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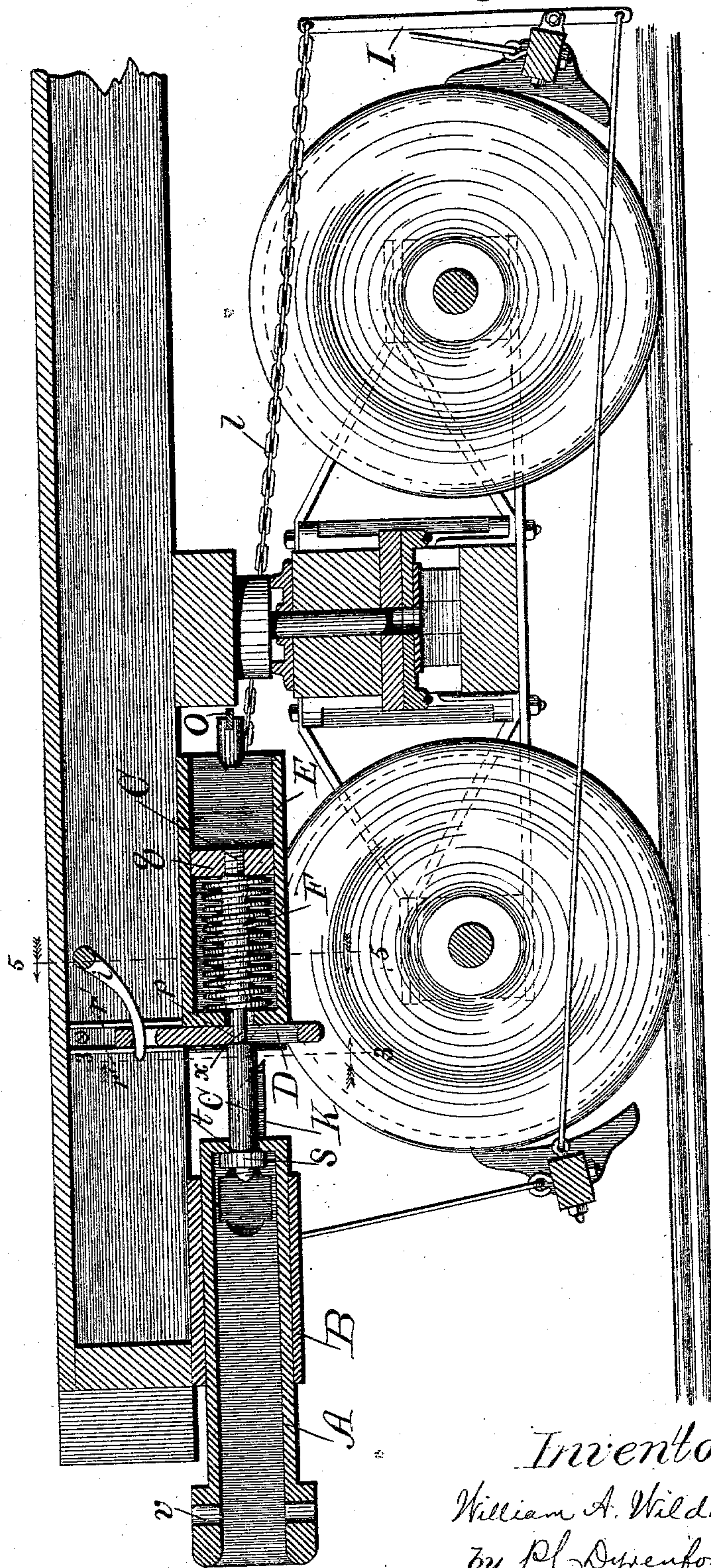
3 Sheets—Sheet 1.

W. A. WILDE.  
CAR BRAKE.

No. 283,446.

Patented Aug. 21, 1883.

*Fig. 1.*



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his Attorney.



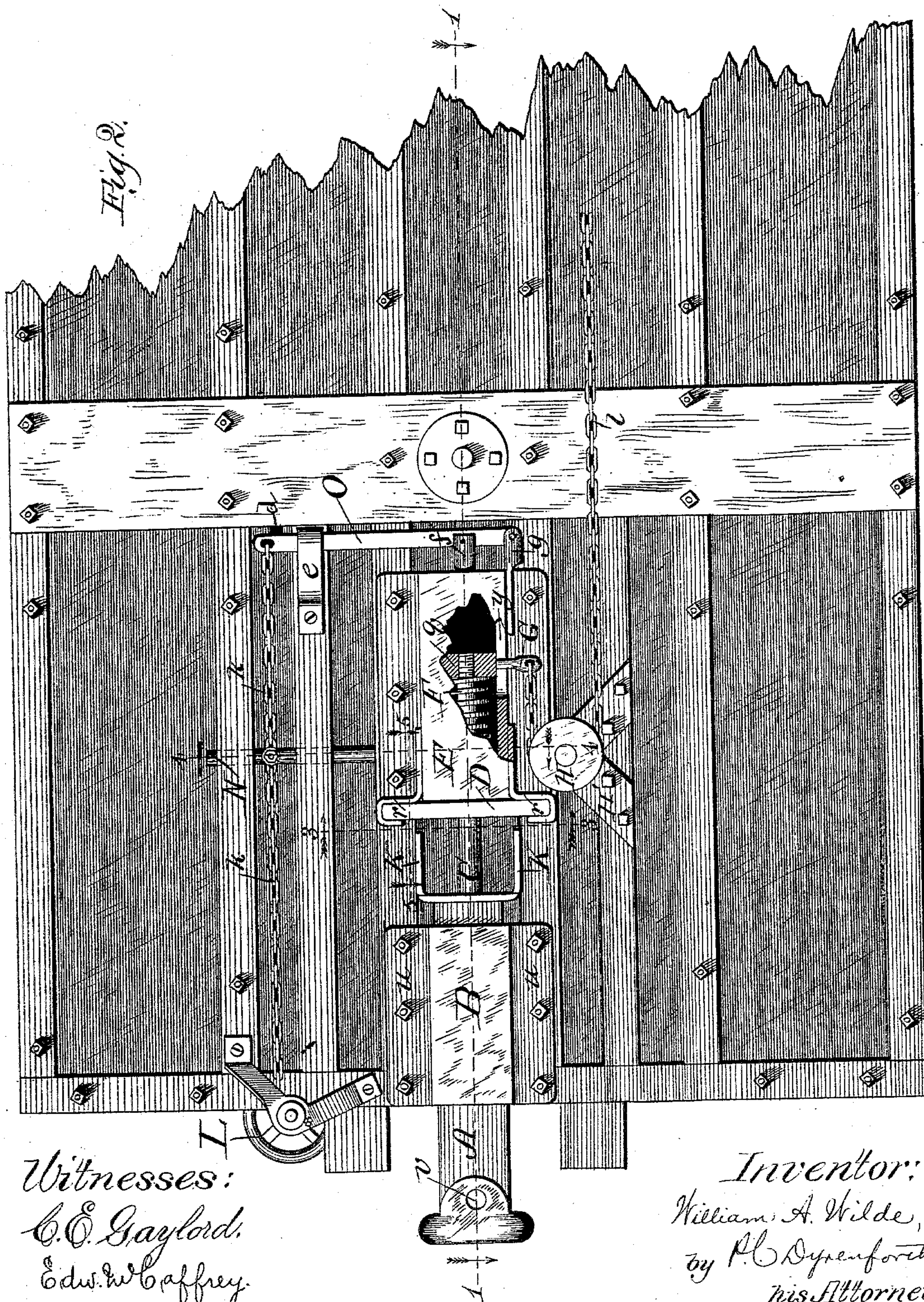
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3 Sheets—Sheet 2.

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Fig. 3.

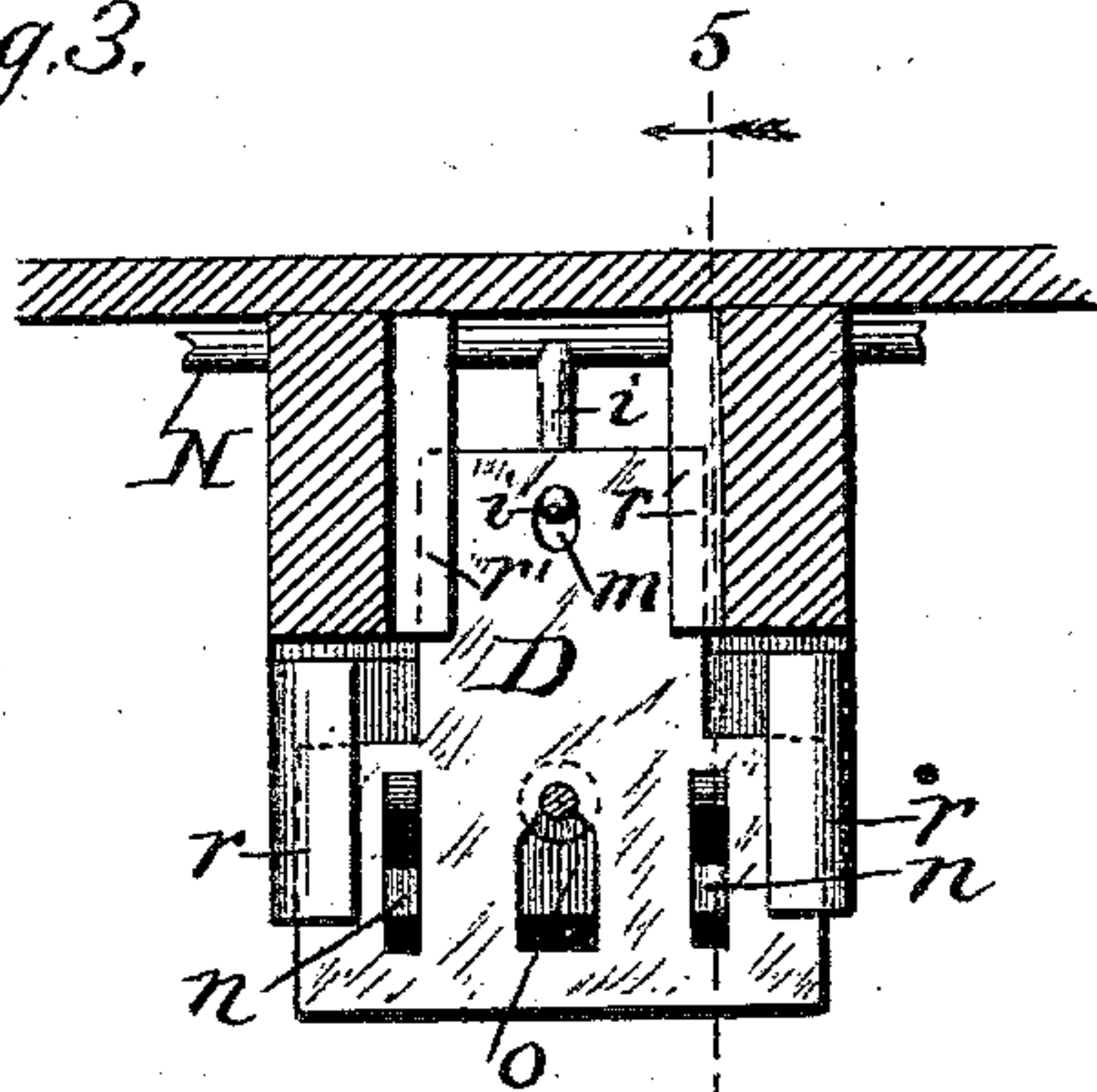


Fig. 4.

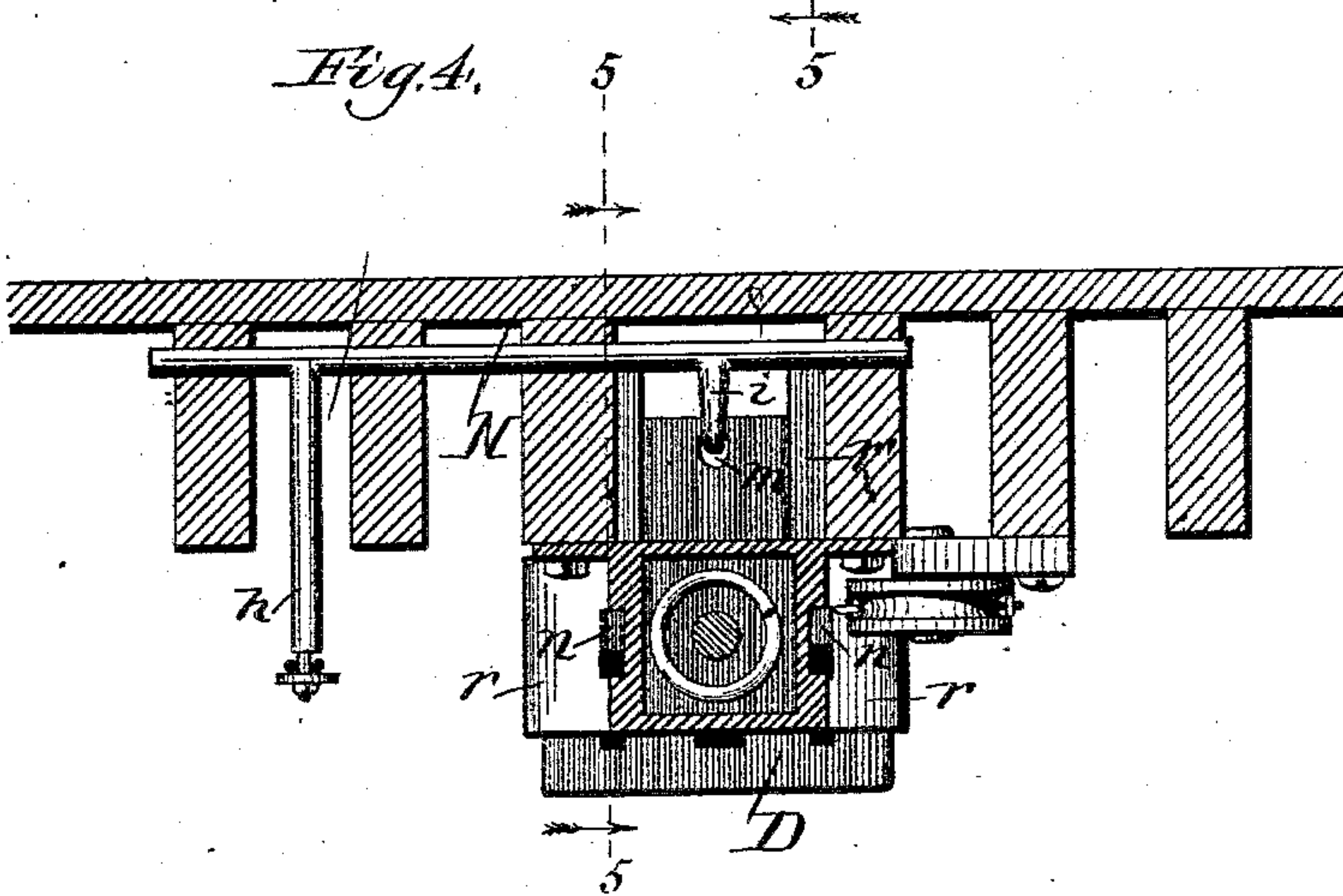


Fig. 5.

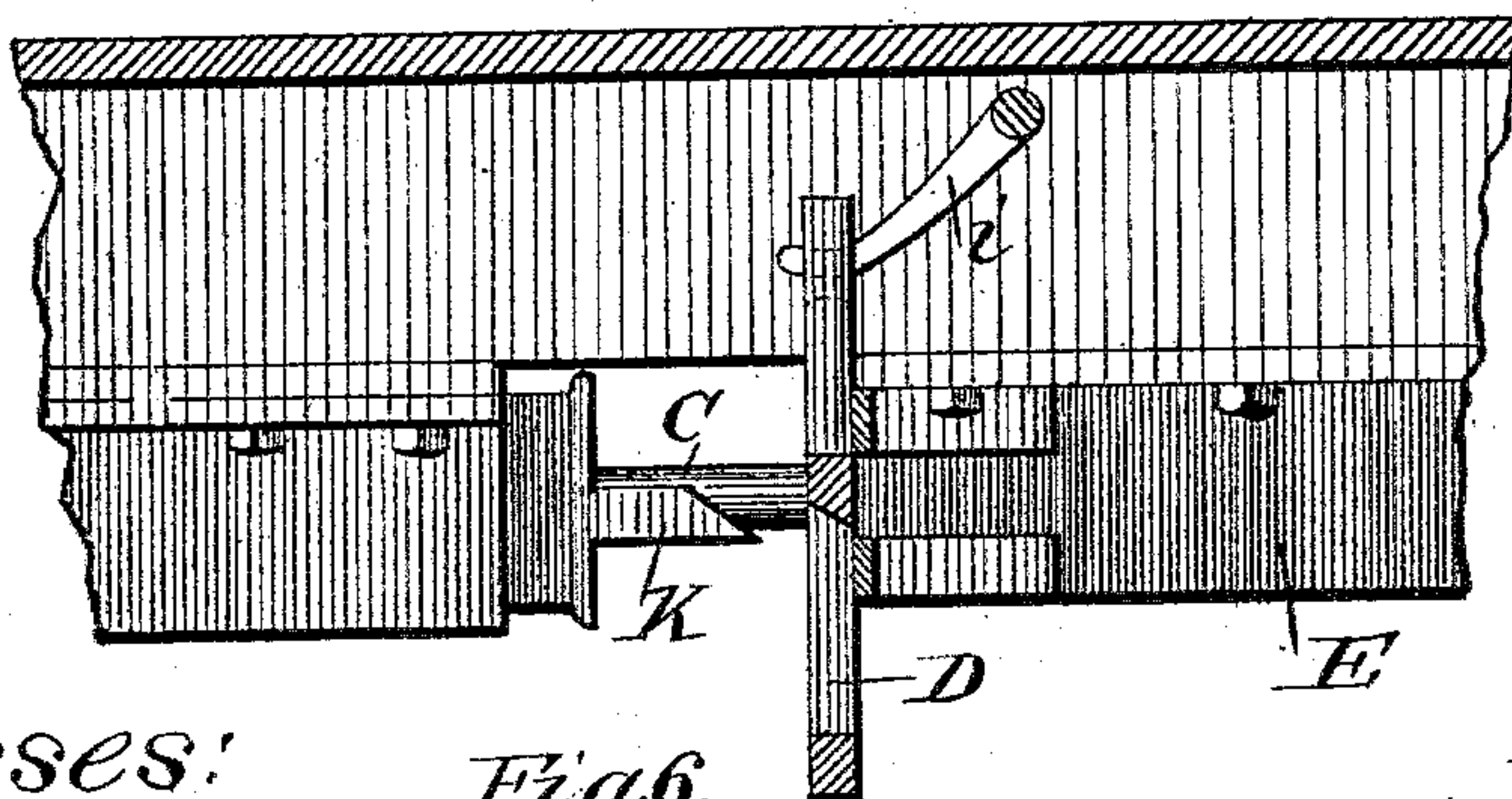
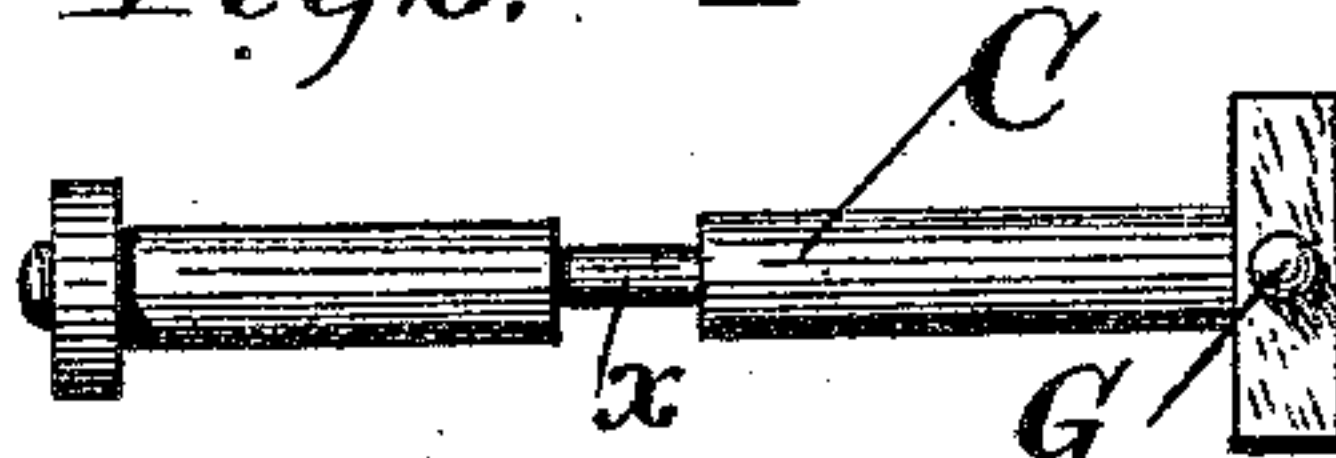


Fig. 6.



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# UNITED STATES PATENT OFFICE.

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## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 283,446, dated August 21, 1883.

Application filed May 25, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. WILDE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Car-Brakes; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of automatic brakes in which the action upon the draw-bar in the forward or backward movement of the train or car operates, through proper mechanism, to set or to release the brakes, as may be desired; and it consists in providing suitable automatic mechanism in connection with a draw-bar, whereby the motion of any particular car and of the whole train of cars shall be controlled at all times to correspond with the speed of the locomotive. The draw-bar is longitudinally movable within a desired limit, and is connected with suitable mechanism, hereinafter accurately described, in such a manner that when a locomotive begins to move and draw after it the train of cars the draw-bar of each car is drawn out, thereby releasing the brakes upon the wheels of those cars provided with my improvement; and when it is desired to stop a train or slacken its speed the brakes are set through the medium of a spring by the forcing in of the draw-bar, which takes place when the speed of the locomotive is slackened, owing to the inertia of the following cars.

My invention consists, further, in providing a means for releasing the brakes by hand when it is desired to back a train of cars. Mechanism for this purpose is necessary, owing to the fact that the automatic setting of my brake is effected by the forcing in of the draw-bar, as above described, which incidentally takes place with the operation of backing.

My invention still further consists in certain details of construction and combinations of parts, all as hereinafter more fully set forth.

In the drawings, Figure 1 is a vertical section of my device attached to the bottom of a car, showing the draw-bar pulled out, the said section being taken on the line 1 1 of Fig. 2, showing in the direction of the arrows, in elevation, the mechanism by which the brakes are operated; Fig. 2, a plan view of my de-

vice attached to the bottom of a car, and having a part broken away to show the interior construction of a detail; Fig. 3, a front elevation of the sliding plate, taken on the line 3 3 of Fig. 2, and viewed in the direction of the arrows, showing the method of its operation; Fig. 4, a sectional view taken on the line 4 4 of Fig. 2, showing a rear elevation of the said plate and of a part of the mechanism by which it is raised and lowered; Fig. 5, a vertical section taken on the lines 5 5 of Figs. 2, 3, and 4; and Fig. 6, a view in elevation of a detail.

A is the draw-bar, provided with the hole *v*, to receive the coupling-pin, and resting in the support B, which is bolted through each lateral flange *u* to a floor-beam of the car. The draw-bar is an oblong box in form, and moves longitudinally within the support B, made of suitable shape to receive it. It is closed at its rear end, where a hole, *t*, is formed to admit the rod C. On each side, near the rear end, the said draw-bar A is provided with openings made sufficiently large to permit easy access to the nut *s*, or to any other suitable retaining means, which forms a shoulder within the draw-bar for the purpose of preventing its withdrawal when operated.

D is a metal plate of an inverted-T form, having a vertical movement within guides *r*, secured one on each side of the box E, which is bolted to the floor-timbers of the car, and within guides *r*, each of which is secured to the side of a floor-beam. The said box E receives through the hole *p* the rear portion of the rod C, which is screwed or otherwise secured at its rear extremity to the follower *g*, of dimensions sufficiently great, or nearly so, to fit snugly within the said box, and it contains also a helical or other suitable spring, F, which surrounds the said rod C, and is confined between the forward end of the box and the follower. This rod C is not formed of equal diameter throughout its whole extent, but is reduced about one-half along a small portion of its length, forming a recess or neck, as shown at *x*, somewhat longer than the distance between the extremity of the box E and the outer surface of the plate D. The plate D is provided with slots *o n* near its lower and with the slot *m* near its upper extremity.



These slots are provided for different purposes, all tending to effect the same result, but under different conditions, and in the present immediate connection I will describe the object of the slot *o*. This, as before stated, is formed near the lower edge of the plate, equidistant from the two sides thereof, and is made sufficient in diameter to receive the rod C where its proportions are greatest, but decreases in size toward its upper extremity, where it is only large enough to receive the neck *x* of the rod C.

To the side of the follower *g* is secured a lateral pin, G, which moves in a slot, *y*, in the side of the box E. Secured to this pin G is a chain, *l*, which passes forward around a pulley, H, supported in the bearings H', and backward to the brake-lever I.

The operation of the mechanism just described is as follows: Suppose the train to be at a standstill and the brakes set. When the locomotive moves, it pulls the draw-bar A out, and with it the rod C and follower in opposition to the spring F. This action brings the neck of the said bar within the slot *o* of the plate D, causing the latter to drop by its own weight to find a support in the small end of the said slot upon the neck of the said rod C. This having taken place, the rod C cannot recede while the plate remains in the position just described, owing to the fact that the forward shoulder, formed on the circumference of the said rod, presses with its upper edge against the surface of the plate D over the slot *o*. The wheels have thus been freed of the brake-shoes, owing to the loosening of the chain *l* by the forward movement of the pin G, with the follower *g*, in which the end of the bar C is firmly secured.

I will now proceed to describe the operation by which the brakes are automatically set, which takes place whenever, owing to the slackening of speed, the inertia of the cars would cause their speed to be greater than that of the locomotive.

Secured to each side of the rear end of the draw-bar A is a flat bar or plate, K, beveled upward from its rear end. As the draw-bar is forced backward the beveled ends of the bars K enter the slots *n* in the plate D, thus serving as wedges to force the plate upward, thereby releasing the rod C and permitting the spring F to expand and force back the follower with its pin G, and thereby pulling taut the chain *l* and setting the brakes.

As it frequently occurs that a train has to be backed, it is obvious that the automatic system just described would offer a very serious obstacle against the moving of the cars, (since the brakes are set by the forcing in of the draw-bar,) unless some provision were made for releasing the brakes when it is desired to back; hence I have provided a releasing mechanism to be operated by hand when it is desired to back, of which the following is a description.

L is a brake-wheel on the top of the car. To its shaft is attached, in the usual manner, one end of a chain, *k*. At an intermediate point of the said chain the latter is secured to a downward-projecting arm, *h*, Fig. 4, of the transverse horizontal lever N. This lever N is supported within bearings formed on the upper sides of the floor-beams of the car. It is provided with a downward and forward projecting finger, *i*, and is so placed in its bearings as to cause the said finger to protrude through the slot *m*, formed near the top of the plate D, thereby holding the latter in suspension when the chain *k* is drawn forward. The rear end of the said chain *k* is secured to a lever of the second class, O, having its fulcrum within a slot in the projection *g*, extending from the side of the box E. Near its fulcrumed end, and opposite the center of the follower *g*, it is provided with a forward-projecting lateral branch, *f*. Near its working end the said lever is supported and its movement confined within a suitable support, *e*, secured to a beam, as shown. When it is desired to release the brakes to permit the backing of the car, the brake-wheel L is turned to wind the chain *k* around its shaft, whereby the lever *u*, by means of the downward projection *h*, is turned partly around, thus causing the finger *i* within the slot *m* to lift the plate D sufficiently to permit the admission of the largest circumference of the rod C within the slot *o* in the said plate, the said bar C being thus released from its shoulder-pressure by the lifting of the plate D and forced back by the action of the spring F. The portion of the chain between the lever O and the arm *h* is less taut than that between the arm *h* and the brake-wheel shaft. This arrangement is to permit the lifting of the plate D and consequent release of the rod C just described, first, when, by still farther winding of the chain *k* around the said brake-wheel shafts it acts upon the lever O to force inward the follower *g* by pressure against it of the branch *f*, thereby moving the pin G forward sufficient to release the brake-shoes by the loosening of the chain *l*. The helical spring *d*, secured to the lever O and to the transverse beam on the bottom of the car, is intended to co-operate with the spring F in forcing the lever O back.

From the foregoing description the simplicity of my device will readily be recognized; and it will be seen that it is infallible in its operation and provides a thoroughly effective means of controlling the speed of the train.

Certain mechanical changes may be made in the various subordinate mechanisms, by which the foregoing results are produced. So far as I am aware, the results themselves are new, and my description is intended to include all mechanisms by which those results may be accomplished, since the same would be merely mechanical equivalents of those shown. If the follower were carried so far back as to be behind the brake-lever, the pulley or guide H



would of course be dispensed with, since the chain would then act upon the lever in the proper direction without it.

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

1. In combination with the sliding draw-bar of a railway-car, a chain-connecting the said draw-bar with the brake-lever, and arranged, as described, to draw the brake-lever forward when the draw-bar is moved backward, whereby the pulling out of the said draw-bar slackens the chain, and hence releases the brakes, and the forcing in of the said draw-bar tightens the chain, thus setting the brakes, a spring which is compressed by the pulling out of the said draw-bar, automatic mechanism for retaining the said draw-bar in place when it has been drawn out and automatic mechanism for releasing the said draw-bar when a backward pressure is exerted against it, thus permitting the brakes to be set by the recoil of the spring, all substantially as described.

2. In combination with the sliding draw-bar of a railway-car, a rod, C, passing through the rear end of the said draw-bar, and provided with a stop to prevent its withdrawal, and provided at its rear end with a follower, a spring surrounding the said rod and confined between the said follower, and a suitable fixed stop on the bottom of the car, whereby the pulling out of the draw-bar compresses the spring, automatic mechanism for securing and holding the said rod and follower against the reactive tendency of the spring when drawn out through the medium of the draw-bar, a chain connecting the follower and brake-lever, and arranged, as described, to carry the brake-lever forward when the follower is forced backward, and automatic mechanism operating to release the bar C with its follower when an inward pressure is exerted upon the draw-bar, whereby the spring forces back the said follower and sets the brakes, all substantially as described.

3. In combination with the sliding draw-bar of a railway-car, a rod, C, passing through the rear end of the said draw-bar, and provided with a stop to prevent its withdrawal, and provided at its rear end with a follower, a spring surrounding the said bar and confined between the said follower and a suitable fixed stop on the bottom of the car, whereby the pulling out of the draw-bar compresses the spring, automatic mechanism for securing and holding the said bar and follower against the reactive tendency of the spring when drawn out through the medium of the draw-bar, a chain connected to the follower and passing forward around a suitable guide and back to the brake-lever, and automatic mechanism operating to release the rod C with its follower when an inward pressure is exerted upon the draw-bar, whereby the spring forces back the said follower and sets the brakes, mechanism operated by the brake-wheel and

shaft for first releasing the automatic mechanism holding the rod C with its follower against the reactive tendency of the spring, and, secondly, forcing forward the said follower and rod, thus releasing the brakes and permitting the car to be backed without setting them, all substantially as described.

4. In combination with the brake-lever of a car, the automatic mechanism for releasing the brakes, said mechanism consisting of the draw-bar A, rod C, provided with suitable means at its forward extremity within the said draw-bar to prevent its withdrawal, and reduced in diameter along a small portion of its length to form a neck, plate D, provided with slots *o* and *m*, finger *i* to protrude through the slot *m* and support the plate D, said finger projecting from a transverse horizontal lever, N, having a downward-projecting arm, *h*, box E, secured to the under side of the car, follower *g* upon the rod C within the said box, spring F, surrounding the rod C and confined between the follower *g* and the forward end of the said box, pin G, secured to the follower *g*, and movable within a slot, *y*, in the box E, and chain *l*, secured to the pin G, and passing around a guide, H, or other suitable device properly supported, substantially as described, and for the purpose set forth.

5. In combination with the brake-lever of a car, the automatic mechanism for setting the brakes, said mechanism consisting of the draw-bar A, rod C, provided with suitable means at its forward extremity within the said draw-bar to prevent its withdrawal, and reduced in diameter along a small portion of its length to form a neck, bars or plates K, beveled upward from their rear ends and projecting from the draw-bar A, plate D, provided with a slot, *o*, to receive the rod C, a slot, *m*, to receive the finger *i*, and slots *u* to receive the bars or plates K, lever N, having a projecting finger, *i*, and a downward projecting arm, *h*, box E, secured to the under side of the car, follower *g* upon the rod C within the said box, spring F, surrounding the rod C and confined between the follower and the forward end of the said box, pin G, secured to the follower *g* and movable within a slot, *y*, in the box E and chain *l*, secured to the pin G and passing around a pulley, H, or other suitable device properly supported, substantially as described, and for the purpose set forth.

6. In combination with the brake-lever of a car, mechanism for releasing the brakes by hand, said mechanism consisting of the brake-wheel L, provided with a brake-shaft of the usual form, lever N, having a projecting finger, *i*, and a downward-projecting arm, *h*, plate D, provided with a slot, *o*, to receive the rod C, and a slot, *m*, to receive the finger *i*, rod C, follower *g*, to which the said rod C is secured at its rear extremity, box E, secured to the under side of the car, spring F, surrounding the rod C and compressed between the follower *g* and the forward extremity of the box E,



lever O, having the forward-projecting lateral branch *f* to force the follower *g* inward, chain *h*, secured to the brake-wheel shaft at one end, to the downward-projecting arm of the lever  
5 N at an intermediate point, and to the extremity of the lever O at its rear end, pin G, secured to the follower *g* and moving in a slot, *y*, in the box E, and chain *l*, secured to the

said pin G and passing forward around a pulley or guide and back to the brake-lever to which it is connected, all substantially as described.

WILLIAM A. WILDE.

In presence of—

W. H. DYRENFORTH,  
EDW. McCAFFREY.