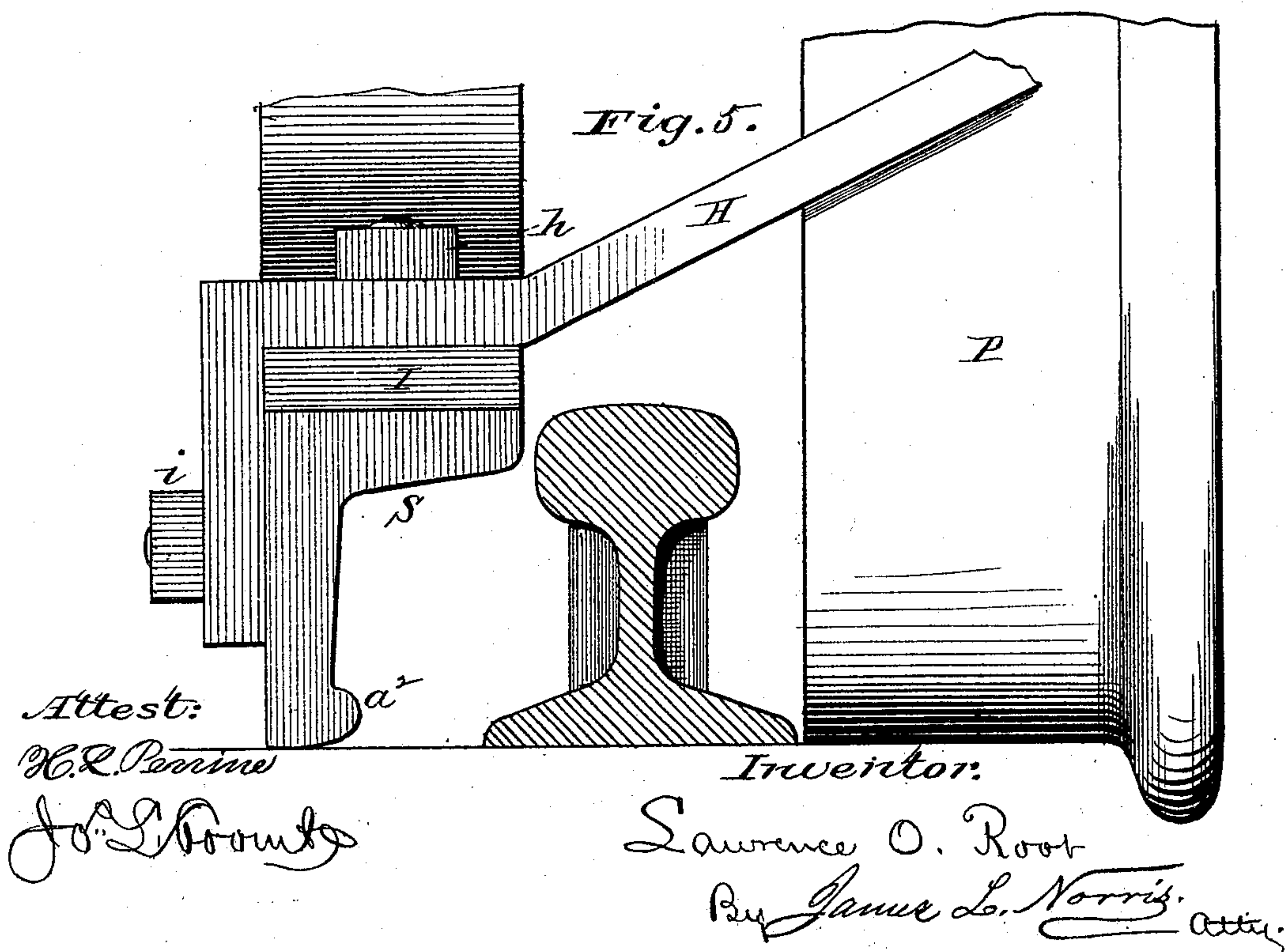
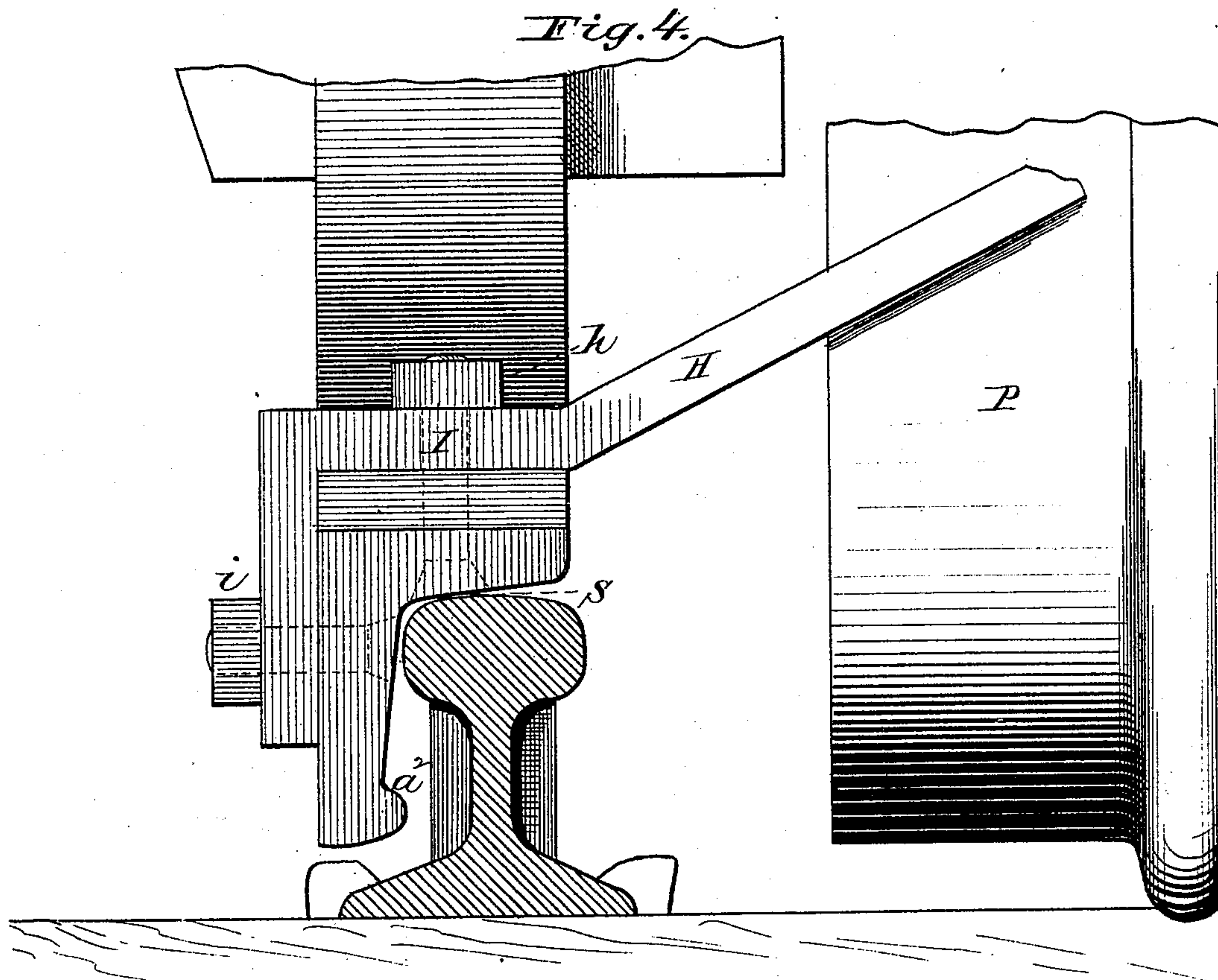
*Fig. 3.*



Attest:  
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Inventor.  
 Lawrence O. Root  
 By James L. Norris, Attorney.

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# UNITED STATES PATENT OFFICE.

LAWRENCE O. ROOT, OF MINNEAPOLIS, MINNESOTA.

## IMPROVEMENT IN RUNNERS FOR RAILROAD-CARS.

Specification forming part of Letters Patent No. **171,581**, dated December 28, 1875; application filed November 3, 1875.

*To all whom it may concern:*

Be it known that I, LAWRENCE O. ROOT, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Runners for Railroad-Cars, of which the following is a specification:

This invention relates to certain improvements in the construction of railway-cars, and the devices for carrying and applying the brakes of the same, its object being to prevent the cars from leaving the road-bed if the wheels should jump the rails or a rail become broken; to prevent travelers from falling under the wheels should they miss their footing in entering or leaving the cars; to assist in stopping the train should the cars run off the track; and to enable the brakes to be more effectually and expeditiously applied when it is desired to stop the train than with the brakes heretofore in use.

This invention consists in a car-truck, provided with two longitudinal runners extending from end to end of the same, one on each side outside of the wheels, the lower edges of which lie on about a line with the top line of the rails, the inner sides being grooved in such manner as to gear or engage the outer flanges of the rails should the cars run off the track, and their ends being bent up to form a rest for the brake-beam, substantially as herein-after set forth.

In the drawings, Figure 1. represents a side elevation of my improved runner attached to a car-truck. Fig. 2 represents an end elevation of the same. Fig. 3 represents a detached view of one of the brake-beams and its brake-shoes and wheels of the car looking down upon the same; and Figs. 4 and 5 modifications of my invention, showing the offset or shoulder above the longitudinal groove on the inside of the runners.

The letter A represents the longitudinal runners, grooved on their inner sides, as shown at *a*, and curved upward near their ends, which are extended horizontally, as shown at *a*<sup>1</sup>, forming the rests or supports for the brake-beams B. The letters C C represent the axle or journal boxes, and D the main cross-beams, of the truck, between which the springs and loose supporting-beam of the cars are secured.

The journal-boxes and said cross-beams are firmly braced and secured to each other by means of the straight bar E and the angular stays F, and the runners are secured to said journal-boxes and cross-beam by means of the longitudinal angular stays G and H and the transverse angular stays I, extending under the cross-beams D. These stays are firmly bolted to the various parts of the car, or otherwise securely attached thereto, the small stays H, which connect the ends of the runners with the axle or journal boxes, being secured upon standards K K', attached to the horizontal parts of the runners, having recesses in which the ends of the brake-bars are adapted to work. These brake-bars extend transversely from runner to runner, and are provided at each end with a spring, L, bearing against the inner standards K', by which they are thrown outward from the wheels. They are provided with brake-shoes M M opposite the wheels, and are connected by means of a link, N, and lever, O, by means of which they can be drawn toward each other in such manner as to bind the shoes against the wheels P of the cars.

In the modification shown in Figs. 4 and 5 a shoulder or offset, S, is formed on the runners on the inside, above the longitudinal groove or shoulder on its lower edge, which will rest and ride upon the rail in case the wheels leave the track, and prevent the cars from bumping or jumping over the ties, which might damage the same and injure the passengers. When the runners are formed with the offset or shoulder the longitudinal angular stays H and the transverse angular stays I are brought down and bolted together to the runner by means of the bolts *h* and *i*. The runners, as thus constructed, form a firm support for the brake-beams, bringing the strain, when the brakes are applied, directly upon the journals of the wheels instead of upon the body of the car, thus preventing all pulling down of said cars, as in the methods heretofore in use of hanging the brakes. And, further, as all links are dispensed with, all the accidents resulting from the breaking of said chains or links, which frequently result in throwing the train from the track, are avoided. And, further, the bearing of the shoes is di-



rectly against the center of the wheel, by which a greater leverage is obtained and the brakes more successfully put in operation.

It is evident that, instead of the groove, hereinbefore described, on the inside of the runners, that a shoulder,  $a^2$ , may be formed on the lower edge of the said runners, as shown in Fig. 3, which will answer the same purpose.

The operation of my improved car is as follows: Being properly placed upon the track, the lower edges of the runners will be elevated above the road-bed and fall on a line about even with the top of the rails, but in the event of the wheels leaving the rails one of the grooved runners, according to the direction in which the car is thrown, will fall against the rail, the groove engaging under the outside flange of the rail, and effectually securing the car to the track until the train can be stopped. The runners traveling along the sleepers will also assist in stopping the train.

The brake-beams, as arranged, are much more quickly and effectually applied than when hung on links, as usual, and are free from the tendency to ride upon the wheels and create unnecessary noise, like the brakes in ordinary use.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

In combination with a car-truck, the runners A, constructed with the longitudinal grooves  $a$ , and extending from end to end of the truck, as and for the object herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

LAWRENCE ODELL ROOT.

Witnesses:

L. A. DAVIS,  
J. O. DAVIS.