

(No Model.)

2 Sheets—Sheet 1.

S. FAIRMAN.
CAR BRAKE.

No. 488,118.

Patented Dec. 13, 1892.

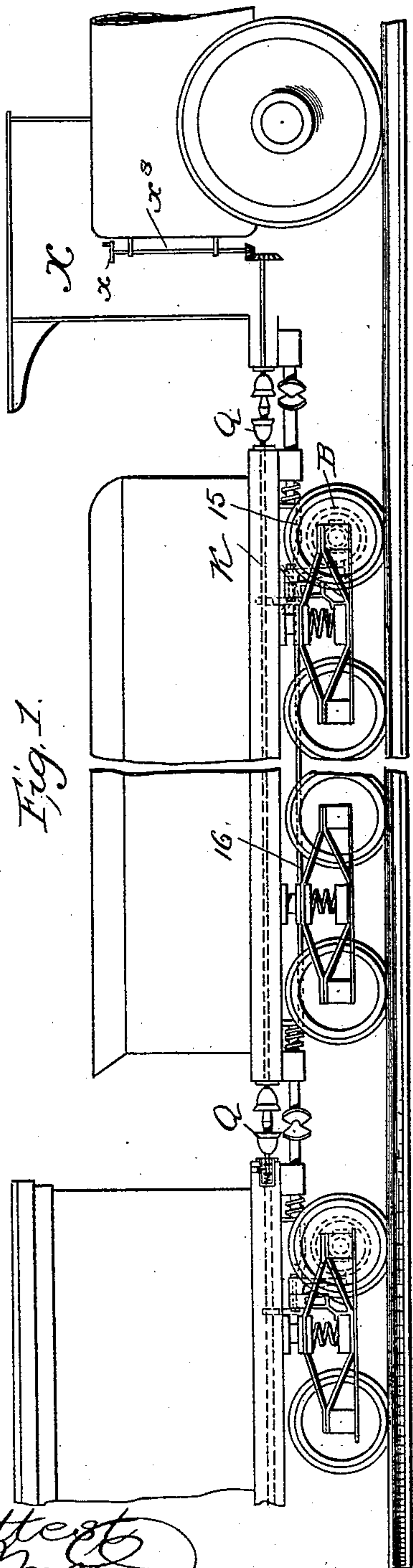


Fig. 1.

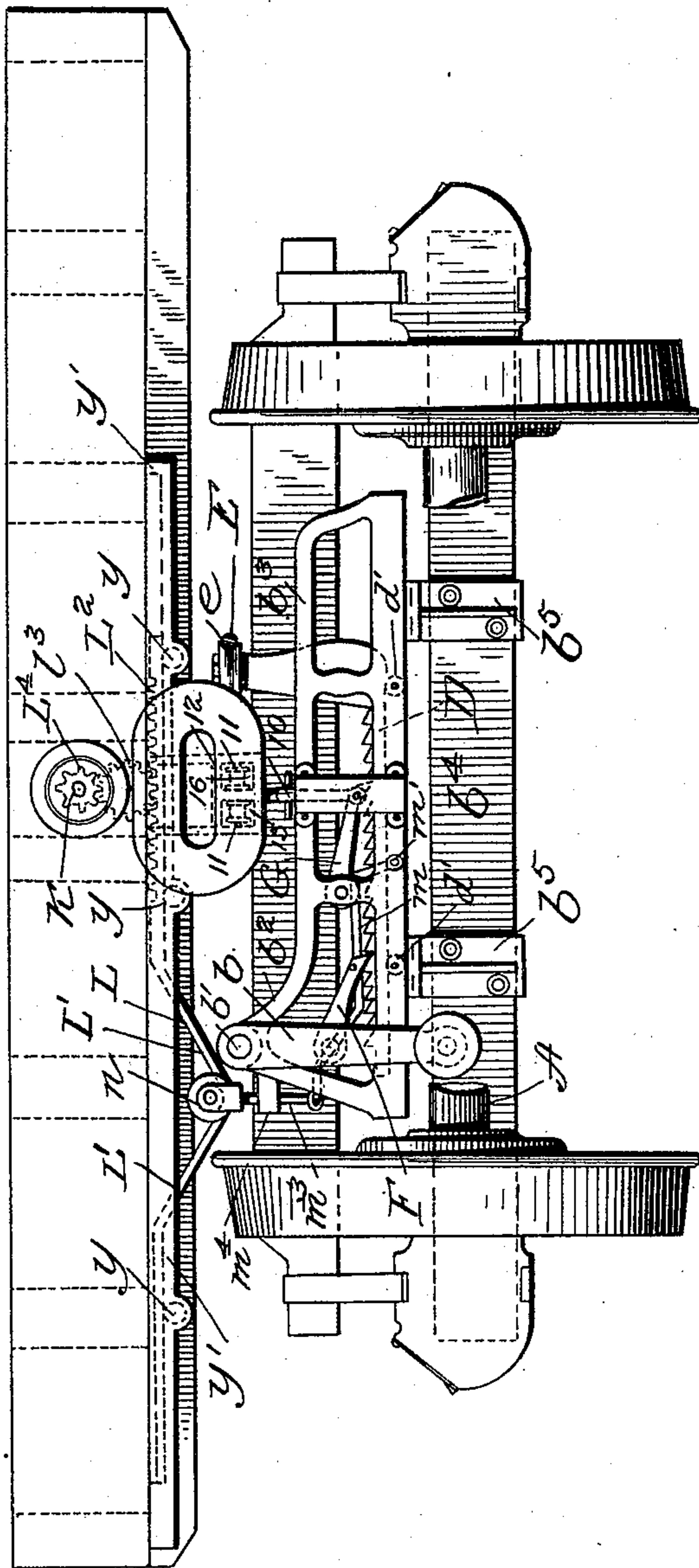


Fig. 2.

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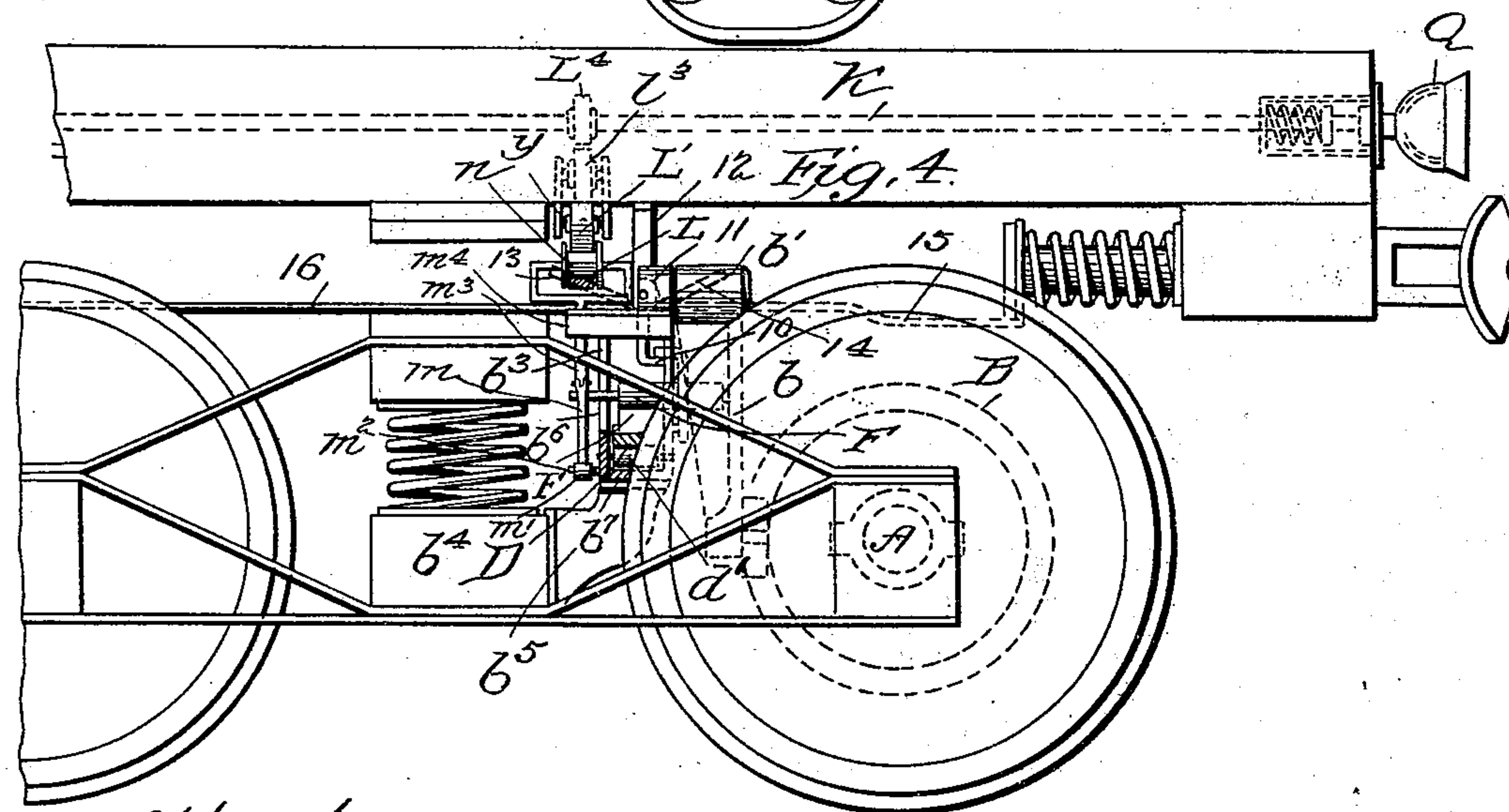
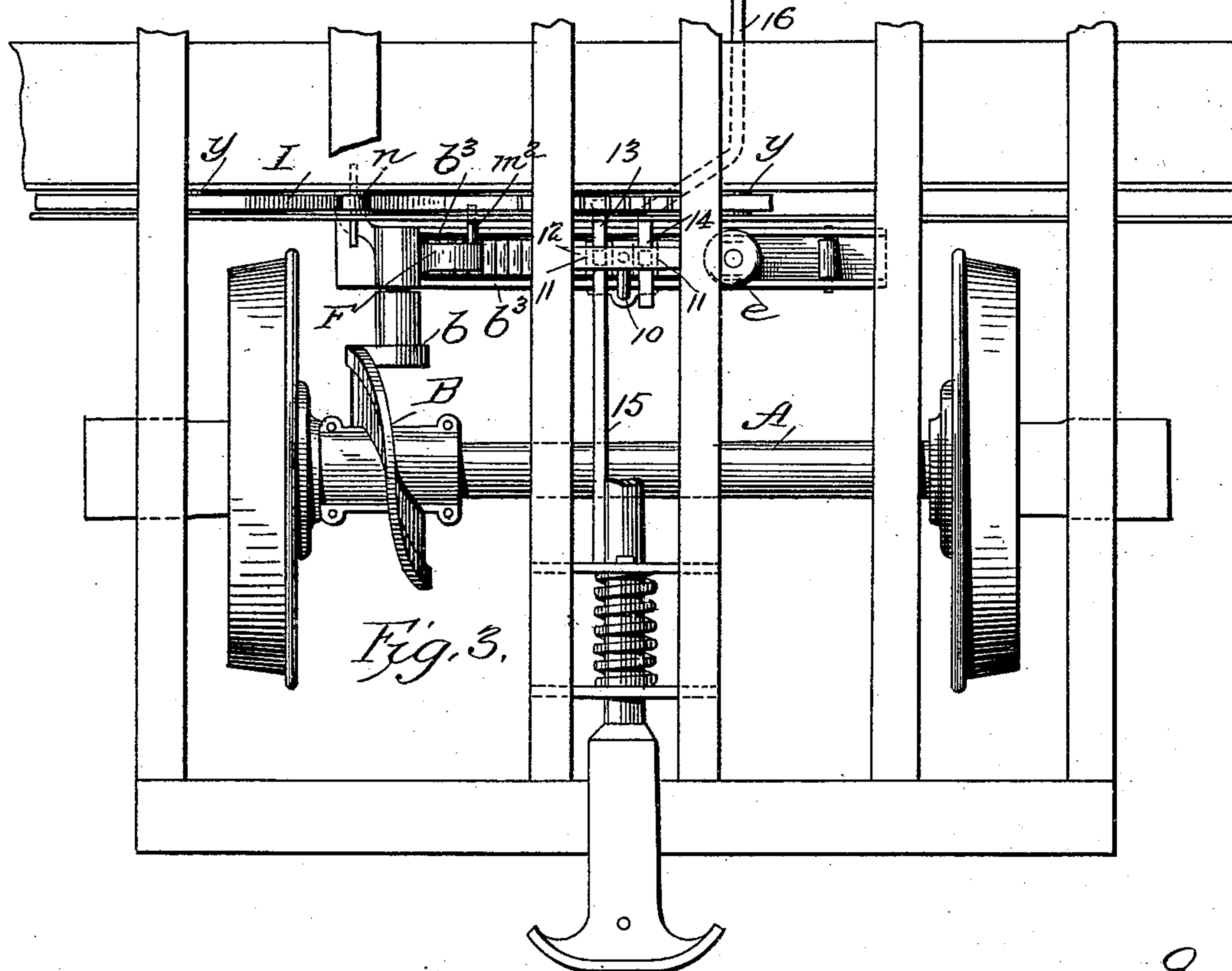
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2 Sheets—Sheet 2.

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Inventor
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UNITED STATES PATENT OFFICE.

SIMON FAIRMAN, OF BALTIMORE, MARYLAND, ASSIGNOR TO B. G. HARRIS,
OF SAME PLACE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 488,118, dated December 13, 1892.

Application filed October 18, 1892. Serial No. 449,204. (No model.)

To all whom it may concern:

Be it known that I, SIMON FAIRMAN, a citizen of the United States of America, residing at Baltimore, in the State of Maryland, have
5 invented certain new and useful Improvements in Car-Brakes, of which the following is a specification.

My present invention is an improvement upon that which is the subject of United
10 States Patent No. 381,353, granted to B. G. Harris, assignee, under date of April 17, 1888. In my present car-brake I utilize the momentum of the car to apply the brakes as before, the power being applied through a
15 cam on the axle to a transverse push-bar which presses against a brake chain or wire rope. The particular portion of the mechanism improved by me in the present case relates to the means for controlling the operation of the
20 brakes and the means for releasing them, although I have generally improved the details of construction, as will be clearly set forth hereinafter.

In the drawings, Figure 1 is a side elevation
25 of a portion of a train having my improved brake system thereon. Fig. 2 is an end view of a truck with my improvements. Fig. 3 is a plan view of the same; and Fig. 4, a side elevation, partly in section.

30 The main operating-cam B is secured to the axle A and is constructed to operate the lever *b* when revolved in either direction, according to the direction of movement of the car. This lever *b* oscillates constantly and is pivoted at
35 its upper end *b'* to the upper extension *b²* of the skeleton frame *b³*, supported from the cross-beams *b⁴* by the brackets *b⁵*. This frame has two sides *b⁶*, connected by a bottom piece *b⁷*, forming a channel, in which the transverse
40 rack or push bar D is arranged to slide over antifriction-rollers *d'*, journaled in the sides of the frame. The bar carries an upward extension, to which is journaled the sheave *e* to press upon the brake chain or rope E and push
45 it laterally to apply the brakes, as in my former patent. The push-pawl F for operating the bar D is carried on the oscillating lever *b*, while the holding-pawl G is pivoted to the front side of the channel-frame.

50 In this improvement I desire to operate the

pawls entirely independent of each other, the push-pawl being controlled entirely at the will of the engineer or an attendant through hand operating connections leading to said push-pawl, while the detent or holding-pawl
55 which controls the holding on or release of the brakes is itself controlled by the strain on the car-coupling or by the drawing strain from one car to the other. The push-pawl is released at any moment by the attendant by
60 operating a plate *m*, pivoted to the channel-frame at *m'* and extending under a lateral pin or projection *m²* on the free end of the push-pawl, the other end of said plate being pivoted
65 to the lower end of the rod *m³*, sliding through a bracket *m⁴* on the channel-frame, which rod has a yoke or elongated loop at its upper end, upon which is journaled the pulley *n*, the
70 elongated bearing allowing side movement of the pulley in turning curves. This pulley has side flanges and rests upon a bar L, having double inclines L' and rack-teeth L², Fig. 2, the latter engaging a pinion *l³*, which in turn is operated by a pinion L⁴ on a shaft K,
75 extending longitudinally of the car and connecting with similar shafts on the other cars by couplings Q, similar to those described in the patent referred to, the whole line of shaft-
80 ing and all the push-pawls being under the control of the engineer in the cab X by means of the hand-wheel *x*, the vertical shaft *x³*, and the beveled gearing. By operating the shaft the pawl may be lifted from the rack-bar and further movement thereof prevented, so that
85 the brakes can be put on to any desired degree or tension. The shaft may be operated in either direction, and the same result may be secured by reason of the double inclines on the bar L. This bar is arranged to slide
90 over antifriction-rollers *y*, journaled in plates *y'*, between which the bar L moves. The pawls may have springs for throwing them into the rack; but I prefer to have them sufficiently heavy to operate by gravity. The holding-pawl G is pivotally connected at its
95 free end with a jointed bar 10, the upper end of which carries two sheaves 11. The bar and sheaves are guided in ways 12 to have free sliding movement vertically, and are operated by the inclines 13 14 on the bars 15
100

16, respectively connected with the couplings at the front and rear ends of the car, so that when the car is pulled upon in either direction the strain on the coupling will move the same slightly, and thus the bar connected therewith will be operated and the holding-pawl raised by the proper incline to release the brake. In this way the releasing of the holding-pawl will depend entirely upon the pull of the train and the falling of the pawl to hold the brake-operating rack to any position which it may have moved to will depend upon the cessation of the pull or by the cars abutting more closely together, as when going downhill or when steam is shut off at the engine. It will be clear that the push-pawl may be controlled from various points throughout the train or from every car in a manner similar to that described in my former patent. It will be seen, further, that I have simplified the supporting structure for the various elements and made the same more compact, the channel-frame serving to support or guide most of the parts. This frame I have arranged in front of the front truck-beam, and the power is derived from the front axle of the truck.

I claim as my invention—

1. In combination, in a car-brake, the transverse push-rod, the push-pawl, the lever carrying the same, the cam on the axle, the means for releasing the said push-pawl, consisting of the sliding bar L, having the depending inclines meeting at a point, the vertically-movable bar suspended from and operated by the said inclines to lift in releasing the pawl, the connection from said suspended bar for operating the pawl, and the means for operating the bar L, substantially as described.
2. In combination, the push-rod, the push-pawl and the means for operating the same, the plate pivotally supported and arranged to engage the said pawl, the vertically-movable rod pivoted to said plate at its free end, the sheave on said rod, the double-incline rod L, passing under said sheave to lift the same

in releasing the pawl, and the means for operating the rod L, substantially as described.

3. In combination, the push-rod, the push-pawl for operating the same, the means for operating the pawl through the momentum of the car, the hand operating devices for controlling the position of said pawl in relation to the push-rod, the holding-pawl, and the independent connections for controlling the same to engage with or disengage from the push-bar, substantially as described.

4. In combination, the push-pawl, the means operated thereby for applying a tension to the brakes, the hand controlling connections for said pawl, the holding-pawl arranged to hold the brake on when operated, and the controlling connections for said holding-pawl, extending to the coupling and adapted to be strained when the cars are pulled to release the pawl, substantially as described.

5. In combination, the push-pawl, with means for operating the same, the means actuated by said pawl for applying the brakes, the hand controlling connections for the said push-pawl, the holding-pawl, the lifting-bar connected therewith, and the two slide-rods having inclines arranged reversely to each other and extending to opposite ends of the car to connect with the couplings for operating the holding-pawl when the car is pulled in either direction, substantially as described.

6. In combination, the rack push-rod, the push-pawl, the lever carrying the same, the cam for operating the lever, the holding-pawl, the controlling connections for the said pawls, and the channel-frame for supporting the rack push-rod, the push-pawl lever, and the holding-pawl, said frame being supported from the truck-frame, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

SIMON FAIRMAN.

Witnesses:

HENRY E. COOPER,
JAMES M. SWAN.