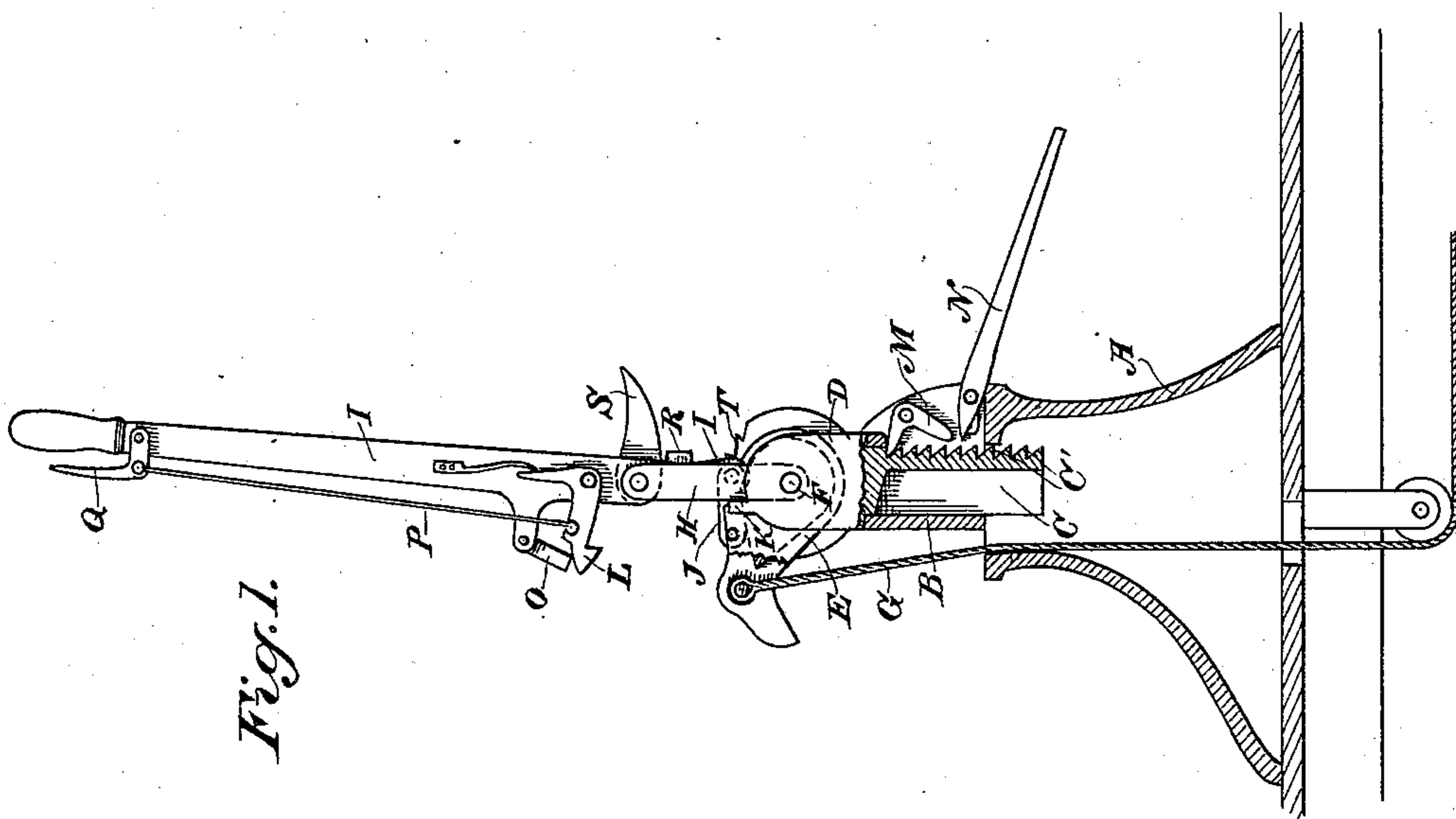
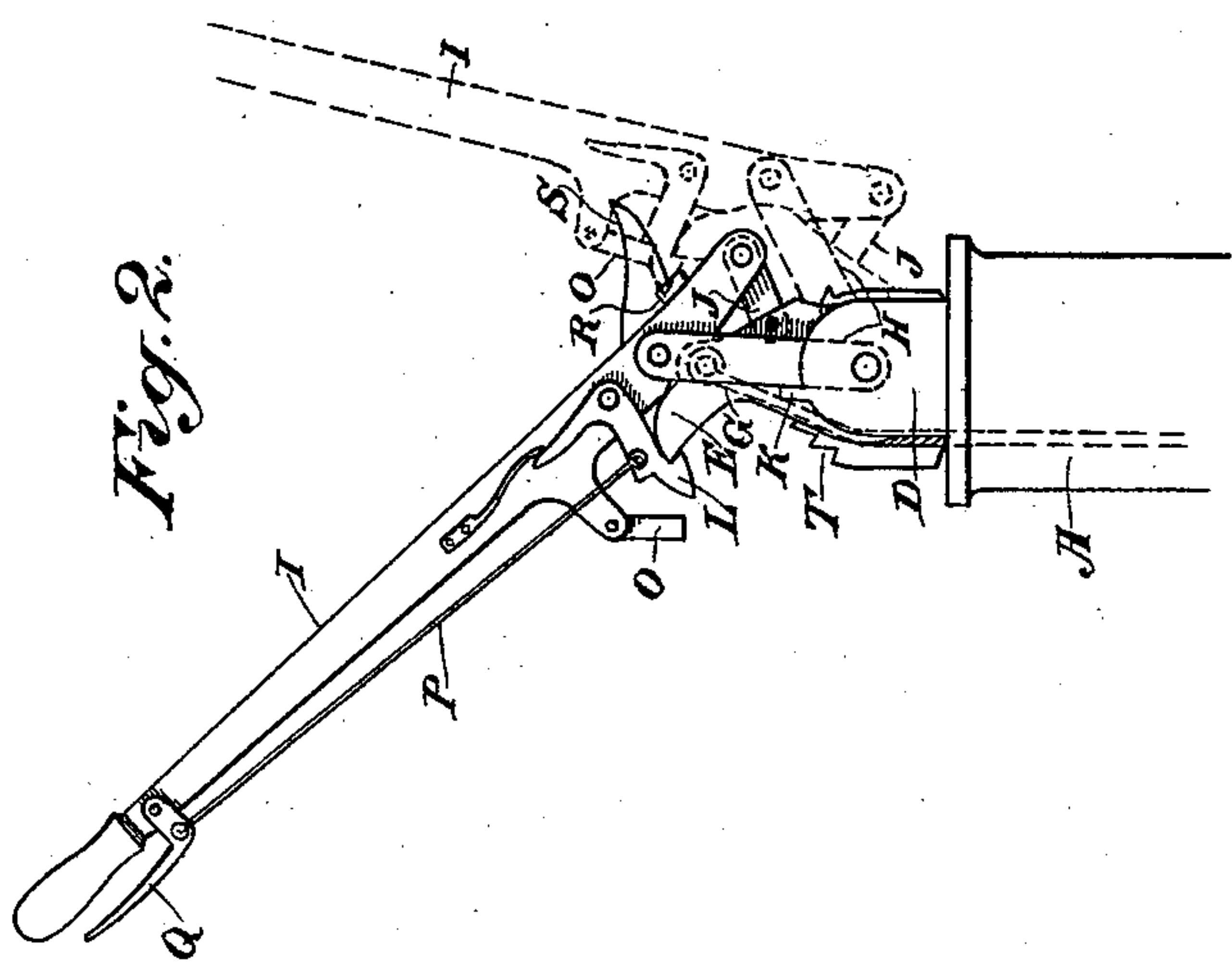


(No Model.)

H. T. ATKINSON.
STREET CAR BRAKE.

No. 548,025.

Patented Oct. 15, 1895.



Witnesses,
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UNITED STATES PATENT OFFICE.

HENRY T. ATKINSON, OF OAKLAND, CALIFORNIA, ASSIGNOR OF ONE-HALF
TO J. E. MORRIS, OF SAME PLACE.

STREET-CAR BRAKE.

SPECIFICATION forming part of Letters Patent No. 548,025, dated October 15, 1895.

Application filed March 25, 1895. Serial No. 543,138. (No model.)

To all whom it may concern:

Be it known that I, HENRY T. ATKINSON, a citizen of the United States, residing in Oakland, county of Alameda, State of California, have invented an Improvement in Street-Car Brakes; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in street-car brakes.

It consists in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side view of the brake device, showing the parts in their normal position when the brake is disengaged. Fig. 2 shows the brake-lever thrown forward and the cam drawn backward and engaged with the brake-lever before the lever is drawn backward, also showing it in its backward position in dotted lines.

The apparatus may be variously supported. In the present case I have shown a permanent standard A, adapted to be fixed upon the car, having an upward extension B, which serves as a guide for a rack-bar C, having teeth C', these teeth being adapted to be engaged by a lever N, so that the rack-bar may be raised, as may be desired, and a pawl M, which holds the rack-bar in its elevated position, this being a supplemental adjustment for regulating the length of the chain by which the brakes are operated; but it will be manifest that the mechanism of my present invention may be equally well mounted upon a standard having no vertical adjustment.

Upon the upper part of the standard or post are supports D, and to these supports a cam E is fulcrumed upon a pin F. This cam is slotted upon its periphery to receive the chain G, which has one end fixed to it and extends downwardly therefrom and passes around suitable direction-pulleys, having its other end connected with the brake or equalizing lever in the usual manner, but not here shown. Upon each side of the cam are fulcrumed links H, here shown upon the same pin with the cam and extending upward from the fulcrum-point, as shown; but they may also be independently fulcrumed, if preferred.

Between the upper ends of these links the hand-lever I is fulcrumed, the lever extending upwardly and being actuated by the operator or brakeman. The lower end of the lever extends downward and has a slot formed in the lower end, within which one end of a link or bar J is pivoted or is otherwise suitably connected. The other end of the bar is pivoted to the rear portion of the cam at a point above the fulcrum-pin F of the cam.

K is a stop fixed to one of the sides D or an extension thereof, and against this stop the links H strike when moved forward and are arrested, so as to prevent further movement. When the lever I lies approximately in line between these links, the bar J, which connects the lower end of the lever I with the cam E, will extend forward so that the cam E is projected to a considerable distance in front of the lower end of the lever I, as shown in Fig. 1. The chain extending from the cam to the brake-actuating mechanism will then have considerable slack, in order to keep the brakes well away from the wheels and to allow for movements of the car-body upon the truck, as well as changes caused by varying weights thereon.

When it is desired to apply the brake, the lever I is first pressed forward, and as the links H are arrested against the stop K, it will be seen that the forcing forward of the upper part of the lever I draws the lower end backward, and through the connecting-bar J the cam E is drawn up against the lower part of the lever I, so as to occupy the position shown in Fig. 2. This movement of the cam takes up the slack of the chain, and if there be not too much of it will even serve to apply the brake without any further movement of the lever I, which is sufficient for ordinary braking purposes. As soon as the cam has reached this position, resting against the lower part of the lever I, it is locked there by means of a pawl L, which is fulcrumed upon the brake-lever I, as shown, and drops by gravitation or by the action of a spring, so as to engage the upper part of the cam, which is thus locked to and connected with the lever I. To make a further and stronger application of the brake, the lever I is now drawn back, and as the pawl L engages the upper part of the cam

the cam is made to move with the lever, and the brake-chain is still further coiled around the lower curved end of the cam and as closely to the fulcrum-pin as may be desired. This enables the brakeman to apply the brake with great force while exercising but little power upon the brake-lever. In order to lock the cam L when the brake has been drawn backward, as shown in the dotted lines, Fig. 2, and to prevent its being disengaged while the brake-lever is in this position, I have shown a swinging gravity-pawl O, also fulcrumed to or supported from the lever I, so that it will drop upon and engage the pawl L when the lever is drawn backward, and thus prevent the disengagement of the pawl from the cam while the lever is in its rearward position. When the brake is to be thrown off, the lever I is first thrown forward, and as it reaches its forward position the gravity-catch O will swing out of engagement with the pawl L. The latter may then be lifted by means of the connecting-rod P and the hand-lever Q, which lies beside the handle at the upper end of the lever I. This allows the cam to swing forward away from the bottom of the lever I, and turning upon its fulcrum-pin it assumes its normal position. (Shown in Fig. 1.)

R is a stop upon the rear lower part of the lever I, which strikes against the rear portion of the links H as the lever I swings backward and arrests it when the cam E has moved to normal forward position. By this movement of the cam the chain is instantly slackened and all parts of the brake are loosened and freed from the wheels with sufficient slack of the chain to allow for any ordinary variations which may take place. If it is desired to hold the brake after it has been applied, this may be done by means of a pawl S, connected with the upper end of one of the links H and movable upon a fulcrum-pin, so that it may be turned over to engage a rack T, formed on and attached to the upper part of one of the sides D or otherwise conveniently arranged. This mechanism allows of the slack of the chain being taken up rapidly and the brake applied instantly and with great power with but a small movement of the lever I.

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

1. In a street car brake, a flexible chain connecting with the brake rod, a cam fulcrumed to a standard upon the car, to which cam one end of the chain is attached, links extending upwardly from a fulcrum pin, a hand lever fulcrumed between the upper end of said links, and a connecting rod or link by which the lower end of the lever is connected with the cam whereby the movement of the lever forward about its fulcrum causes the cam to approach the lever.

2. In a street car brake, a cam fulcrumed upon the standard fixed upon a car, a chain connecting the cam with a brake rod, links fulcrumed upon or near the fulcrum pin of the cam, a brake lever extending downwardly between said links and fulcrumed to their upper ends, a link or bar connecting the lower end of the brake lever with the cam above its fulcrum pin, a stop or stops against which the lever carrying links are arrested when forced forward whereby the hand lever is turned about its fulcrum and the cam is drawn toward the lower part of said lever by the connecting bar.

3. In a car brake, a cam fulcrumed upon the upper part of a standard fixed to the car, links fulcrumed upon or near the same pin, and a lever fulcrumed between the upper ends of the links having the lower end connected by a bar with the cam, stops against which the links are arrested when the lever is thrown forward, whereby the latter moves about its fulcrum pin, and the cam is drawn back into contact with the lower part of the lever, and a latch or pawl adapted to engage the cam and retain it in contact with the lever.

4. In a street car brake, a standard fixed upon the car, a cam fulcrumed in the upper part of the standard, links fulcrumed adjacent to the cam, extending upwardly, a brake lever independently fulcrumed between the upper ends of the links, a bar connecting the lower end of the brake lever with the cam above its fulcrum point, and a stop fixed to the rear lower portion of the hand lever so as to strike against the links and limit the movement of the lever about its fulcrum between the links.

5. In a car brake, a standard fixed upon the car, a cam fulcrumed in the upper part of the standard, links fulcrumed adjacent to the cam extending upwardly upon each side, a hand lever fulcrumed between the upper ends of said links with its lower end extending downward between them and connected with the cam, stops against which the links are arrested when the lever is thrown forward, whereby the forward movement of the upper part of the lever draws the cam backward against the lower part, a pawl or catch upon the lever adapted to engage the cam and retain it in contact with the lever and a supplemental gravity pawl swinging above the first named pawl and adapted to engage and lock it when the hand lever is drawn backward beyond the perpendicular.

In witness whereof I have hereunto set my hand.

HENRY T. ATKINSON.

Witnesses:

S. H. NOURSE,
H. F. ASCHECK.