J. J. THOMAS & W. J. ANDERFUREN.

GRIPPING AND PROPELLING ATTACHMENT FOR CAR-TRUCKS AND LOCOMOTIVES.

No. 189,152. Patented April 3, 1877.

Fig. 1.

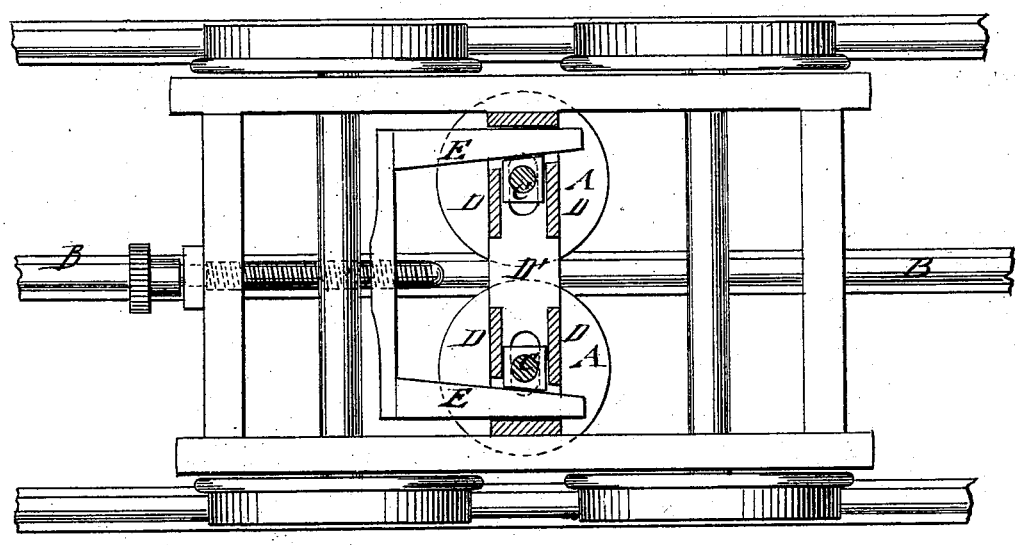
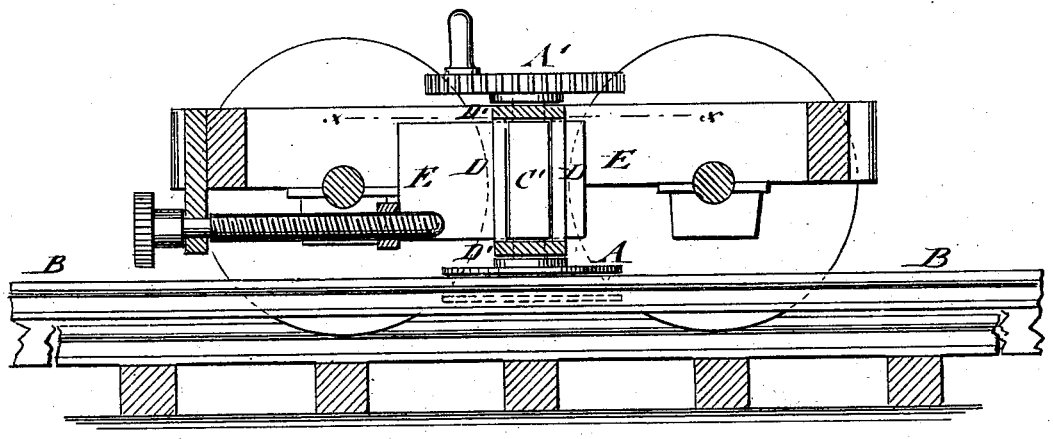


Fig. 2.



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JAMES J. THOMAS, OF CAHTO, AND WILLIAM J. ANDERFUREN, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN GRIPING AND PROPELLING ATTACHMENTS FOR CAR-TRUCKS AND LOCOMOTIVES.

Specification forming part of Letters Patent No. **189,152**, dated April 3, 1877; application filed December 4, 1876.

To all whom it may concern:

Be it known that we, JAMES J. THOMAS, of Cahto, in the county of Mendocino and State of California, and WILLIAM J. ANDERFUREN, of San Francisco, in the county of San Francisco and State of California, have invented a new and Improved Griping, Brake, and Safety Attachment to Locomotives and Car-Trucks, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a plan view, partly in horizontal section on line *x x*, Fig. 2, of our improved griping, safety, and brake attachment to locomotives and car-trucks; and Fig. 2 is a vertical longitudinal section of the same.

Similar letters of reference indicate corresponding parts.

The object of our invention is to provide for locomotives and car-trucks an improved griping, safety, and brake attachment, which is to be used with advantage for ascending and descending steep gradients in railroads, being operated by hydraulic, pneumatic, or mechanical pressure, so as to facilitate the ascent and accomplish the descent with perfect safety, also to prevent derailment at any point.

The invention will first be described in connection with the drawing, and then pointed out in the claim.

In the drawing, A represents the horizontal griping and brake wheels, that are fitted by circumferential grooves to the head of a center rail, B, at both sides of the same.

The rail B is raised above the track-rails, so that the griping-wheels may pass clear of switches and other obstructions, the center rail being left out at switches.

The grooved wheels A bind with greater or less pressure on the center rail, and serve, on applying steam or other power to the same, to assist the pulling of the train uphill, while downhill the wheels are pressed firmly without power to the rail, acting thus as a brake.

The power may be applied to the wheels by a separate pair of steam-cylinders, that are connected to intermeshing wheels A′ at the upper ends of the shafts C of the griping-wheels.

The bearing C′ of the shafts C are guided by vertical transverse pieces D and slotted top and bottom pieces D′ of the locomotives or car-trucks. They are pressed on, or released from, the center rail by longitudinal wedge-pieces or pistons E, that slide between the side guide-pieces D′ and the shaft-bearings C′.

The wedge-pieces or pistons E may be moved by hydraulic pressure, using mercury, water, or other fluid, which is applied by compression, and taken off again by a suitable piston operated by steam or power; or the wedges may be operated by compressed air, or by the usual mechanical devices, as levers, feed-screws, or equivalent appliances.

The griping and propelling action of the revolving wheels applied by the wedges or pistons assists and accelerates the ascending of steep gradients in railroads, so as to require less powerful engines, while the descent is safely accomplished by the brake action of the griping-wheels without the use of power, or with use of power in reverse direction in case of accident or otherwise, (on engine,) if desired.

The lower flanges of the griping-wheels being always under the rail-head of the central rail, it greatly facilitates the making of short curves, also insures the trucks and wheels from derailment, as those griping-wheels are not allowed to move back far enough for said flanges to be disengaged, nor are the truck-frames allowed to rise or jump high enough for the trucks or drive-wheels to get off the track.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination, with horizontal grooved wheels A A, arranged opposite to each other on vertical shafts C, and in bearings C′, of the vertical guides D, horizontal slotted guides D′, and the movable wedges E, all arranged to operate as specified.

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