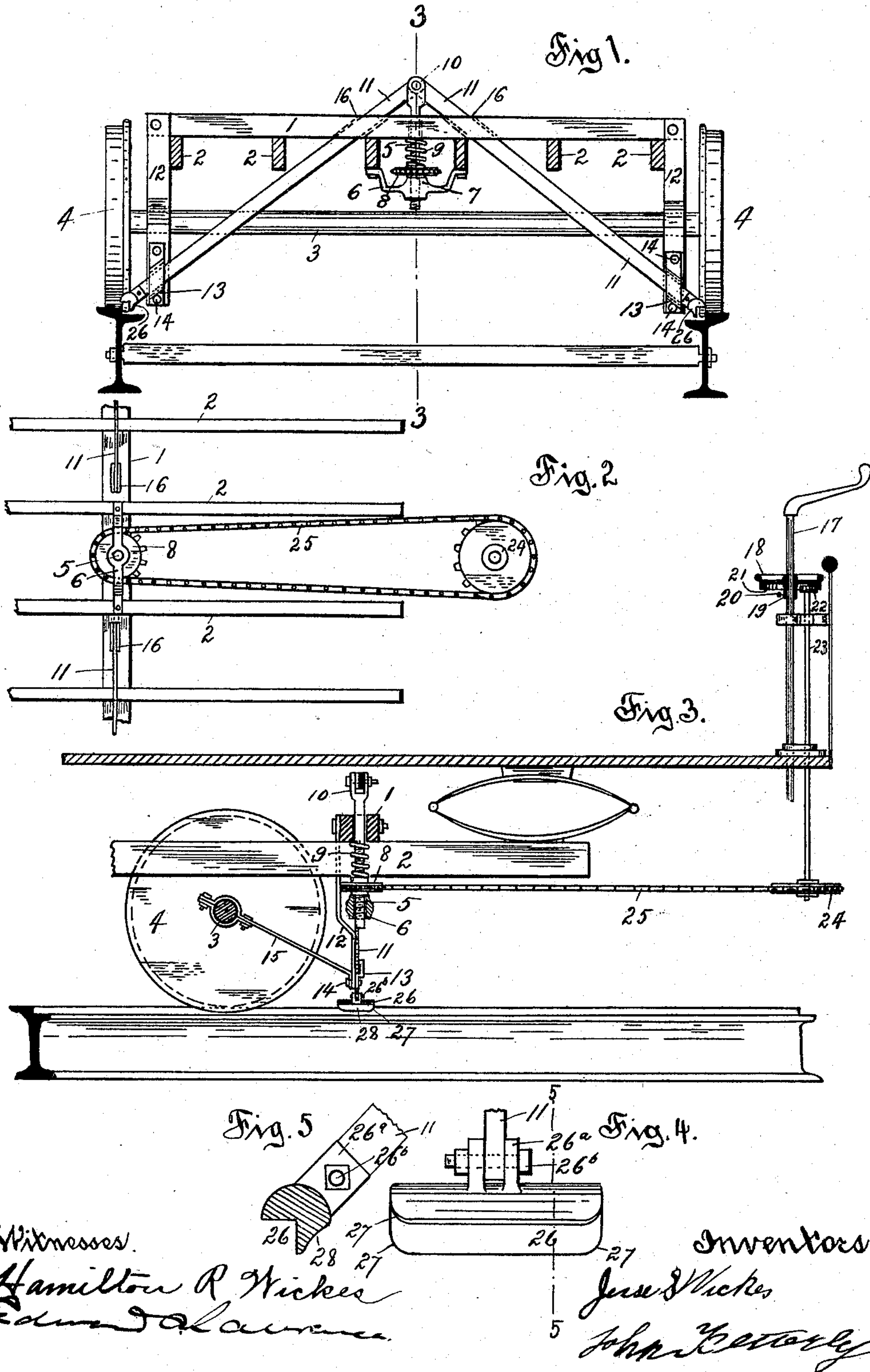


(No Model.)

J. S. WICKES & J. KETTERLY.  
CAR BRAKE.

No. 605,531.

Patented June 14, 1898.





# UNITED STATES PATENT OFFICE.

JESSE S. WICKES AND JOHN KETTERLY, OF PITTSBURG, PENNSYLVANIA.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 605,531, dated June 14, 1898.

Application filed July 27, 1897. Serial No. 646,137. (No model.)

*To all whom it may concern:*

Be it known that we, JESSE S. WICKES and JOHN KETTERLY, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Car-Brakes, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a sectional elevation of a car-truck, showing our invention applied. Fig. 2 is a partial inverted plan of the same. Fig. 3 is a sectional view along the line 3 3 in Fig. 1; also shows the method of controlling our device from the platform of the car. Fig. 4 is a side elevation in detail of our improved brake-shoe, and Fig. 5 is a sectional view along the line 5 5 in Fig. 4.

The purpose of our invention is to provide a practical brake which is to be applied to the rail instead of the periphery of the wheel. Former brakes of this class have been applied to the rail in a vertical plane, thus tending to derail the car by lifting the wheels from the rail. Another objection has been that any unevenness or variance in width in the track—such as rail-joints, &c.—has tended to block the vertically-applied rail-brake, bringing the car to a too sudden stop or wrecking the braking mechanism. Our improved brake is applied to the rail in an oblique direction, the brake-shoe bearing against the top and inner surface of the rail and the beveled ends of the shoe obviating the engaging of the shoe with irregularities in the track. By the arrangement of a coiled spring operating on the spindle to which the brake-rods are pivoted the whole mechanism is rendered elastic enough to give when an irregularity is presented in the track and pass over the same.

The following is a detailed description of our invention:

1 is a cross-beam of an ordinary car-truck.  
2 2 are the longitudinal braces or stringers.  
3 is one of the axles, on which are mounted wheels 4 4.

Passing through beam 1 is spindle 5, which is further held in a vertical position by bracket 6, said spindle being free to move vertically. Spindle 5 is threaded for a part of its length,

as at 7, and sprocket-wheel 8 is provided with internal threads corresponding to the threads on spindle 5 and is mounted on said spindle. Around said spindle 5 and between beam 1 and sprocket 8 is coiled spring 9. The upper extremity of spindle 5 is forked transversely, and in said fork 10 are pivoted brake-rods 11 11. From the extremities of beam 1 are downwardly-extended braces 12 12. Near the lower extremities of braces 12 12 are bracket-plates 13 13, attached thereto by bolts 14 14, forming a guide through which brake-rods 11 11 pass. Journaled on axle 3 are braces 15 15, which intersect with braces 12 12 and are bolted thereto.

16 16 are vertical slots in beam 1, through which brake-rods 11 11 pass and move freely. On the wheel brake-staff 17 is loosely mounted hand-wheel 18, supported in its position by collar 19, fitted to staff 17 by set-screw 20. Hand-wheel 18 is provided with internal cogs 21 21, engaging cog-wheel 22 on staff 23. On the lower extremity of staff 23 is sprocket 24, geared to sprocket 8 by means of driving-chain 25. Sprocket 24 is preferably somewhat larger than sprocket 8, thus causing spindle 5 to revolve at a faster rate than staff 23. On the extremities of brake-rods 11 11 are fitted brake-shoes 26 26, attached to said brake-rods by means of lugs 26<sup>a</sup> 26<sup>a</sup> and bolts 26<sup>b</sup> 26<sup>b</sup>, whose bearing-surfaces are made to correspond to the portion of the rail engaged by the rim and flange of the wheel. The front and rear of the bearing-surfaces of said shoes are beveled away, as at 27 27, Fig. 4, so as to ride over irregularities in the track. The under side of said shoes are preferably cut away, as at 28 28, to prevent jamming in case of a guard-rail being encountered.

The operation of our improved track-brake is as follows: Supposing the brake to be off, as in Fig. 1, to apply it, the person in charge of the car would revolve hand-wheel 18 in the proper direction, thus causing the sprocket-wheel 24 to revolve also. This in turn would cause sprocket-wheel 8 to revolve in a like direction—say from left to right—and, supposing thread 7 to be a right-hand thread, would cause spindle 5 to be drawn down, sprocket 8 being prevented from vertical movement by spring 9. The downward move-



ment of spindle 5 would tend to force outward and downward in an oblique direction the brake-rods 11 11, pivoted at their upper ends to spindle 5. The shoes 27 27 would accordingly be forced against the rails, retarding the motion of the car. The coiled spring 9 renders the device elastic, and any sudden jar caused by the shoes coming in contact with an obstruction would cause the brake-rods to be forced up against the action of said spring, allowing the shoes to ride over the obstruction. The spring also enables the device to accommodate itself to the slightly-varying width of the track and rough joints of the rails.

The peculiar benefits of our device are the oblique direction in which the brakes are applied, obviating the lifting tendency common to the vertically-applied rail-brakes, the element of elasticity enabling the mechanism to accommodate itself to the varying width and other irregularities of the track, and the peculiar form of brake-shoes, which enables rough joints and other uneven places in the track to be passed over without injury.

Having described our invention, what we wish to claim is—

1. In rail-brakes, the combination of a spindle carried by the truck-frame and capable of vertical movement; brake-rods pivoted to the upper extremity of said spindle and extending obliquely toward the rails and capable of longitudinal motion, and shoes on the lower extremities of said brake-rods capable of bearing against the upper and inner faces of said rails.

2. In rail-brakes, the combination of a spindle carried by the truck-frame; brake-rods pivoted to the upper extremity of said spindle and extending in an oblique direction toward the rails and capable of longitudinal motion; shoes on the ends of said brake-rods capable of bearing against the upper and in-

ner faces of said rails, and means for moving said spindle in a vertical direction.

3. In rail-brakes, the combination of a threaded spindle carried vertically by the truck-frame; brake-rods pivoted to said spindle and extending in an oblique direction toward the rails; shoes on the lower extremities of said brake-rods capable of bearing against the rails; a power-wheel, internally threaded, mounted to travel on said spindle, a coiled spring encircling said spindle, interposed between said truck-frame and said power-wheel, and a second power-wheel operatively connected with said first power-wheel and revoluble from the car.

4. In rail-brakes, the combination of a spindle mounted in the truck-frame; brake-rods pivoted to said spindle and extending in an oblique direction toward the rails; braces extending from the truck-frame to said brake-rods and having a sliding connection therewith; additional braces journaled on the car-axle and connecting with said first braces, and means for moving said spindle in a vertical direction.

5. In rail-brakes, the combination of a hand-wheel, a shaft revoluble by said hand-wheel; a power-wheel mounted on said shaft; a vertically-moving threaded spindle carried by the truck-frame; a second power-wheel internally threaded and mounted on said threaded spindle; brake-rods pivoted to the upper extremity of said spindle and extending obliquely toward the rail, and brake-shoes on the lower extremities of said brake-rod adapted to bear against the rail.

In testimony whereof we have hereunto set our hands this 24th day of July, A. D. 1897.

JESSE S. WICKES.  
JOHN KETTERLY.

Witnesses:

EDWARD A. LAWRENCE,  
O. H. ROSENBAUM.