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G. H. GILMAN, W. B. NORTON & J. H. BROWN.

BRAKE ADJUSTING MECHANISM.

(Application filed Oct. 15, 1898.)

(No Model.)

Fig. 1.

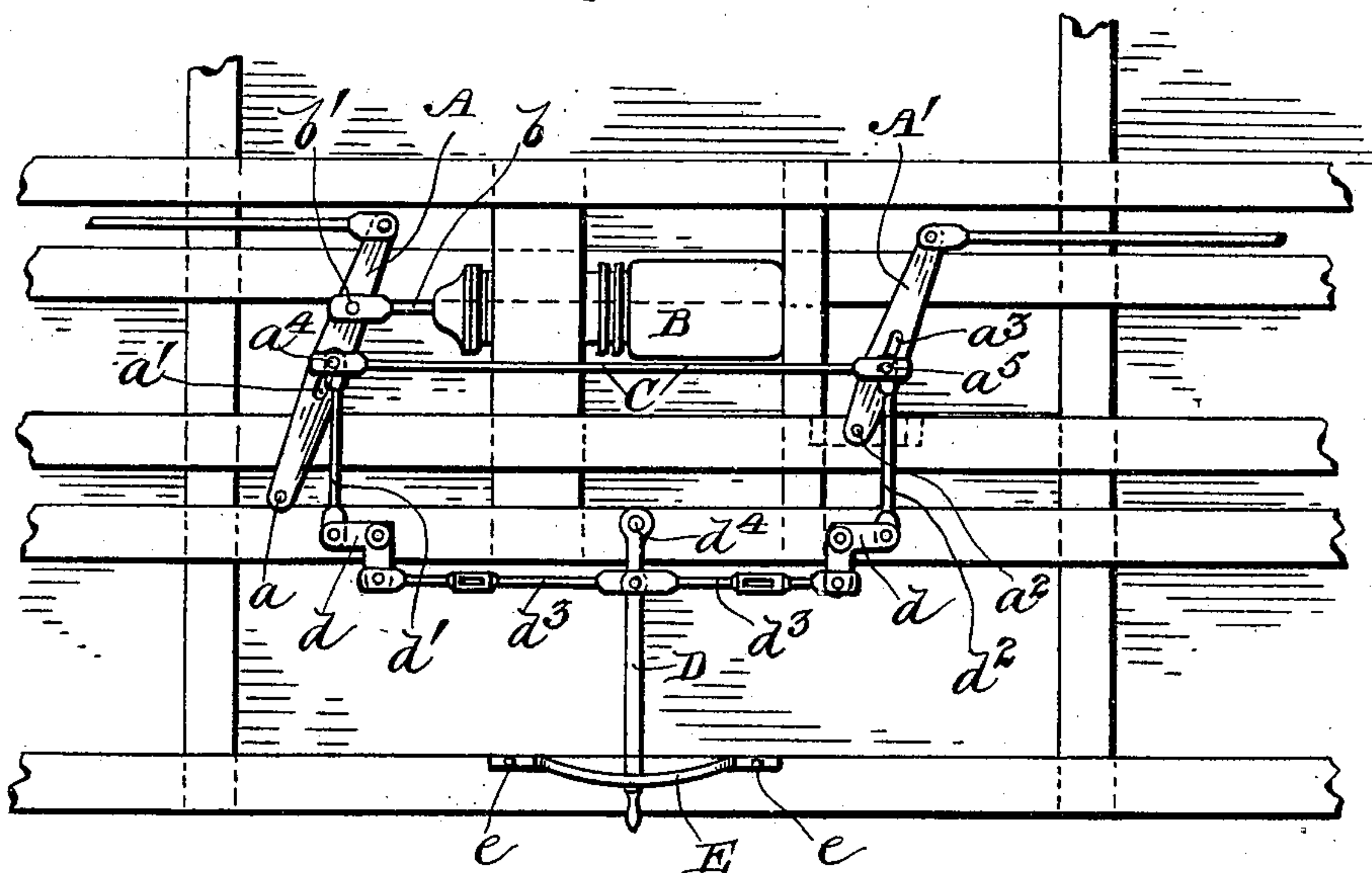
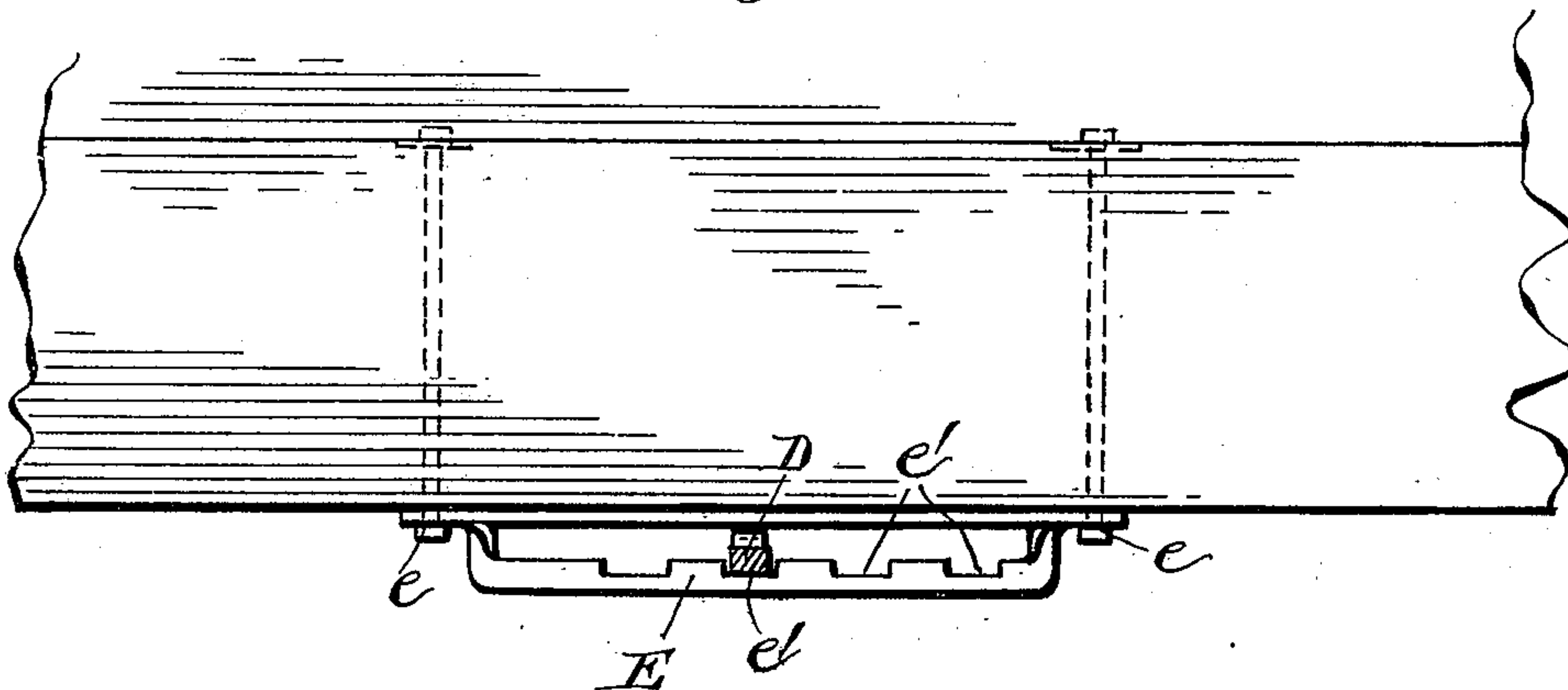


Fig. 2.



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BRAKE-ADJUSTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 621,653, dated March 21, 1899.

Application filed October 15, 1898. Serial No. 693,646. (No model.)

To all whom it may concern:

Be it known that we, GEORGE H. GILMAN, WILLIAM B. NORTON, and JAMES H. BROWN, citizens of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Brake-Adjusting Mechanism; and we 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 which it appertains to make and use the same.

Our invention relates to improvements in braking mechanism, and particularly to levers used in connecting the power-applying mechanism with the brake-shoes.

It consists in providing one or more levers with longitudinally-extending slots, the said levers being connected up with a brake-operating mechanism, and means for shifting the leverage of the said levers, whereby the braking power applied to a car or other vehicle will be changed more or less, according to the load carried by the car.

It also consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter more fully described and claimed.

In the accompanying drawings, Figure 1 represents a bottom plan view of a portion of a car-floor, showing the power-regulating apparatus as applied to a braking mechanism; and Fig. 2 represents a fragmentary detail view of a portion of the side of a car, showing a rack secured to the same.

Our invention is more particularly adapted to braking mechanisms used upon cars, although it may be applied to braking mechanisms used upon other styles of vehicles without departing from the spirit of our invention.

For the purpose of illustration the drawings show our invention applied to the bottom of a car.

In the drawings, A represents a lever, and A' another lever, both of which are connected with a brake-operating mechanism.

B is a power-cylinder, and C a rod connecting the two levers A A'. The levers A A' constitute the means by which power is ap-

plied to the brakes and by which the proper leverage is obtained thereon. These levers are commonly denominated "floating" levers, and are usually fulcrumed upon the under timbers of the car. The power, either steam or air, is applied to one of these levers, the said lever being directly connected with the other and the two levers controlling the braking apparatus at opposite ends of the car. Hand mechanism may be also connected to these levers in the usual and well-known manner. In the present invention the lever A' is fulcrumed, as at a , upon one of the timbers of the car-frame and is provided with an elongated slot, as a' , approximately near the center of the said lever. The lever A' is fulcrumed, as at a^2 , to one of the car-beams and is also provided with an elongated slot, as at a^3 . The connecting-rod C is secured to each of the levers by means of pins, as a^4 a^5 , which engage, respectively, the slots a' a^3 . The free ends of the levers are connected by suitable rods with a brake-carrying mechanism, as seen in the drawings. The piston-rod b of the piston moving in the power-cylinder B is preferably secured to the lever A, as at b' , and by operating the said lever is adapted to apply the brakes at both ends of the car with more or less power according to the leverage of the said levers.

In braking cars if the leverage upon the brakes is very great the wheels will be caused to slide when the car is not loaded or has a very light load. This of course tends to ruin the wheels of the car by making them flat. If, however, the braking mechanism is adjusted so as to apply the brakes with less power, when the car is heavily loaded the leverage of the brakes may not be sufficient to stop the car as required. Our improved device is adapted to change the leverage of the brake mechanism to suit the load upon the car and can be done quickly and readily. In carrying out this part of the device we mount bell-crank levers, as d d , upon one of the car-beams, one end of each bell-crank lever being connected with the pivot-pins a^4 a^5 , respectively, by rods d' d^2 . The other ends of the bell-crank levers d d are connected by a rod, as d^3 , and a hand-operated lever, as D, piv-

oted to the power-frame, as at d^4 , is also pivotally connected to the central portion of the rod d^3 . It will be seen that upon moving the lever D in one direction the pins a^4 a^5 will be moved in the slots $a' a^3$, thus changing the leverage of the two levers A and A'. When a strong leverage is required upon the brakes under a heavy load, the arm D is moved to the right, as shown in Fig. 1, whereby the leverage of the levers A and A' is increased, and by moving the lever D in the opposite direction the pins will be drawn in the other direction and the leverage be decreased more or less, according to the distance which the pivot-pins are thus moved in the slots a' and a^3 .

It will be readily seen by reference to Fig. 1 of the drawings that as the pin a^4 approaches the pivot a the power of the piston operating in the cylinder will be increased with respect to the pulling which it can exert upon the rod C. So, also, the moving of the pin a^5 away from the pivot a^2 increases the purchase which the link c' has upon the lever A'.

In order to hold the arm D in the desired position, a rack, as E, is secured to the under side of one of the car-timbers, as at $e e$, the said rack being preferably segmental in form. The rack is formed with notches $e' e'$ at suitable intervals to develop the braking power required under varied conditions.

The car may be stenciled with suitable marks above the rack to indicate the power applied when the lever is in its different positions.

It will be seen from the above description that our mechanism may be adapted to any braking apparatus and upon any sort of a vehicle and that it can be readily adjusted to give different leverages, according to the power needed for braking the car or other vehicle. The parts are simple and not liable to get out of order.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

In a braking mechanism, the combination with a power-applying means, of suitable levers fulcrumed to a car-frame, the said levers being provided with elongated slots, pins moving in the said slots, a rod connecting said pins, bell-crank levers also pivoted upon the frame of the said car and connected with the said pins, a link connecting said bell-crank levers, and a hand-operated lever pivoted to the said link, whereby upon moving the lever in one direction or the other, bell-crank levers will adjust the pins to different positions in the elongated slots and thus increase or diminish the leverage of the mechanism, substantially as described.

In testimony whereof we hereunto affix our signatures in presence of two witnesses.

GEORGE H. GILMAN.
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JAMES H. BROWN.

Witnesses:

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