H. McCALIP.

AUTOMATIC BRAKE.

No. 184,538. Patented Nov. 21, 1876.

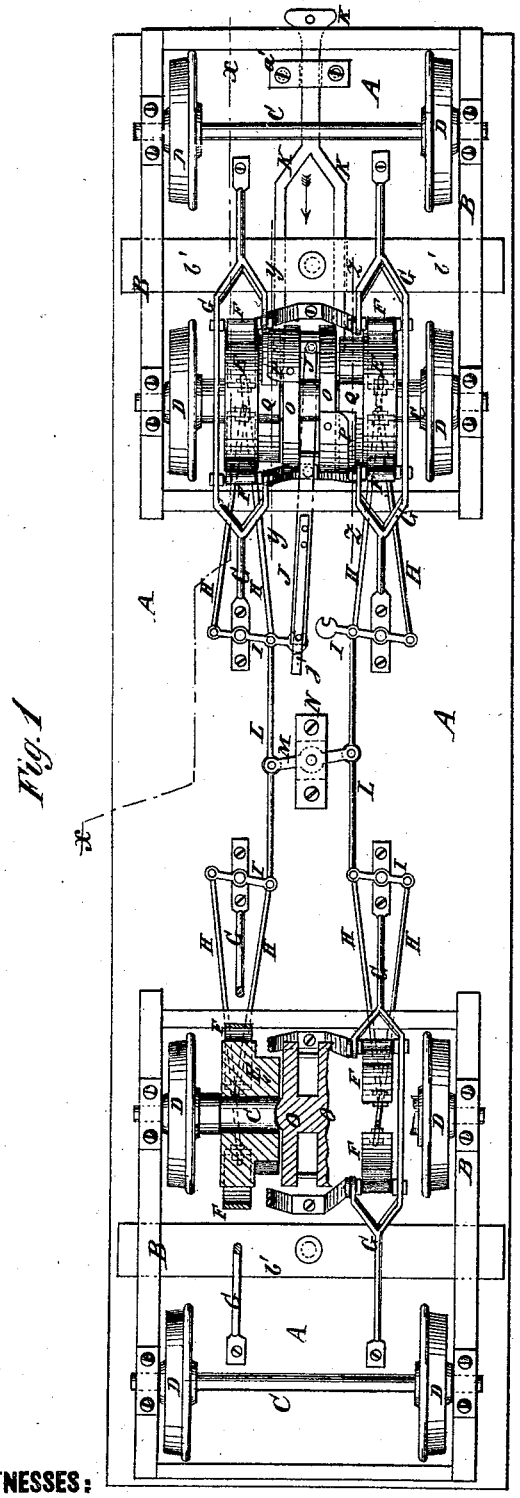

Fig. 1

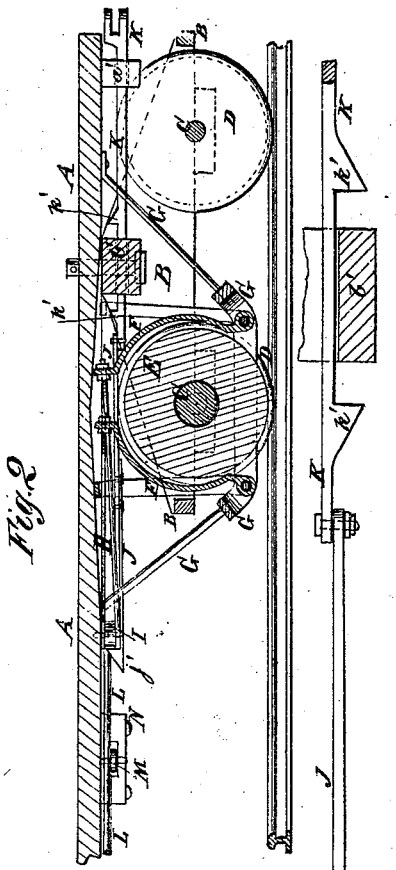

Fig. 2

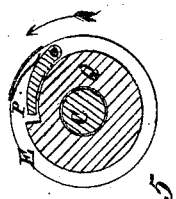

Fig. 4

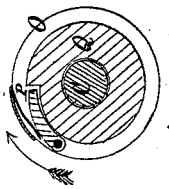

Fig. 3

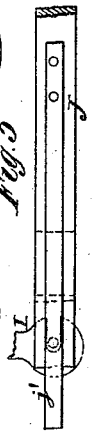

Fig. 5

Fig. 6

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HUGH McCALIP, OF HARTSVILLE, ASSIGNOR TO HIMSELF AND NORTON R. CHAMPION, OF SHELBYVILLE, INDIANA.

IMPROVEMENT IN AUTOMATIC BRAKES.

Specification forming part of Letters Patent No. **184,538**, dated November 21, 1876; application filed June 12, 1876.

To all whom it may concern:

Be it known that I, HUGH McCALIP, of Hartsville, in the county of Bartholomew and State of Indiana, have invented a new and Improved Automatic Car-Brake, of which the following is a specification:

Figure 1 is a bottom view of a railroad-car to which my improved brake has been applied, parts being broken away to show the construction. Fig. 2 is a detail longitudinal section taken through the line *x x*, Fig. 1. Fig. 3 is a detail section of one of the pawl-wheels, taken through the line *z z*, Fig. 1. Fig. 4 is a detail section of the other pawl-wheel of the same axle, taken through the line *y y*, Fig. 1. Fig. 5 is a detail bottom view of the push-bar. Fig. 6 is a detail side view of the push-bar and the inner part of the bumper.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved car-brake, which shall be so constructed as to be applied by the momentum of the cars as they run together when the traction-power is checked, and which will be withdrawn as the traction-power is again applied.

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

A represents the bottom frame or body of a railroad-car. B are the truck-frames. C are the axles, and D are the wheels. Upon the axles C, near their ends, are placed two loose brake-wheels, E, upon the faces of which rest the brake-straps F. The lower ends of the brake-straps F are pivoted to brackets G, attached to the car-body A. To the upper ends of the brake-straps F of each brake-wheel are attached the outer ends of two rods, H, the inner ends of which are pivoted to a short lever, I, upon the opposite sides of, and equally distant from, the pivot of said lever I. The levers I are pivoted to the car-body A, and the inner ends of the two levers I of each truck B project until they nearly meet, and have circular heads formed upon them, to receive the slotted end of the push-bar J, and have notches formed in said heads to receive a pin attached to the slotted end of the said push-bar, to center it upon said heads. The push-bar J is kept in place upon the heads of the levers I by a spring-catch, *j*, the shoulder of which rests upon the rear edges of said heads. The outer end of the push-bar J is connected with the forked inner end of the bumper K, which passes through notches or mortises in the parts of the bolster *b'*, through keepers *a'*, attached to the car-body A, and its end projects at the end of the car to receive the coupling in the usual way.

Upon the branches of the bumper K are formed shoulders *k'*, to rest against the sides of the bolster *b'*, and at a distance apart enough greater than the breadth of the bolster *b'* to give sufficient play to the push-bar J to apply and withdraw the brakes. The levers I, upon the same side of the car, are connected by a rod, L, so that the brakes may be applied to the wheels of both trucks at the same time. The two connecting-rods L are connected by an equal-armed lever, M, pivoted at its center to the car-body A, so that the operation of applying the brakes to the wheels E upon one side may withdraw the brakes from the wheels upon the other side.

To the axle C, between the brake-wheels E, are rigidly attached two wheels, O, to each of which is pivoted one or more pawls, P, which are held down by springs, and engage with ratchet-wheels Q, rigidly connected with, or formed solidly upon, the brake-wheels E, and which may be made with one or more teeth, as may be desired. The two sets of pawls P, and ratchet-wheels Q, are arranged in reverse position with respect to each other, so that the brakes upon one side may be applied when one end of the car is forward, and the brakes upon the other side may be applied when the other end of the car is forward, the end of the push-bar J being moved from one to the other of the levers I every time the car is reversed.

The operation is as follows: Place the right hand on bumper (supposing the forward motion to be from left to right) and the inner end of push-bar on inner end of lever I, when the pawls will be on the ratchet attached to the brake-wheels, ready to carry them with the forward motion of axle. By pressing on the bumper the brakes will be applied on one set of wheels as long as the bumper meets with

resistance on the forward motion. During this time the opposite brake-wheels are held firmly in the straps, but motionless, while the axle revolves in them, the pawls being off. When it is desired to change the direction of the car, the inner end of push-bar is changed from one lever I to the other. Thus it will be seen that two of the wheels brake in one, and two others in another, direction; but this is only half the operation. When the pulling-power of the engine is checked, the brakes are automatically applied to one set of wheels and the train is stopped. The reversal of the engine now will produce no effect upon the position of the brakes; but the change in the direction of the rotation of the axle releases the pawls from one set of wheels and causes them to take hold on the opposite ones, when the train may be backed without further obstruction, the brakes remaining open as long as the pushing continues. When the pushing-power of the engine is checked, the momentum carries the train away from it and the slack motion of bumper applies the brakes to the opposite wheels, thus braking backward as well as forward; hence I employ one set of brakes for a forward motion each way, and another for a backward motion each way.

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

1. A car-brake, made reversible by changing the inner end of push-bar to inner end of a lever, I, and provided with two sets of wheels that brake in opposite directions, as and for the purpose described.

2. The combination of the rods H, the levers I, and the push-bar J, with the brakes F and the bumper K, substantially as herein shown and described.

3. The combination of the connecting-rods L with the levers I, that operate the brakes upon the same side of the two trucks B, substantially as herein shown and described.

4. The combination of the two pawl-wheels and their pawls and ratchet-wheels, working in opposite directions, with the axle C and the brake-wheels O, substantially as herein shown and described.

HUGH McCALIP.

Witnesses:
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