

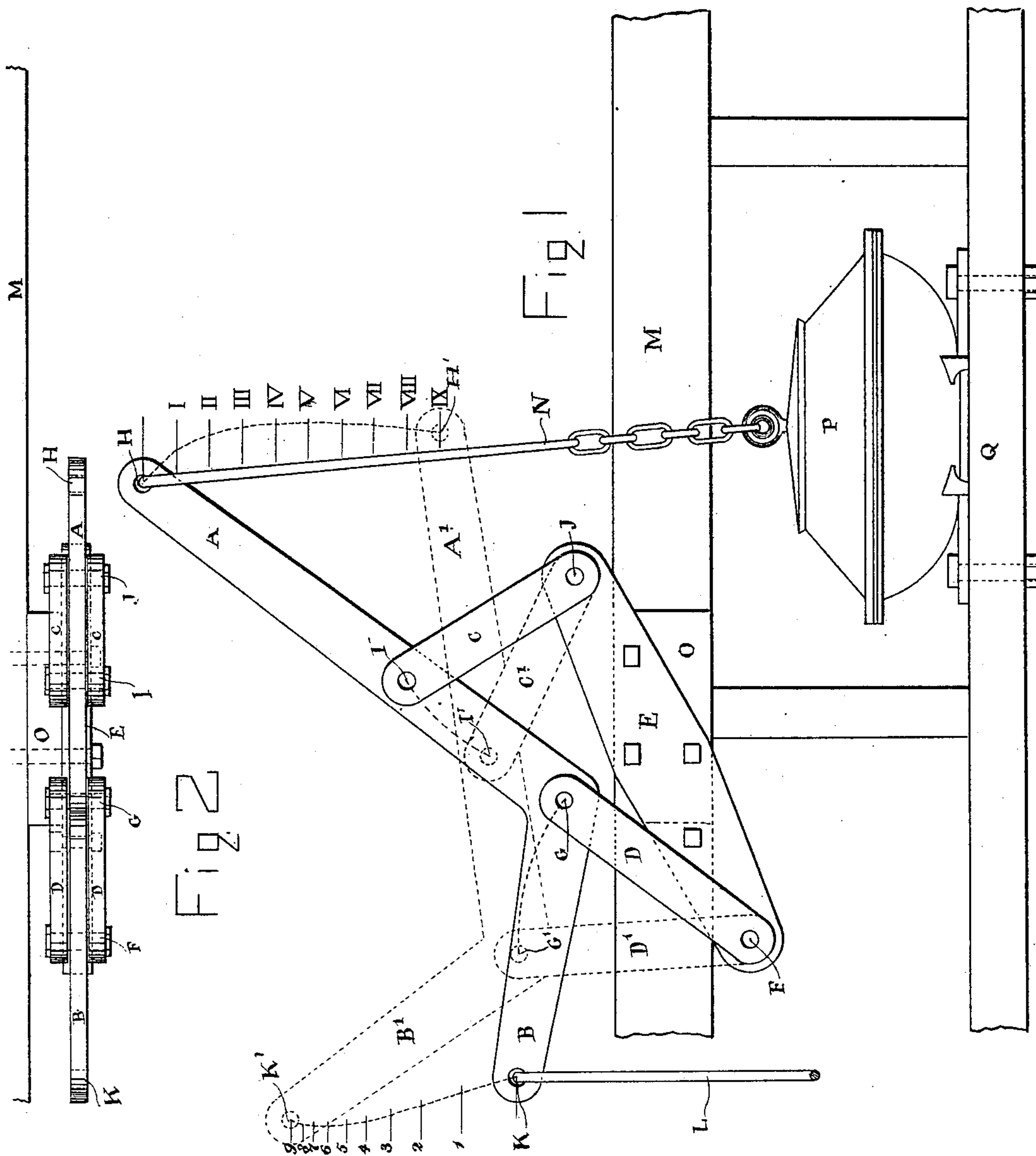
(No Model.)

A. P. MASSEY.

CAR BRAKE.

No. 368,347.

Patented Aug. 16, 1887.



WITNESSES

Walter Ward

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ALBERT P. MASSEY, OF WATERTOWN, NEW YORK, ASSIGNOR TO THE
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CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 368,347, dated August 16, 1887.

Application filed February 11, 1887. Serial No. 227,255. (No model.)

To all whom it may concern:

Be it known that I, ALBERT P. MASSEY, a citizen of the United States, residing in the city of Watertown, in the county of Jefferson and State of New York, have invented a new and useful Improvement in Car-Brakes, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates especially to improvements in car-brakes, but is not confined solely thereto.

It consists of a lever suspended by two movable fulcrums, and is for the purpose of taking up the slack or moving the brake-blocks against the wheels of a car with a moderate force and short stroke of the actuating mechanism and then applying a much greater pressure against the wheels.

Figure 1 shows the arrangement of lever and fulcrums attached to the timbers of a car, the dotted lines showing its position when revolved. Fig. 2 is a side view of same.

A B is a bent lever suspended at two points, G and I, to the movable fulcrums I and G by the links C and D. These links are attached by pins, about which they are free to revolve, to the rigid support E.

M and Q are timbers of a car.

P is a diaphragm used in the vacuum system of car-brakes.

N is a rod connecting diaphragm P with the lever A B at H.

L is a rod connecting the ordinary brake-levers with the lever A B at K.

H H' represent the path of the point H as the lever moves, and is marked off in equal spaces by the Roman numerals.

K K' represent the path of the point K and is marked with Arabic numerals to show the points which correspond with those marked with Roman numerals in the path of the point H.

In the beginning of the stroke the virtual fulcrum of lever A B is at I, while link D is simply a guide. In the latter part of the stroke the pin G or G' is the fulcrum and the link C is a guide. In intermediate positions the virtual fulcrum is a point somewhere between the pins I and G.

In operating a vacuum-brake, air is exhausted from the diaphragm N, which causes the flexible diaphragm to collapse and draw on the rod L with a pull proportional to the area of the diaphragm and the difference between the vacuum inside and the atmospheric pressure. In ordinary cases the brake-rod K is attached directly to the diaphragm, and about one-half of the stroke of the diaphragm is consumed in bringing the brake-blocks against the wheels—a process that requires a much smaller expenditure of force. In my device, when the pull or motion of diaphragm N begins, the lever A B begins to revolve about the fulcrum I, with a short leverage, I H, for the diaphragm and a long leverage, I K, for the brake-rod, so that the movement of the brake-rod would be much greater than that of the diaphragm. As the point H is drawn toward H' the virtual fulcrum travels along between I and G, thus increasing the actual leverage of the diaphragm and decreasing the leverage of the brake-rod, so that when the brake-rod has been moved half its distance, or sufficient to bring the brake-shoes against the wheels, the diaphragm is pulling on the longest arm of the lever, and consequently with much greater force on the brake-shoes than when taking up the slack. It is obvious that this arrangement of lever and links would operate the same whether the motive force be a diaphragm, as shown, a piston and cylinder, a brake-staff and hand-wheel, or any other mode of applying power.

What I claim, therefore, and desire to secure by Letters Patent, is—

The lever A B, in combination with the fulcrums I and G, and the links C and D revolving about fixed points F and J, for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 9th day of February, A. D. 1887.

ALBERT P. MASSEY.

Witnesses:

WALTER WARD,
MICHAEL J. MORKIN.