(No Model.)

2 Sheets—Sheet 1

A. C. SPRINGER.

CAR BRAKE.

No. 256,604. Patented Apr. 18, 1882.

Fig. 1.

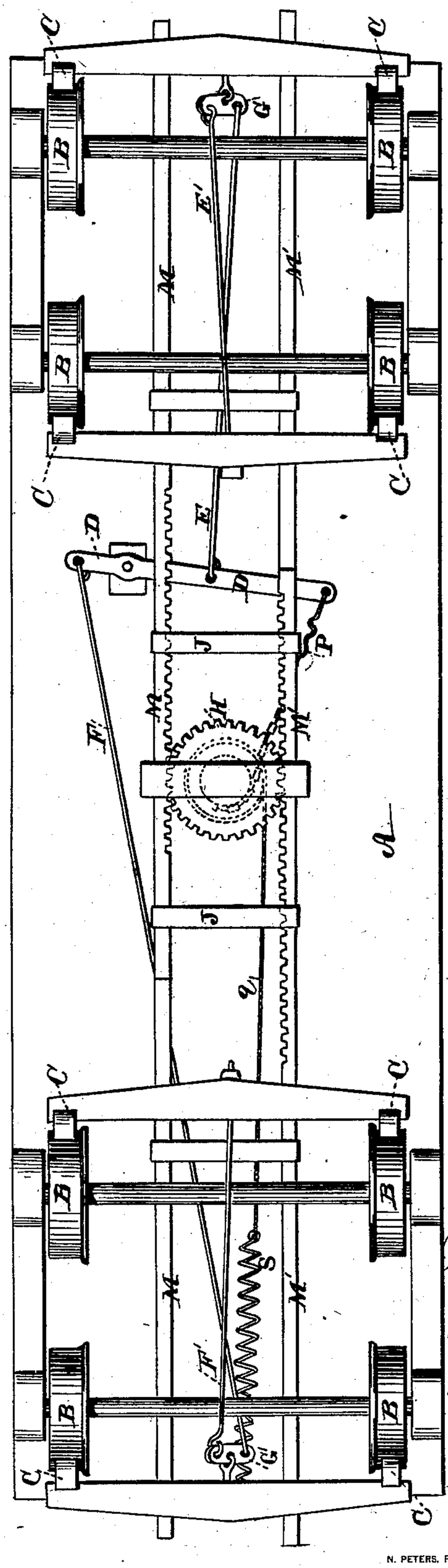
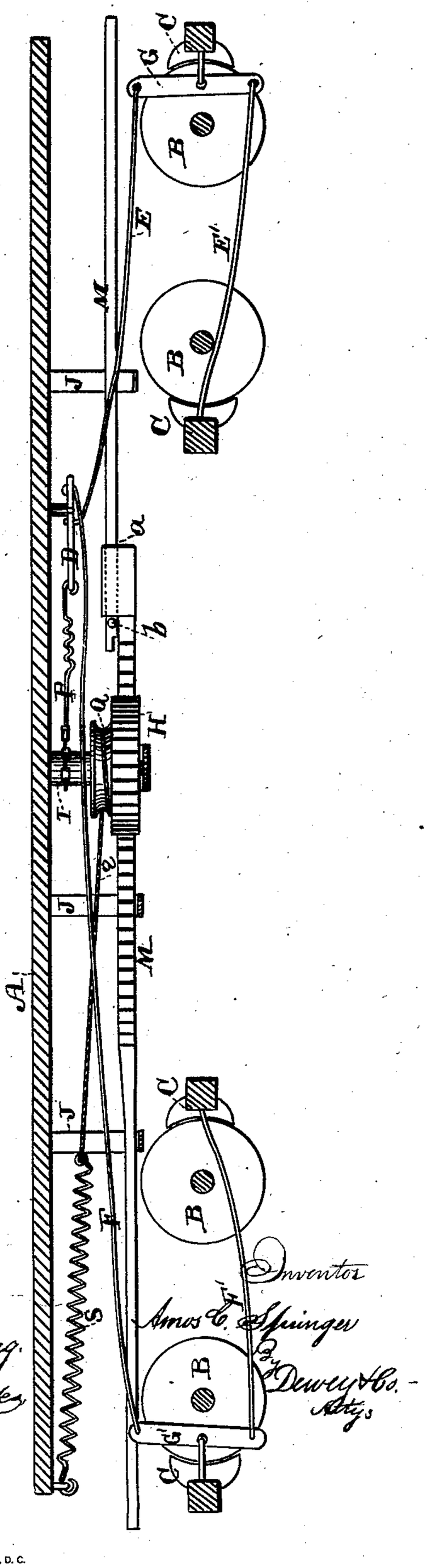


Fig. 2.



Witnesses:

Geo. H. Strong.

Frank A. Brooks.

Inventor:

Amos C. Springer

By Dewey & Co.

Attys

(No Model.) 2 Sheets—Sheet 2.

A. C. SPRINGER.

CAR BRAKE.

No. 256,604. Patented Apr. 18, 1882

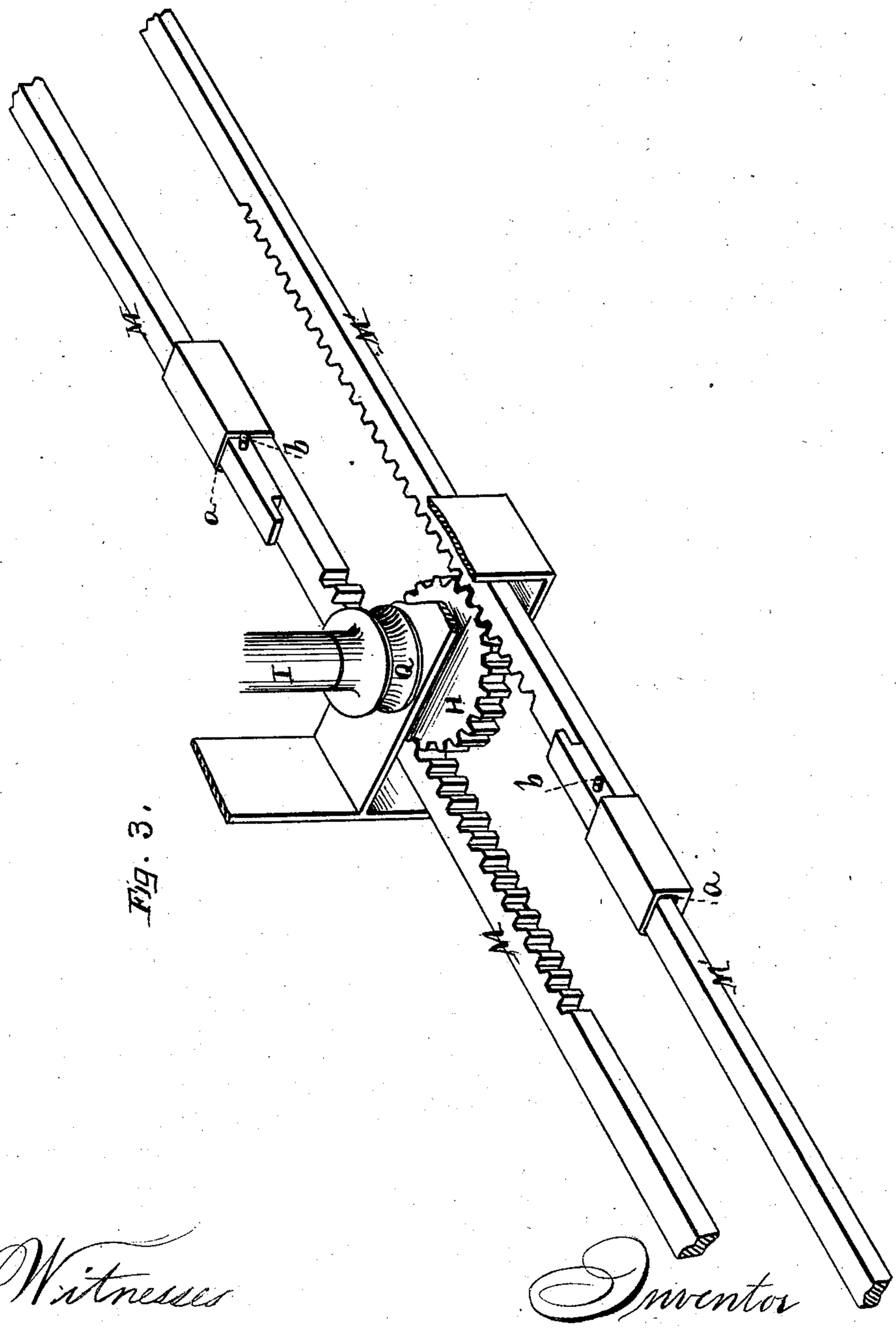


Fig. 3.

Witnesses
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Frank A. Brooks

Inventor
Amos C. Springer
By Dewey & Co. Attys

UNITED STATES PATENT OFFICE.

AMOS C. SPRINGER, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO S. W. HOLLADAY, OF SAME PLACE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 256,604, dated April 18, 1882.

Application filed January 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, AMOS C. SPRINGER, of the city and county of San Francisco, State of California, have invented an Improved Car-Brake; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a new and useful means for operating the brakes of cars, being especially adapted for application to an entire train; and it consists in operating an ordinary form of double-acting brakes now in use by means of a certain central gear-wheel under each car, said gear being operated by extensible rack-rods, the ends of which are coupled together between each car of the train, thus forming a continuous rod to the operating-power, either in the engine or caboose, as will hereinafter more fully appear, reference being made to the accompanying drawings.

Figure 1 is a bottom view. Fig. 2 is a longitudinal vertical section. Fig. 3 is a detail perspective.

The object of my invention is to provide a means for applying all the brakes upon an entire train of cars by a single operation, and is an improvement upon a similar invention for a like object for which Letters Patent of the United States No. 244,495, dated July 19, 1881, were granted to me.

Let A represent a car having the usual trucks with wheels B B.

C C are the brakes adapted to be forced against all the wheels of the car in the manner usual in the common form of brake now used—that is to say, by suitable connections from the hand-wheels on top of the car through chains and brake-staffs with the main lever D, pivoted to a support under the car, and by which the rods E and F, attached to the lever D upon each side of its pivot-point, are operated. The rod E connects with the lower end of a lever, G, supported by and pivoted or hinged to an end brake, and whose upper end is connected by a rod, E′, with the brake upon the inside. The rod F connects with a similar lever, G′, similarly supported and hinged to the other end brake, and which is connected by a rod, F′, with the other brake upon the inside.

The operation of this braking device is thus: The lever D being moved, the rods E and F are drawn tight and the end brakes are put on; but this tension of the rods E F so moves the short levers G G′ as to cause them to draw upon rods E′ F′, and thus put on the inside brakes.

I claim nothing of this construction, nor for the principle of operation. My object—namely, to provide a means for operating these brakes upon an entire train by a single operation—is as follows:

Under the center of each car I journal a horizontal gear-wheel, H, rigidly secured upon the lower end of a vertical shaft, I. This gear-wheel may be suitably boxed and supported, as shown.

M M′ are the operating-rods. These are made with teeth and form rack-bars, as shown, where they pass the gear-wheel H, and are supported in suitable guides, J, under the car. They extend upon each side of and engage with the gear H. They consist each of two separate rods, rendered extensible by having an eye or socket, *a*, upon the end of one, through which the end of the other loosely passes, and is provided with a pin, *b*, to limit its extension. The first section is adapted to strike against the boxing of the central gear, H, in order to limit its retraction. The two sections may thus be pushed together or drawn out to their limit. If rod M be drawn toward the end of the car the gear-wheel H will turn, and if the rod M′ upon the other side be drawn toward the other end of the car the said gear will also be turned, and in the same direction. In order to return the gear-wheel and rods I have the following device: Upon the shaft I is a pulley, Q, to which a cord or chain, *q*, is attached, the other end of which is attached to a spring, S, secured to the end of the car.

P is a chain or cord attached to the end of lever D, and having its other end attached to the vertical shaft I and adapted to be wound up thereon. When the rod M is drawn the gear H, being fast upon shaft I, will revolve said shaft and wind up the chain P, thus drawing upon lever D and operating all the brakes upon the car, as hereinbefore described. The operation of rod M′, when pulled in the direction in which it is adapted to be drawn, will accomplish a like result. The rods and gear-wheel

are always returned when relieved by the spring S. I provide each car of a train with these devices, and when brought together the projecting ends of the rods M M′ upon each car are suitably coupled, thus forming two continuous operating-rods throughout the entire length of the train. When the end of these continuous connected rods is drawn they are affected throughout their length and operate the braking devices upon each car. One of these rods, which is adapted to be drawn forward, will be connected by means of any suitable winding device with the locomotive, and may be operated by the fireman. The other rod, being adapted to be drawn backward, will be operated from the caboose. By thus having two rods working in different directions either end of a car may be coupled and the whole train reversed.

My object in making the operating-rods M M′ under each car extensible is to provide for the slack between the cars of a train.

The draw-heads have usually sufficient play to make them springy, and this play or slack, when extended through an entire train, becomes of importance. If the operating-rods were not extensible, they would not be in proper position, nor could they yield to conform to this slack. I first so adjust my connections that the rods M M′ will extend beyond the ends of the cars to the utmost limit of the play of the draw-head. That being the case when the tension of the train is on, the rods will be ready to be operated, and when the tension is relieved and the slack begins the rods will yield to it and shorten themselves in conformity therewith.

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

1. In a car-brake device, a series of rack-bars adapted to move pinions and winding devices which operate the brake-shoes, said rack-bars being provided with sliding telescopic connections to take up the slack, substantially as and for the purpose set forth.

2. In a device adapted to brake a series of cars simultaneously, the combination of telescopic rack-bars and winding devices with the spring P, interposed between the brake-lever D and the shaft I, substantially as and for the purpose described.

In witness whereof I hereunto set my hand.

AMOS C. SPRINGER.

Witnesses:
C. D. COLE,
E. B. HOLLADAY.