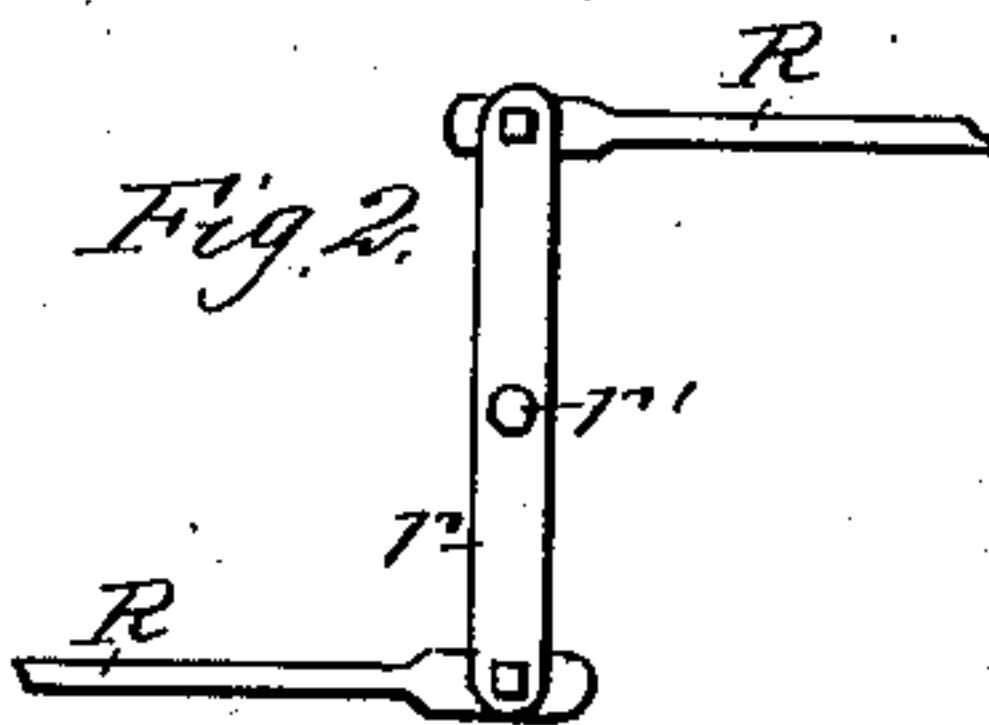
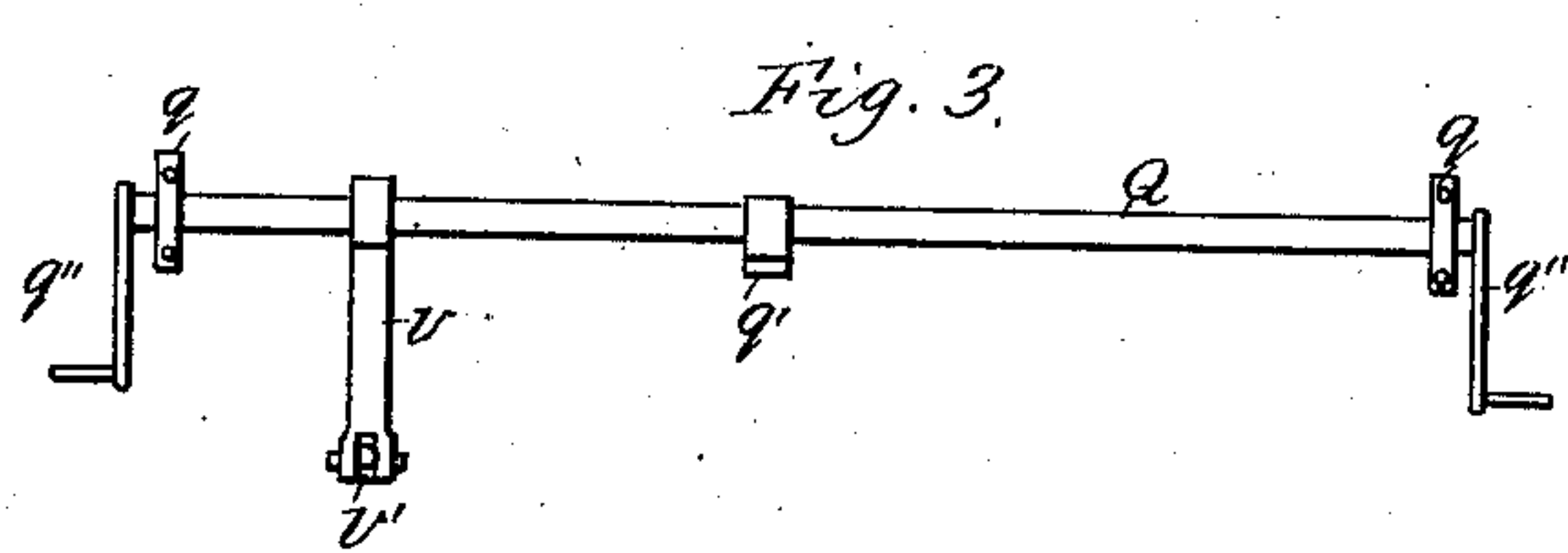
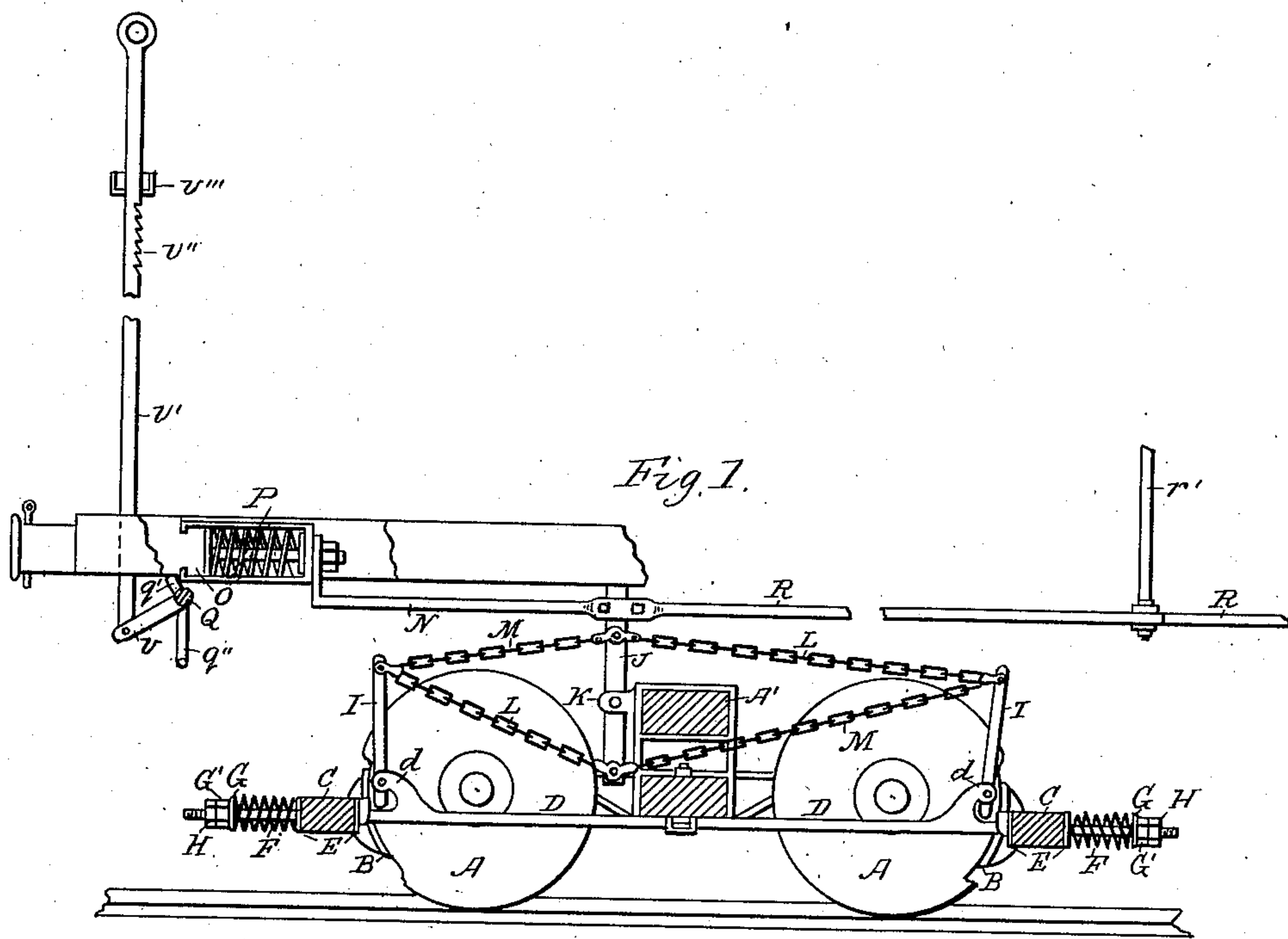


(No Model.)

J. P. WOOD.  
AUTOMATIC CAR BRAKE.

No. 375,407.

Patented Dec. 27. 1887.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOHN P. WOOD, OF MANISTEE, MICHIGAN, ASSIGNOR OF ONE-FOURTH TO  
MOSES R. DENNING, OF SAME PLACE.

## AUTOMATIC CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 375,407, dated December 27, 1887.

Application filed April 20, 1887. Serial No. 235,441. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN P. WOOD, a citizen of the United States, residing at Manistee, in the county of Manistee and State of Michigan, have invented certain new and useful Improvements in Automatic Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to  
10 which it appertains to make and use the same.

My invention relates to railroad-car brakes, and has for its object to provide an improved, safe, positively-acting, and automatic brake mechanism in which the ordinary brake-shoes and brake-beams may be used in connection  
15 with a novel combination and arrangement of levers, chains, springs, and connecting-bar; in which the brakes are held in contact with the wheels by devices which adjust said brakes to any degree of pressure desired; in which all the operative parts are connected to the draw-bar, and by the movement of which in either direction the brakes are disengaged from the wheels; in which the instant that the draw-bar  
20 is moved forward or backward the brakes are disengaged in the same degree that the cushion-spring in the draw-bar is compressed or expanded, the springs which operate against the brake-beams acting in unison with the cushion-spring in the draw-bar; in which the brakes of  
30 each car are operated independently of those of any other car, and in which the brakes are firmly applied to the wheels the instant that the buffers or draw-heads assume their normal positions.

My invention consists in the construction and combination or arrangements of the parts hereinafter described and claimed, and shown in the accompanying drawings, in which the  
40 same reference-letters indicate the same or corresponding parts, and in which—

Figure 1 represents a sectional elevation of the truck and the brake-operating mechanism, the section being taken through the longitudinal center thereof. Fig. 2 shows a broken plan  
45 view of the connecting-rods which extend longitudinally of the car and of the reversing-lever which is pivoted at its center on a rod attached to the bottom of the car; and Fig. 3

shows a detail plan view of the transversely- 50 arranged rock-shaft and its attachments beneath the end of the car, which are designed to operate the draw-bar and the connections between the same and the brake-shoes for removing the latter from the wheels.

In the drawings, A represents the truck- 55 wheels; A', the truck-beam; B, the brake-shoes; C, the brake-beams; D, the bar which passes through and connects the brake-beams, the latter being provided with facing-plates 60 E on each side for receiving pressure and friction. Near the outer ends of said bar D are placed pressure-springs F, which rest against the brake-beams and are held in adjustable position thereagainst by washers G, adjusting- 65 nuts G', and jam-nuts H, said nuts being employed for regulating the pressure or power applied to the brake-beams, and consequently to the brakes. To the projections *d* on the connecting-bar D the vertical end levers, I, are 70 pivoted, their lower ends when operated coming in contact with the brake-beams. Intermediate of the levers I the lever J is pivoted to a lug, K, which projects from a cast-iron plate bolted to the truck-beam A'. 75

At the upper ends of the end levers, I, and at the upper and lower ends of the intermediate lever, J, are secured the chains L and M; also, at the upper end of said intermediate lever is connected one end of a bar, N, the 80 other end of said bar being connected to the draw-bar O, which is supplied with the cushion-spring P. Under this construction and arrangement of the parts it will be obvious that movement of the draw-bar either way— 85 forward or backward—will be transmitted through the cushion-spring to the bar N, to the intermediate lever, J, the chains L M, and to the end levers, I, and that the lower ends of the latter will push the brake-beams C backward, compress the springs F, and release the brake-shoes from the wheels. This result is due to the connection of the bar N to the upper end of the intermediate lever, J, and the peculiar arrangement of the chains with rela- 95 tion to said lever and the end levers, I. By pulling on the draw-bar O the rod N will move the upper end of the lever J to the left



and the lower end to the right. This will cause the chains L, which are respectively attached to the upper and lower ends of said lever and to the upper ends of the levers I, to also move to the left and right, thus drawing the upper ends of the last named levers toward each other, forcing their lower ends outward against the brake-beams, and disengaging the brakes from the wheels. By pushing on the draw-bar and the rod N the intermediate lever, J, will have its upper and lower ends respectively moved to the right and left, thus imparting corresponding movement to the chains M and operating to disengage the brakes through the medium of the levers I and the brake-beams C, the same as just described.

It will be observed from the foregoing that my brakes work automatically in unison with the motion of the engine or train. In other words, as the latter moves in either direction, forward or backward, the brakes are automatically released from the wheels and held released until the action on the draw-bar ceases; but I do not confine my invention to the automatic operation of the brakes from the draw-bar, as I have constructed and combined with the latter an attachment, to be manipulated either from the top of the car or from the ground, for making up trains, switching, and the like. This attachment is arranged, constructed, and operated as follows:

Q represents a rock-shaft that extends across the bottom of the car, and is secured thereto by bearings or brackets  $q$ . At the center of the length of this shaft is formed a lug or dog,  $q'$ , that is adapted to fit in a recess formed in the lower side of the draw-bar O, and at the outer ends of said shaft, which project slightly beyond the sides of the car, are secured crank-handles  $q''$ , that are accessible to the train-man from the ground on either side of the car. By the movement of these crank-handles in either direction the shaft Q and the dog  $q'$  are rocked, and thus impart a forward or backward movement to the draw-bar, which, through the above-described intermediate connections, operates to disengage the brakes from the wheels. It is obvious that the crank-handles  $q''$  can be held in adjusted position by means of ordinary toothed racks secured to the sides of the car, and thus operate to hold the brakes out of contact with the wheels for any desired length of time. For releasing the brakes from the wheels from the top of the car and holding them released, an arm,  $v$ , is rigidly secured to the rock-shaft  $q$  and pivoted to the lower end of the rod or bar  $v'$ , which extends to the top of the car in convenient reach of the brakeman. On the side of this rod are formed ratchet-teeth  $v''$ , for engaging with a loop,  $v'''$ , secured to the end of the car and holding the rod up in place and keeping the brakes off the wheels. This hand operation of the brake mechanism is only necessary in making up trains, switching cars, and the like.

R represents two long connecting-rods which are attached at their outer ends to the upper ends of the levers J, and at their inner ends are pivoted to the ends of a short lever,  $r$ , which is centrally pivoted upon a stud,  $r'$ , that is rigidly secured to the bottom of the car at its longitudinal center. These long rods are employed to connect the tops of the intermediate levers when brakes are used upon both of the trucks of a car; also, if brakes are only used on one of the trucks the same rods are employed, one of them being connected at its outer end to the top of the intermediate lever and the other attached at its outer end directly to the draw-bar at the opposite end of the car from the brakes. The object of this latter arrangement is that in case the draw-bar at the end of the car which is without brakes is first engaged the brakes at the other end of the car will be immediately disengaged through the movement of the long connecting-rods, and this without moving the car before the brakes are released.

It will be obvious that various minor changes can be made in the construction and arrangement of the parts without changing the nature or principle of my invention, and hence I do not wish to be limited to the precise details shown and described. For instance, the intermediate lever may be arranged for operation either vertically, horizontally, or at an angle, so as to be applicable to cars of different constructions.

Having thus fully described my invention, what I claim as new is—

1. In an automatic car-brake, the combination of the brake-beams C, having the brakes B, the bar D, passing through and connecting said brake-beams, the pressure-springs F, arranged on said bar near its outer ends and resting against the outer sides of the brake-beams, the washers G, the adjusting-nuts G', the jam-nuts H, and means for automatically releasing the brakes from contact with the wheels, substantially as described.

2. The combination of the brake-beams C, having the brakes B, the bar D, the pressure-springs F, and their adjusting devices, with the levers I, the intermediate lever, J, the chains L and M, and means for automatically operating said intermediate lever in unison with the movement of the engine or train, substantially as described.

3. The combination of the brake-beams C, having the brakes B, the bar D, the springs F, their adjusting devices, the levers I, the intermediate levers, J, the chains L and M, the bar N, and the draw-bar O, provided with the cushion-spring P, substantially as described.

4. The combination of the brakes B, brake-beams C, the bar D, the springs F, their adjusting devices, the levers I and J, the chains L and M, the bar N, the draw-bar O, the connecting-rods R, and the centrally-pivoted lever  $r$ , substantially as described.



5. The combination, with the brakes, the bar N, and the intermediate connecting and operating devices, of the recessed draw-bar O, having the spring P, the transverse rock-shaft Q, having the lug or dog q', devices for operating said rock-shaft from the sides and top of the car, and ratchet devices for holding said operating devices in position and keeping the

brakes disengaged from the wheels, substantially as described.

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

JOHN P. WOOD.

Witnesses:

GEO. H. TICHENOR,  
F. R. HARDING.