

# G. COLLINS. CAR BRAKE.

No. 403,090.

Patented May 14, 1889.

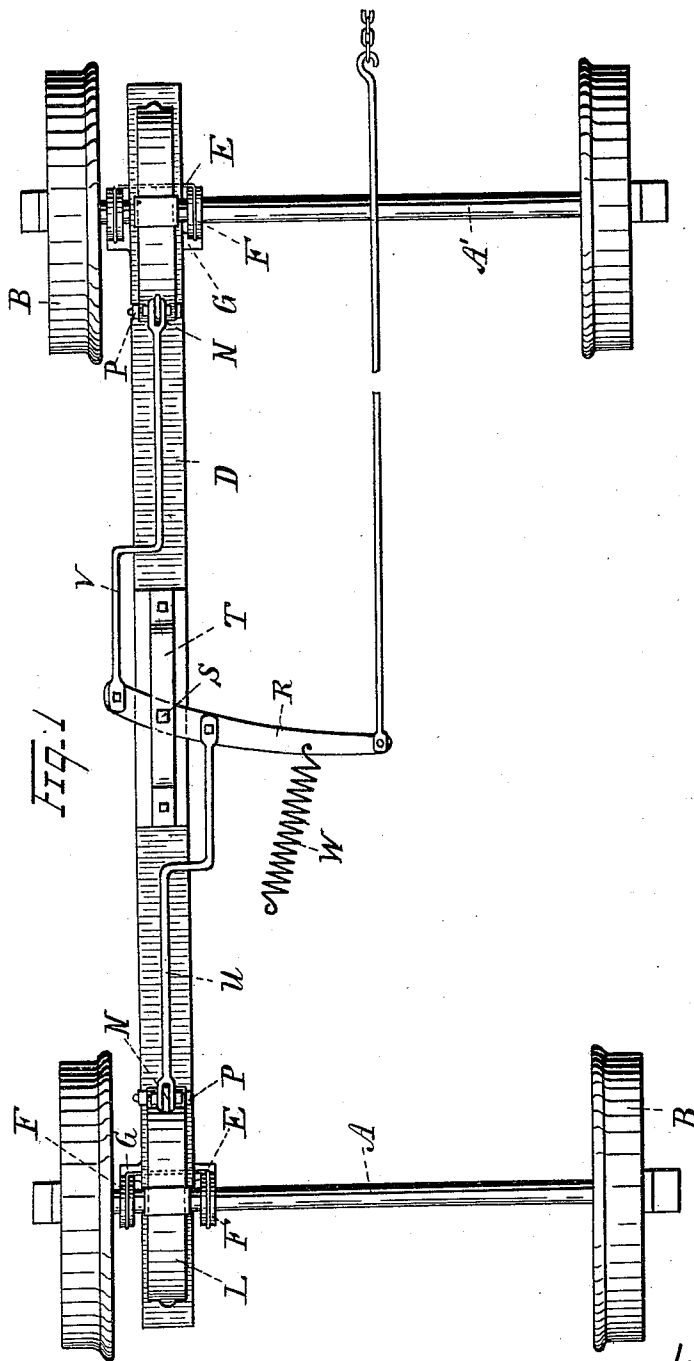


Fig. 1

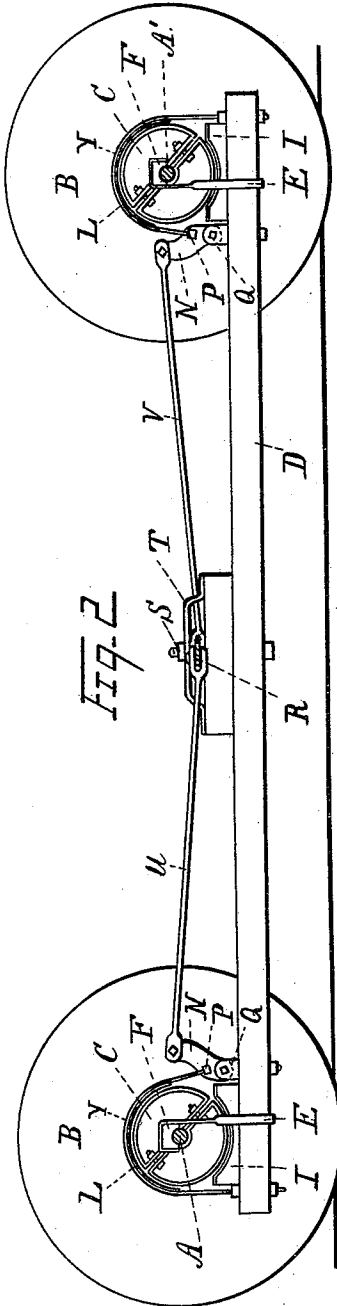
Witnesses:  
*John Schuman.*  
*P. M. Hulbert*

Inventor:  
*George Collins*  
 by *Mrs. S. Maqueton*  
*Atty*

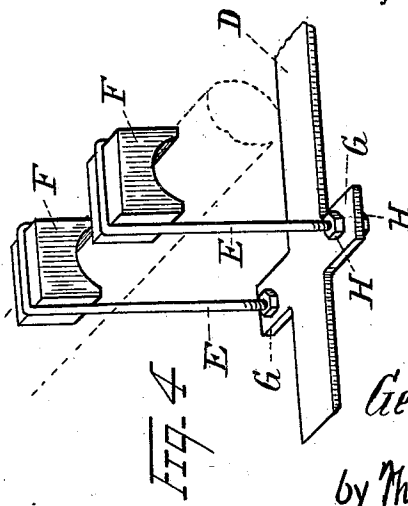
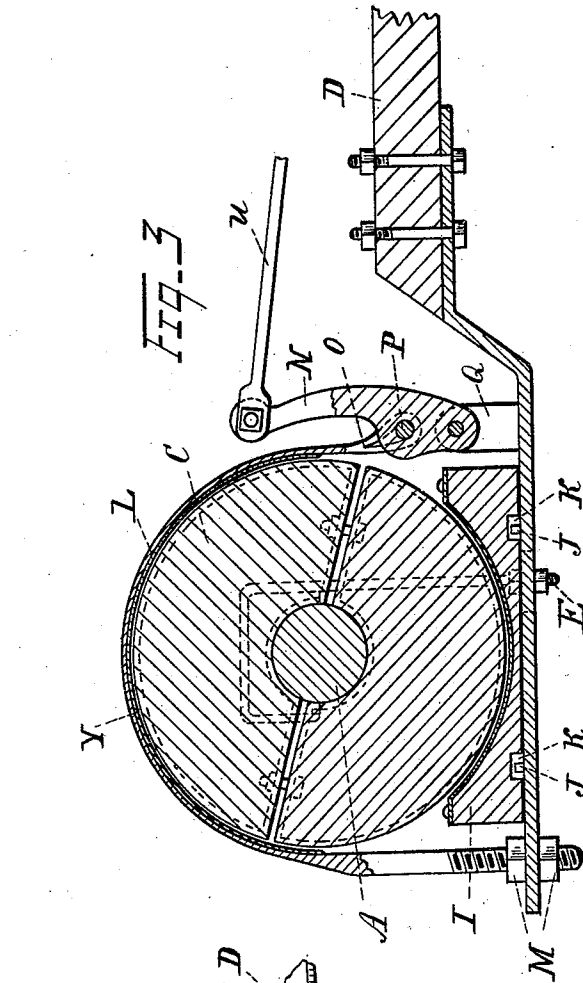
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 Atty.

# UNITED STATES PATENT OFFICE.

GEORGE COLLINS, OF DETROIT, MICHIGAN.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 403,090, dated May 14, 1889.

Application filed October 29, 1888. Serial No. 289,379. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE COLLINS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Car-Brakes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in car-brakes; and the invention consists in the peculiar construction and arrangement of the brake mechanism whereby increased braking-power is obtained, as is more fully described hereinafter, and shown in the accompanying drawings, in which—

Figure 1 is a plan showing my improved brake mechanism applied to a street-car. Fig. 2 is a vertical central longitudinal section thereof, in the plane in front of the brake-wheels. Fig. 3 is an enlarged vertical central longitudinal section through the brake-wheels and brake. Fig. 4 is a detail perspective view, showing the manner of supporting the brake-beam upon the car-axles.

A and A' represent the front and rear axles, respectively, which revolve with the wheels B.

C are brake-wheels, secured in line with each other upon the front and rear axles, respectively, and these are preferably made, as usual, in halves for the purpose of readily and firmly securing them upon the axles.

D is a brake-beam extending underneath the brake-wheels from front to rear. This brake-beam is preferably constructed with the central portion of wood and with the extremities of iron, suitably bolted or otherwise secured thereto, and with the central portion preferably in a higher plane than the end portions. This brake-beam is supported by means of hangers E from the axles, preferably by the use of wooden boxes F, fitting on top of the axles and suitably grooved upon their sides to engage with the upper ends of the hangers, there being two such hangers for each axle, one on each side of the brake-wheel. The lower ends of these hangers are secured to the ends of the brake-beam in any suitable manner, preferably by providing the brake-beam with lateral offsets G, to which the lower ends of the hangers are detachably secured by the screws H.

I is a brake-shoe supported on top of the

brake-beam, and provided with a segmental circular face upon its upper side, and with a sliding bearing upon its lower side to rest on the brake-beam for the purpose of adjusting itself to the face of the brake-wheel.

To prevent accidental displacement in any direction, the brake-beam is preferably constructed with upwardly-projecting studs J, which engage in slots K, formed on the under side of the brake-shoe.

L is a brake-strap encircling the upper side of the brake-wheel, and secured at one end adjustably by means of screw-nuts M or in any suitable manner to the inner end of the brake-beam, and with its other end to the power-levers N, preferably by forming a bifurcated eye, O, on the free end of the strap, and detachably secured to the lever by the bolt P, which passes through the said eye of the lever. This lever N is of second degree, and is fulcrumed in vertical position upon the brake-beam, preferably by securing it pivotally between a pair of ears, Q, projecting upwardly from the brake-beam.

R is a brake-lever pivotally secured at S to the brake-beam, preferably re-enforced by a strap, T, between which and the brake-beam the lever is movably confined.

U and V are the brake-rods, secured at one end upon opposite sides of the fulcrum of the brake-lever, and at their other ends secured in any suitable manner to the free ends of the power-lever N. These brake-rods are preferably curved or bent to operate the levers N in a longitudinal direction.

W is a retracting-spring to hold and return the brake-beam to its normal position with the brakes off.

The brake-strap L is preferably made of iron or steel lined with a copper strip, Y, and a similar lining may be applied to the brake-shoe I, or in such manner as to permit the easy removal or replacing of the same when worn out.

In practice the brake-lever is actuated in the usual manner by a suitable connection with one or both of the brake-staffs, as may be desired, and as is required to let the brakes on or off. Then from the brake-lever the power is communicated through the brake-rods to power-levers N, and these effect the simultaneous application of both the brake-

strap and the brake-shoe on each of the brake-wheels, as the movement of the lever N obviously will approach both the brake-shoe and the brake-strap against the face of the brake-wheel, and both will, therefore, press with the same amount of force against the side of the brake-wheel, and thereby prevent an unequal application of the power, which in ordinary brake devices often crowds the axle in one direction and produces a heavy strain upon the truck. As the movements of the brake-strap and the brake-shoe are dependent upon each other, they will be applied to the brake-wheels always with the same amount of force and released in the same manner, and if any inequality should exist in the relative positions of the brake-wheel and the brake-shoe it is obvious that they are free to adjust themselves to conform in every instance to the face of the wheel when the power is applied, and thus if the brake-wheel should wear uneven it will not affect the perfect operation of the device.

Another advantage of supporting the brake-shoe slidingly, in the manner described, is that it may be easily removed from the brake-beam, if desired, for the purpose of repair, and the strap is also readily adjusted or removed, when needed.

The manner of supporting my brake-beam will prevent any vibrations being communicated to the car, which are liable to jar the nerves of the passengers and to produce an unpleasant sensation, as is the case with many brakes in present use, as it will be seen that when the brakes are set the brake-beam is supported by the brake-wheels, as the hangers will rise slightly in a vertical direction.

By constructing the brake-beam in three parts, as shown, the whole brake is easily applied to the cars, and the whole device may be constructed to apply to the cars of different sizes by merely varying the length of the central portion of the brake-beam.

My device may be applied to any portion of the axles, and where it is not advisable to secure to the axles an extended hub may be formed on the wheels and the brake secured upon the said hubs. This construction will also be necessary where the wheels are revolving loosely on the axle. By securing the device, in the manner shown in the drawings, to one side of the center of the car, in close proximity to one pair of wheels, less jarring will be produced than in any other way; and this construction is especially applicable to such cars as are only braked from one end of the car, permitting at the same time a very long arm for increasing the power in braking.

What I claim as my invention is—

1. The combination, with a pair of brake-wheels secured upon the front and rear axles, respectively, of a brake-beam risingly and fallingly supported below such brake-wheels, brake-shoes supported upon the ends of the brake-beams below the brake-wheels, brake-

straps encircling the upper face of each brake-wheel and having one end secured to the end of the brake-beam, and levers controlled by the brake mechanism pivotally secured near the ends of the brake-beams and having the free ends of the brake-strap secured thereto, substantially as described.

2. The combination, in a car-brake, of the brake-wheels secured to the front and rear axles, respectively, a brake-beam risingly and fallingly supported by means of hangers from the axles of the car, brake-shoes slidingly supported upon the ends of the brake-beams below the brake-wheels, brake-straps encircling the upper face of the brake-wheels and having one end secured to the ends of the brake-beams, and levers N, operated by the brake mechanism, pivotally secured near the ends of the brake-beams and having the other end of the brake-strap secured thereto, substantially as described.

3. In a car-brake, the combination, with the front and rear axles having brake-wheels secured thereon, of a brake-beam risingly and fallingly supported below such brake-wheels and carrying brake-shoes slidingly secured thereon, and the brake mechanism for vertically operating such brake-beam, substantially as described.

4. The combination, with the front and rear axles of a car having brake-wheels secured thereon, of a brake-beam loosely supported from the axles below the brake-wheels and provided with brake-shoes on the under side of the brake-wheels, a brake-strap encircling the upper face of the brake-wheels, and secured at one end to the outer end of the brake-beam and its other end to the power-lever, pivotally secured to the brake-beam and actuated by the brake mechanism, substantially as described.

5. In a car-brake, the combination of the brake-beam with the hangers E loosely supporting such brake-beam from the axles, the brake-shoes I, slidingly supported upon the ends of the brake-beam, and the levers N, pivotally secured to the ends of the brake-beam and operated by the braking mechanism to the straps L, encircling the upper face of the brake-wheels and adjustably secured to the outer ends of the brake-beam, and provided at the inner ends with eyes pivotally secured to the levers N, substantially as described.

6. In a car-brake, the combination, with the front and rear axles having the brake-wheels C secured thereon, the brake-beam D, extending below the brake-wheels and constructed in two parts, with the central part above the plane of the outer ends, the brake-shoe I, slidingly supported upon the outer ends of the brake-beams by means of pins J and slots K, the hangers E, loosely supporting the brake-beam from the axles, the bearings F, upon which said hangers engage, the levers N, pivotally secured near the ends of the brake-beams, the straps L, secured at one end to the

outer ends of the brake-beams and pivotally  
connected at their inner ends to the levers N,  
the brake-lever R, pivotally secured to the  
brake-beam, and the brake-rods U and V, con-  
5 necting the brake-levers with the levers N,  
substantially as described.

In testimony whereof I affix my signature, in

presence of two witnesses, this 11th day of  
October, 1888.

GEORGE COLLINS.

Witnesses:

JAMES WHITTEMORE,  
JOHN SCHUMAN.