

(No Model.)

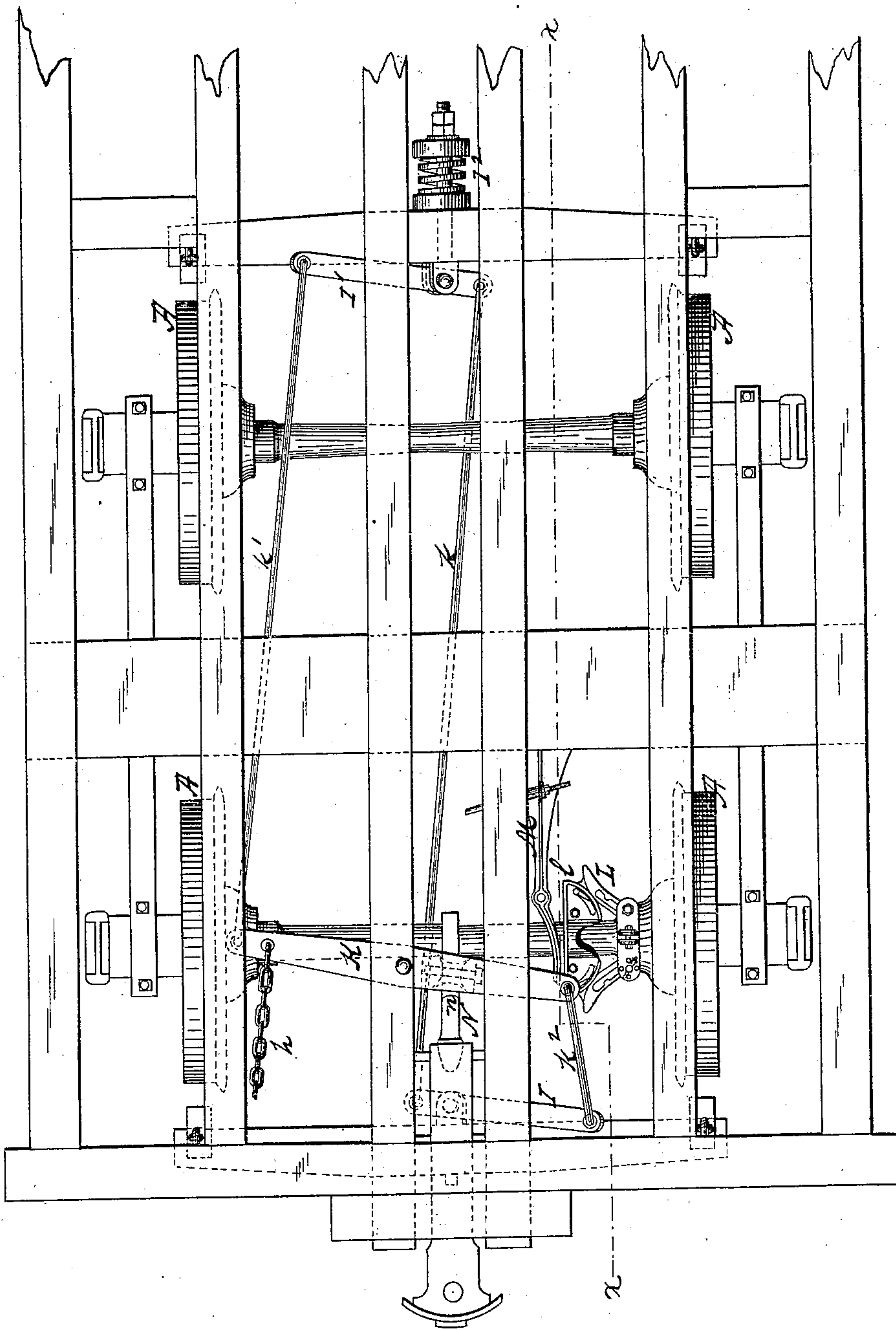
2 Sheets—Sheet 1.

G. H. POOR.
AUTOMATIC CAR BRAKE.

No. 356,231.

Patented Jan. 18, 1887.

Fig. 1.



Witnesses.

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Inventor.

George H. Poor
by F. W. Ritter & Co.

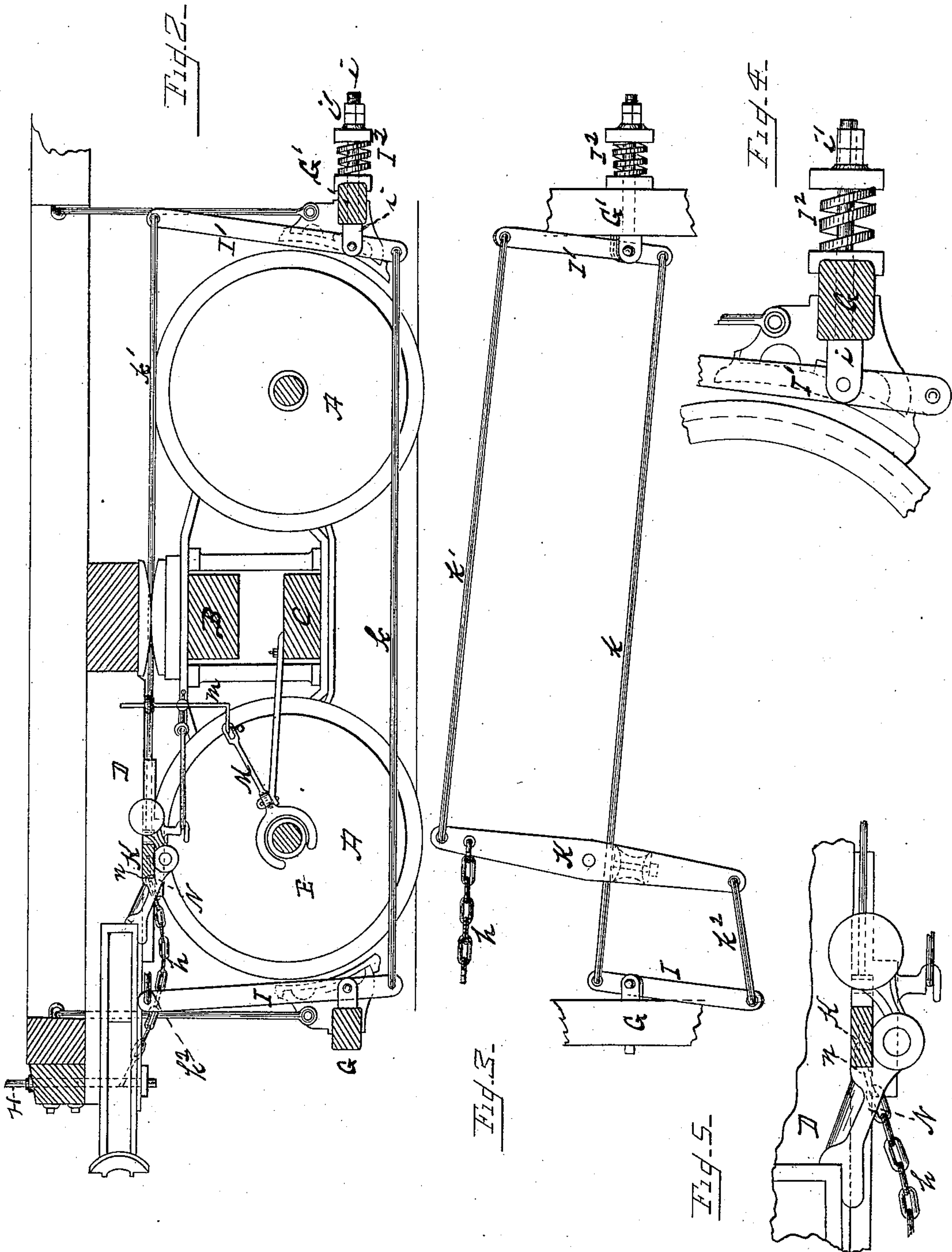
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Atty

UNITED STATES PATENT OFFICE.

GEORGE H. POOR, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE AMERICAN
BRAKE COMPANY, OF SAME PLACE.

AUTOMATIC CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 356,231, dated January 18, 1887.

Application filed January 25, 1886. Serial No. 189,656. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. POOR, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in a System of Leverage for Applying Car-Brakes; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, wherein—

Figure 1 is a top view of a truck with the system applied, the floor of the car being removed. Fig. 2 is a vertical longitudinal section on the line *x x*, Fig. 1. Fig. 3 is a detached plan or skeleton view of the system. Fig. 4 is a detached detail section of the brake-beam and relief-spring. Fig. 5 is an enlarged detail view of the end of the draw-bar, the latch, and the intermediate fulcrum-lever.

Like letters refer to like parts wherever they occur.

My present invention relates to an automatic brake system wherein the levers, which are fulcrumed on the brake-beams, are so connected with each other and with an interposed horizontally-arranged power-lever located in the plane of the movable draw-bar as that said system, while adapted to hand-braking, is also especially adapted to be operated automatically by the movement of the draw-bar.

It has for its object, primarily, to apply the power evenly and uniformly to all the wheels of the truck, avoid the use of the wheels as a fulcrum, as well as the use of a fixed or non-compensating fulcrum; secondly, to provide means for taking up the slack of the brake-shoes; and, thirdly, to adapt the system so that it can be readily applied to any of the variously-constructed trucks now in use.

The objection to the common systems of leverage for applying brakes lies, mainly, in the fact that the power is applied first to one brake-beam, takes up the lost motion of said shoes or beam, and is transmitted from said beam to the second beam, the first set of wheels becoming a fulcrum and absorbing the larger portion of the power. As a result of this the set of wheels which act as a fulcrum are caused to slide, are often flattened and rendered worthless, and there is considerable

loss from wear and tear of wheels and shoes, with all the attendant disadvantages. Further, where the brake-beams are suspended from the bed, the loaded or unloaded condition of the bed causes a change of relation of the shoe and wheel, and from other causes there is a slack or space between the shoe and wheel which cannot be taken up or overcome without loss of time and power in the operation of the brakes.

Another feature of the invention, which relates more especially to an automatic system of brakes actuated from a movable draw-bar, consists in combining with the interposed lever a shouldered latch so pivoted that when the brakes are applied by the movement of the draw-bar the strain or shock shall be transmitted directly from the latch to the power-lever without passing through the latch-pivot, as heretofore.

There are minor features of construction, which will hereinafter more fully appear.

I will now proceed to describe my invention more specifically, so that others skilled in the art to which it appertains may apply the same.

In the drawings, *A A*, &c., indicate the wheels, *B* the truck-bolster, *C* the sand-board, *D D* the draw-bar timbers of the bed, *E* the axles, *G G'* the brake-beams, and *H* the brake-shaft with its chain *h*, all of which may be as shown or of any approved form, as such features constitute no part of the present invention.

In carrying out the first part of my invention, I apply to both brake-beams the brake-levers or fulcrum-levers *I I'*, and on the bolt *i* of one, preferably the one passing through the inner brake-beam, I place a helical spring, *I''*, whose power approximates the power to be applied to the brakes, confining said helical or relief spring by means of a nut and jam-nut or equivalent means, as shown at *i'*.

At some point between the brake-beams (preferably just in rear of the push-bar, for reasons which will hereinafter appear) I interpose an independent power-lever, *K*, pivoted on a fixed point—as, for instance, on one of the draw-bar timbers.

The brake-levers or fulcrum-levers *I I'* are connected by the brake rod or chain *k*, and

the intermediate power-lever is then connected with the fulcrum-levers or brake-levers I I' by two independent rods, k' and k'' , so that when the power is applied to the power-lever K it
 5 pulls upon both brake-beams simultaneously, and thus evenly divides and applies the power, so that there is no danger of sliding the wheels or unevenly wearing the brake-shoes.

It will be observed that the horizontal position of the lever K causes it to receive the thrust of the draw-bar in substantially a direct line, and at the same time permits the upper pull-rod, k' , to pass over the bolster B close under the bed and effect a direct or line
 10 pull on the fulcrum-lever. If the power applied is excessive, the relief-spring I² will be compressed, and thus prevent injury to wheels, shoes, &c.

The power may be applied to lever K either
 20 by means of the brake-shaft H and its chain h , in the usual manner, or by means of the movable draw-bar in the case of an automatic brake.

In the present instance I have shown, for purposes of illustration, one form of the well-known American Brake Company's automatic brake, consisting of a centrifugal governor, L, and sliding collar l , on the axle, a pivoted fork, M, bell-crank m , and latch N, controlled thereby. With the exception of
 25 the latch N, the parts of the automatic brake mechanism are not embraced in the present invention, are not herein claimed, and may be of any several well-known classes. The latch N, however, embodies features which especially adapt it to its present position and use, which are as follows: It is shouldered, as at n , (or may have the equivalent thereof, a lug,) which, when the latch is in line with the draw-
 30 bar so as to receive the impact thereof, engages with the power-lever K, so as to transmit the force directly from the draw-bar to the lever without passing through the latch-pivot. Furthermore, said latch n is suspended below
 35 the power-lever K, so as to be within full sight or easy inspection at all times, which is an important matter, as this latch is the link between the brake mechanism and the power in
 40 case of automatic brakes, and it is important
 50 that any derangement thereof (or of the mech-

anism by which it is connected with the governor) should be immediately discovered.

The devices being of the general character hereinbefore set forth will operate as follows: Power being applied to the power-lever K,
 55 either by hand through the brake-shaft H and chain h in the usual manner, or through the movable draw-bar and latch, the intermediate power-lever is rocked on its pivot, and pulls
 60 equally and directly on both brake-beams I I' and thus distributes the power uniformly to all the wheels. In case of an automatic brake the system acts in like manner, and the latch transmits the power from the draw-bar in the
 65 manner as before specified.

Having thus set forth the nature, operation, and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a system of leverage for automatic brakes, the combination, with the brake-levers
 70 connected by a rod or chain, of an intermediate power-lever arranged horizontally in rear of the push-bar, and having its opposite arms connected with the opposite brake-levers, and a movable draw-bar which acts on the inter-
 75 mediate power-lever, substantially as and for the purposes specified.

2. In an automatic brake system, the combination, with a movable draw-bar, and a power-
 80 lever which operates the brakes, of an interposed latch having shoulders which engage with the draw-bars and the power-lever so as to relieve the pivot or fulcrum of the latch from strain, substantially as and for the purposes
 85 specified.

3. In an automatic brake system, the combination, with a movable draw-bar and a horizontal power-lever for actuating the brakes, of a shouldered latch pivotally suspended below
 90 the power-lever, and a governor for controlling the latch automatically, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 2d day of January, 1886.

GEORGE H. POOR.

Witnesses:

HENRY A. WAHLERT,
 E. B. LEIGH.