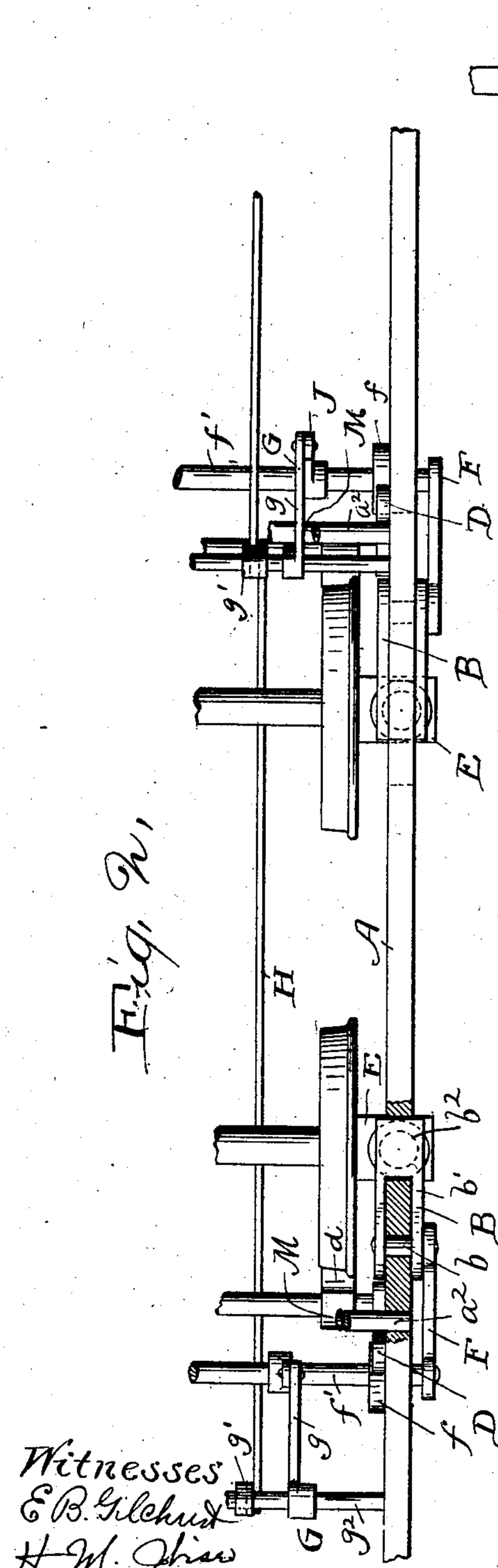
No. 720,359. PATENTED FEB. 10, 1903.

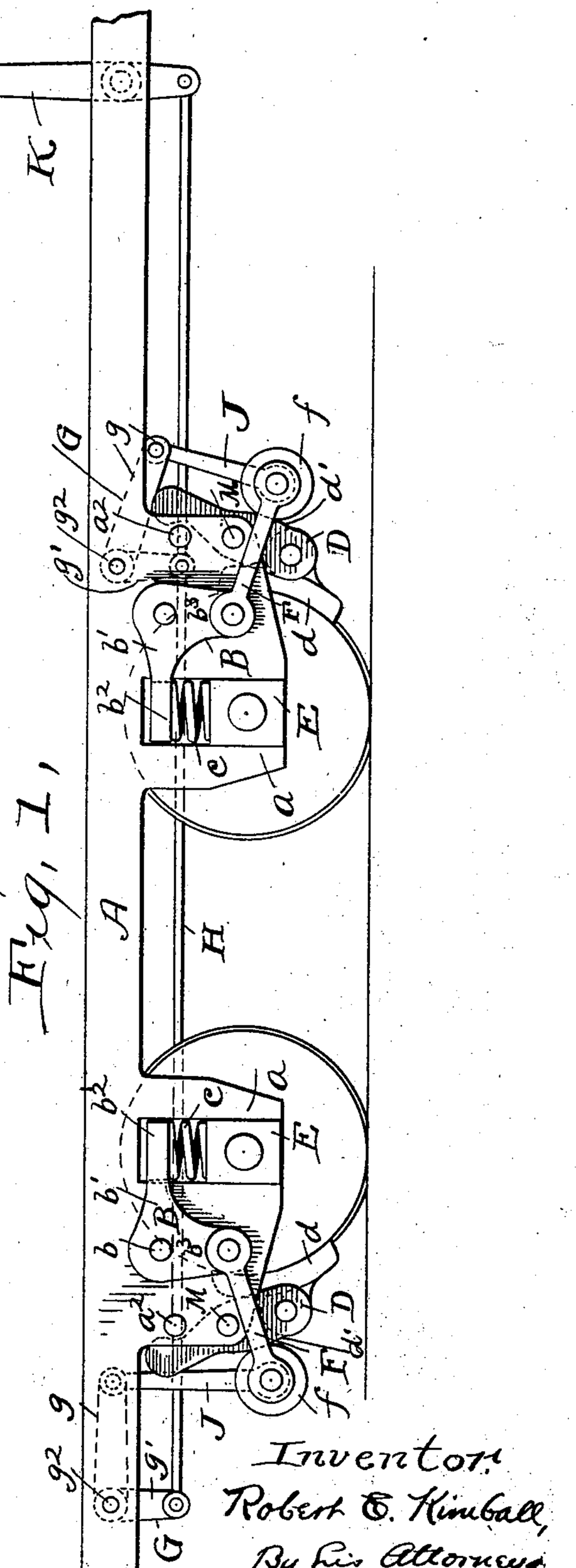
R. E. KIMBALL.

CAR BRAKE.

APPLICATION FILED JUNE 16, 1902.

NO MODEL.





Witnesses
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UNITED STATES PATENT OFFICE.

ROBERT E. KIMBALL, OF AKRON, OHIO.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 720,359, dated February 10, 1903.

Application filed June 16, 1902. Serial No. 111,828. (No model.)

To all whom it may concern:

Be it known that I, ROBERT E. KIMBALL, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Car-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates to improvements in car-brakes, and more particularly to those wherein the weight of the car-body is used in setting them; and it consists in the novel features of construction set forth in the annexed specification and drawings and definitely pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of a portion of a car-truck with my invention applied thereto, and Fig. 2 is a top plan view of a portion of the same.

In the side members A of the truck-frame are vertical housings *a*, which receive the vertically-movable journal-boxes E, in which the wheel-axles are mounted. The mechanism now to be described constituting my invention is associated with each wheel. A bell-crank lever B is pivoted to the side frame member on the pivot *b*, and its substantially horizontal arm *b'* is extended over the associated journal-box. A spring *c* is seated upon the journal-box at its lower end, while its upper end finds its seat in that part b^2 of the lever-arm *b'* which overhangs said journal-box. The lever B as constructed has two similarly-shaped members, which lie on opposite sides of the side member of the truck-frame, as shown in Fig. 2, and the outer ends of their horizontal arms are connected by that part b^2 which forms the upper seat of the spring.

Pivoted to the truck-frame in suitable relation to the wheel is a hanger D, on the lower end of which is hung a brake-shoe *d*. The upper end of this hanger—that is to say, the end above its pivot—is adapted to engage with a pin a^2, secured to the truck-frame member, and thereby that movement of the hanger which carries the brake-shoe from the wheel is limited.

The vertical arm b^3 of the lever B has a link F pivoted to its lower end, and the other end of this link carries a friction-roller *f*, which is adapted to engage with the outer face *d'* of the hanger D, which outer face is curved in the arc of a circle of which, when the brake-shoe is set, the pivot of this link F is the axis. That end of the link to which the friction-roller is attached is connected suitably with mechanism whereby the roller may be caused to move up and down upon the outer face of said hanger. This mechanism consists of a bell-crank lever G, which is pivoted to the truck-frame, a link J connecting the horizontal arm of said lever with the link F, which carries the friction-roller *f*, and a draft-rod H, connecting the vertical arm of this lever with a suitable operating-lever K, also is pivoted to the truck-frame.

As shown in the drawings, the brakes are set. To release the brake, one draws the friction-roller upward, employing for the purpose the mechanism shown until it engages with the brake-hanger above the latter's pivot. This causes the brake-hanger to move, carrying the brake-shoe away from the wheel, until the movement of the hanger is stopped by its engagement with the pin a^2. The weight of the truck-frame and the weight of the car which is on the truck-frame is transmitted to the spring *c* and thence to the journal-box and wheels through the lever B, link F, and friction-roller *f* and the then immovable brake-shoe hanger, which last-named parts prevent the movement of the lever B about its pivot which the weight of the car constrains. To set the brake, one has only by the operation of the described mechanism to move the friction-roller *f* down on the outer face of the brake-hanger. When it passes below the pivot of said brake-hanger, the brake will be set, it being drawn in the setting direction by the weight of the car and its load. The farther this roller is moved down below the pivot of the brake-hanger the greater will be the leverage which the car and its weight exerts, and consequently the more firmly will the brake-shoe be pressed against the wheel. The leverage may be so arranged, however, that when this friction-roller is moved down as far as it will go even then the car when loaded to its limit will not cause the brake-shoe to press against the wheel with a great enough force to entirely prevent the wheel from revolving so long as

the car is moving forward. The brake may not therefore be set hard enough to cause a flat wheel to be formed. While, therefore, the weight of the car furnishes all of the force by which the brake is applied and this force may be increased or diminished according to the difference in leverage on the brake-shoe hanger, nevertheless the movement of the friction-roller *f* up or down to increase or decrease the leverage, or consequently the braking action, or to cause the brake to be thrown off entirely may be effected with very little force, since this roller moves in the arc of a circle about a fixed pivot.

The described mechanism is intended to be placed on both ends of the car for engagement with both wheels on the same axle. Therefore the brake-hangers may be pivotally connected with the truck-frame by being hung on a rod M, which extends across the car from one side member A to the other. The friction-rollers *f* may be loosely mounted on a shaft or bar *f'*, which extends between and is connected with the brake-hangers.

The so-called "bell-crank lever" G may consist of two arms *g*, (one only being shown,) secured to a rock-shaft g^2 and connected, respectively, with two links J, and a single arm *g'*, to which the draft-rod H is fastened. Similar mechanism may also be provided for two or more wheels on the same side of the car, as shown. In that event the same draft-rod H may operate all of the brake mechanisms.

Having described my invention, I claim—

1. In a car-brake, the combination of a brake-shoe hanger carrying a brake-shoe on its lower end, with means whereby a force, derived from the weight of the car, may be applied to said hanger above its pivot or below its pivot and at various distances therefrom, substantially as and for the purpose specified.

2. In a car-brake, the combination of a brake-shoe hanger carrying a brake-shoe on its lower end, with means whereby a force may be applied to said hanger above its pivot or below its pivot and at various distances therefrom, substantially as and for the purpose specified.

3. In a car-brake, the combination of a pivoted brake-shoe hanger carrying a brake-shoe on its lower end, a friction-roller movable against the outer surface of said brake-shoe hanger from one side of its pivot to the other, means whereby the weight of the car and its load exerts a force drawing said roller against the outer face of said brake-shoe hanger, and means for moving said roller up and down, substantially as and for the purpose specified.

4. In a car-brake, the combination of a pivoted brake-shoe hanger carrying a brake-shoe on its lower end, a friction-roller movable against the outer surface of said brake-shoe hanger from one side of its pivot to the other, means for drawing said roller against the outer face of said brake-shoe hanger, and means for moving said roller up and down, substantially as and for the purpose specified.

5. In a car-brake, the combination with the truck-frame, a journal-box vertically movable therein, a spring seated upon said journal-box, and a lever pivoted to the truck-frame having one end bearing upon said spring, with a brake-shoe hanger pivoted to the truck-frame, a link having a friction-roller carried by said link and adapted to bear against the outer face of said brake-shoe hanger and to be moved along the same to both sides of its pivot, mechanism connecting said link with the other arm of the lever above referred to, and means for moving said friction-roller up and down upon said brake-shoe hanger, substantially as and for the purpose specified.

6. In a car-brake, the combination of a truck-frame, a journal-box vertically movable therein, a spring seated upon said journal-box, a bell-crank lever having one end bearing upon said spring, with a brake-hanger pivoted to said truck and having its outer surface, below its pivot, in the form of an arc, a stop limiting the movement of said brake-hanger in one direction, a link pivoted to the vertical arm of said bell-crank lever, a friction-roller mounted on the outer end of said link and engaging with the outer face of said lever, a lever pivoted to the truck-frame, a link connecting one arm thereof with the link which carries the friction-roller, and mechanism for rocking the last-named lever whereby to move said friction-roller up and down, substantially as and for the purpose specified.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

ROBERT E. KIMBALL.

Witnesses:
E. L. THURSTON,
H. M. WISE.