

(No Model.)

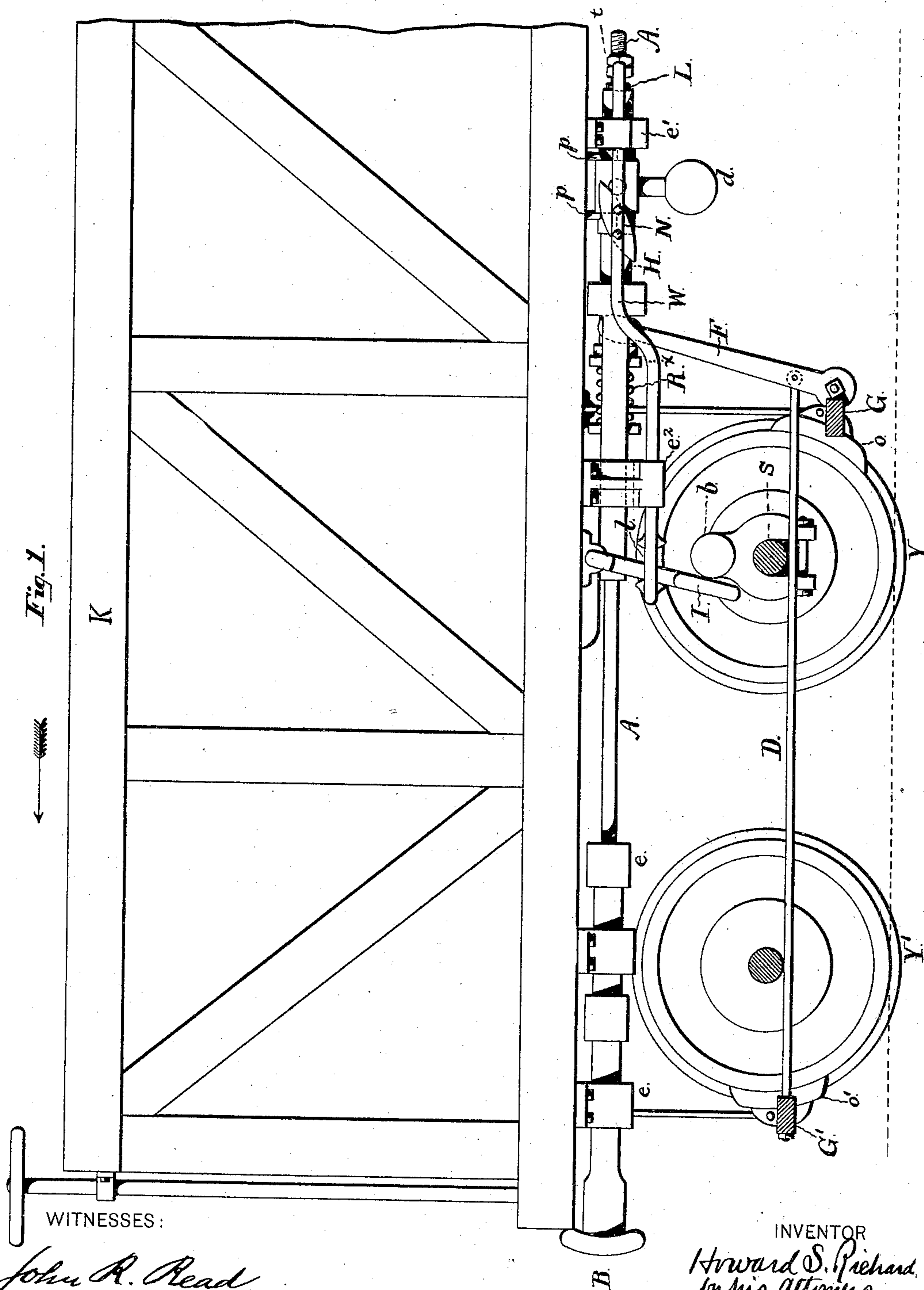
2 Sheets—Sheet 1.

H. S. RICHARD.

BUFFER BRAKE FOR RAILWAY CARS.

No. 369,814.

Patented Sept. 13, 1887.



WITNESSES:

John A. Read.
B. & O. Give

INVENTOR

Howard S. Pichard
by his Attorneys,
Hornell Fittet
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(No Model.)

2 Sheets—Sheet 2.

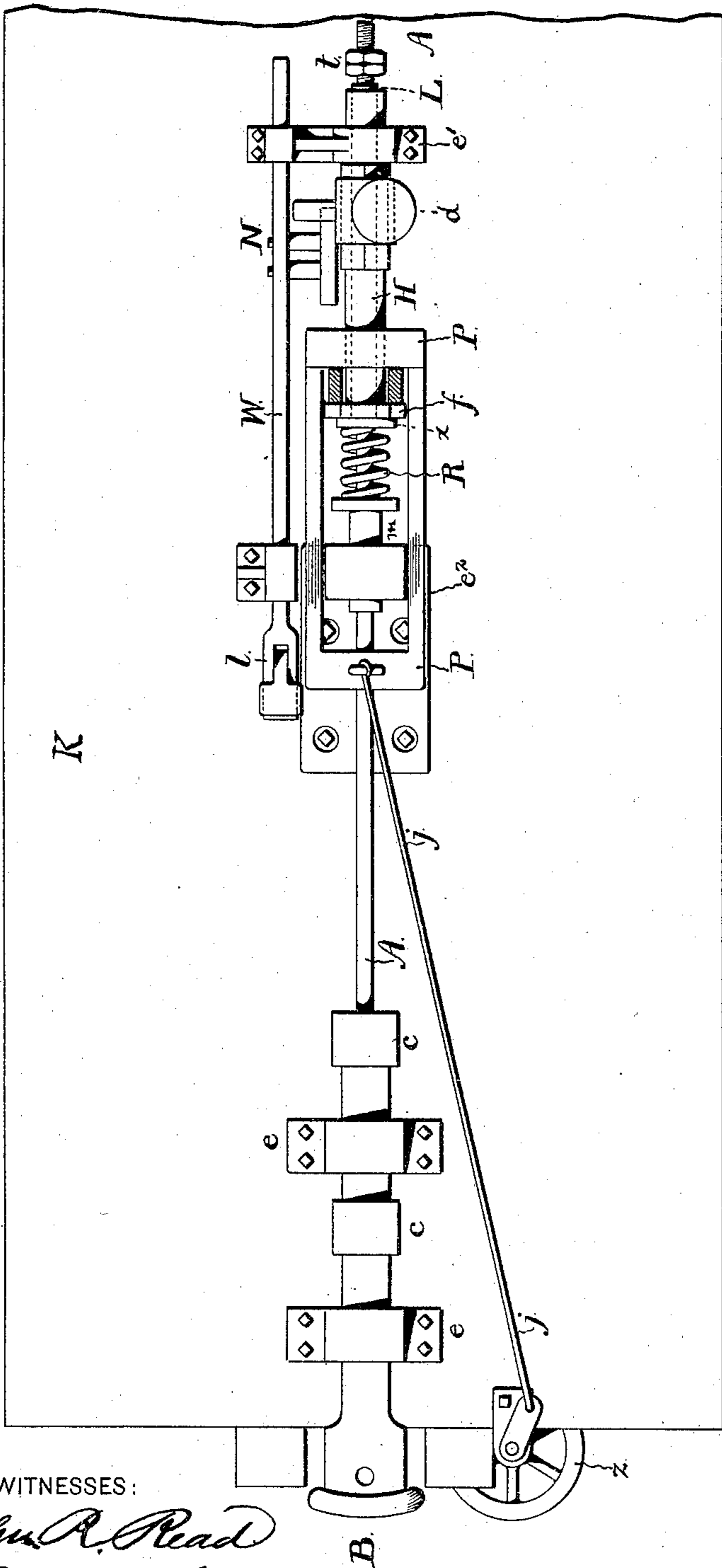
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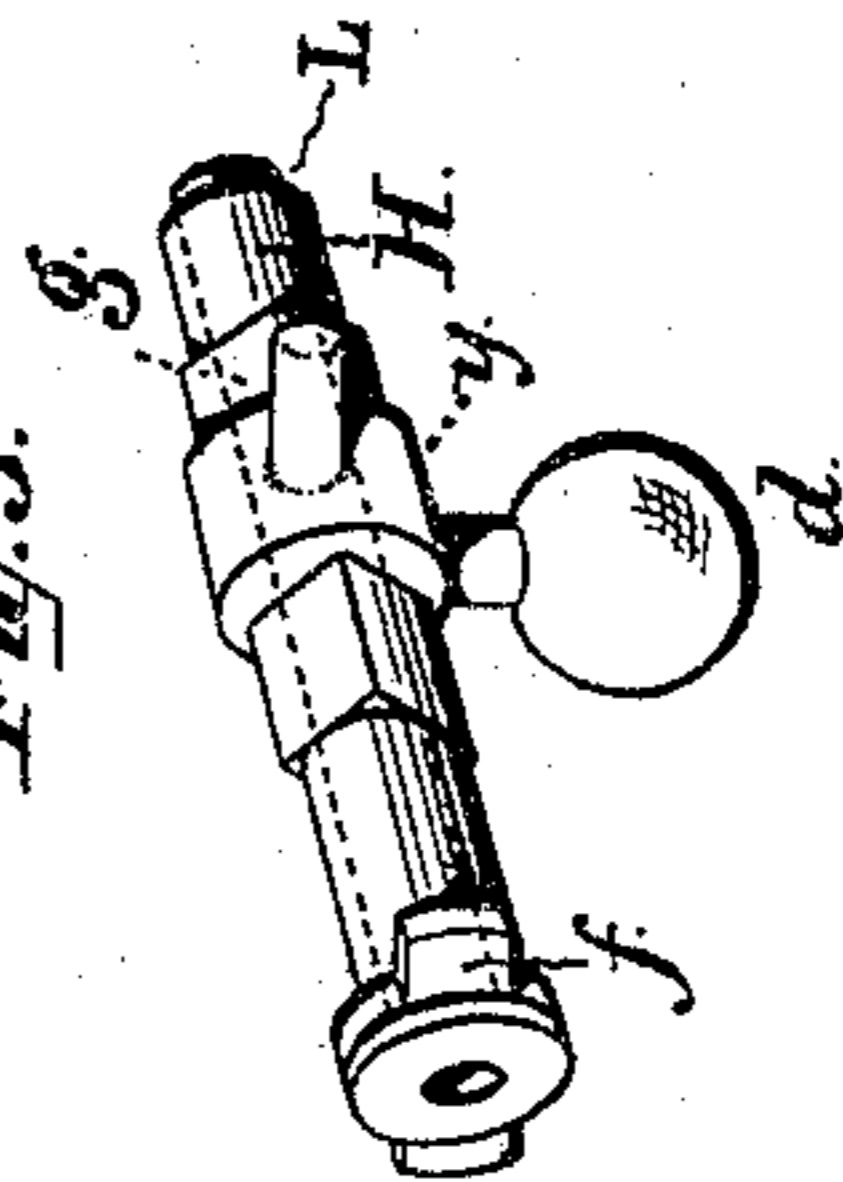
Fig. 2.



WITNESSES:

John A. Read
W. D. Rice

Fig. 3.



INVENTOR

Howard S. Richard
by his attorneys,
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UNITED STATES PATENT OFFICE.

REISSUED

HOWARD S. RICHARD, OF HATFIELD, PENNSYLVANIA.

BUFFER-BRAKE FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 369,814, dated September 13, 1887.

Application filed July 23, 1887. Serial No. 245,124. (No model.)

To all whom it may concern:

Be it known that I, HOWARD S. RICHARD, of Hatfield township, county of Montgomery and State of Pennsylvania, have invented a certain new and useful Improvement in Automatic Buffer-Brakes for Railway-Cars; and I declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an improvement in brakes for railway-cars of a class known as "buffer-brakes," designed to work automatically; and it consists in a device whereby, when it is desired to stop or slacken the train by slackening or stopping the engine, the brakes are rigidly applied to the wheels of the car while in motion by the force derived from the motion of the cars themselves.

I will now describe my invention, so that others skilled in the art to which it appertains may apply the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a sectional side view of the device applied to a freight-car. Fig. 2 shows the under side of the invention as applied to the bottom of the car. Fig. 3 shows in detail the sleeve devices provided with the weighted lever for throwing the brake automatically out of gear.

A represents the shaft or rod by which the power or force is applied from the draw-head B to the lever F, the said shaft A being adjusted to the bottom of the car by the supports or hangers e e' e^2 to allow of the shaft A acting as a draw-head. The shoulders c c are firmly affixed to the shaft A, and when the shaft is drawn out, as when the car is in motion, the shoulders are brought to bear against the supports c c , and the shaft A thus prevented from being drawn farther out. The lever F connects the shaft A with the brake-beam G, which is provided with the brake-shoes o . The said lever F is pivoted to the brake-beam G at about the center of its length. The connecting brake-rod D is pivoted to the lever F at a distance of a few inches above the brake-beam G, and connected with the brake-beam G' about its center, which is also provided with brake-shoes o' .

On the shaft A, near its extremity, is pro-

vided a hollowed rod or sleeve, H, within which is another or second smaller sleeve, L, which is designed to turn on the round rod A, and upon the said sleeve L the larger sleeve, H, is adjusted to turn. The head or shoulder f , of an elliptical form, is firmly affixed to the sleeve H at the end of the sleeve toward the buffer, as shown in the drawings. The sleeve H on the shaft A passes through one end of the frame P, having the elliptical shoulder f inside the hollowed part of the frame P. The lower or downward-projecting part of the hanger e^2 passes through the inner part of the frame P. On the inside of the frame P a spring, R, is provided on the shaft A, which rests against the shoulder m , preferably square, which is fixedly attached by screw or otherwise to the rod A and passes through the hanger or support e^2 , and the other end presses or bears against the washer x , which in turn presses against the shoulder-sleeve L and the sleeve H. The upper end of the lever F is divided into two prongs or forks, which pass up through the frame P, fitting loosely on the outside of the sleeve H, immediately back of the elliptical shoulder f , which shoulder, when the ellipse is crosswise, holds the lever ends firmly in the frame against its end, and as the shaft or rod A is driven back forces the said upper end of the lever, the force being modified or regulated by the tension of the spring R, the frame P being movable on the shaft A backward and forward. The nut t is provided on the end of the shaft A to regulate the relative position of the sleeves L and H on the shaft A.

The device employed to throw the braking apparatus out of gear consists in the lever I, pivoted at the bottom of the car to one side of the car. The crank b is attached firmly to the axle S, to one side, in a line with the lever I, which throws the lever I backward or forward, according to the direction of the motion of the car. The rod w , supported by the hangers e' e^2 , is connected to the lever I by the said lever I passing through the slot l , provided in one end of the rod w , which, being elongated and of greater width than that of the lever I, allows of some play. Near the other end of the rod w is provided the cam or elliptical shaped plate N, which bears upon and operates an

arm or lever, *g*, affixed to the sleeve H, which arm or lever *g* is adjusted to the said sleeve H. Dependent from the axis of the said lever *g*, at right angles to the said lever, is the weighted arm or lever provided with the weight *d*. Attached to the frame P is the rod *j*, connected with the hand-brake *z*, designed to be used when it is desired to operate the brake by hand.

The object of my invention is to produce a brake which may be operated by the force of the momentum of the train or car itself while in motion, to either slacken the speed of the train or bring it to a standstill, as desired, and which shall be so adjusted as to prevent the automatic braking device from interfering with the backing of the train or car; and a further object is to produce a brake that will act independent of any other in the train, and to be so constituted that "wild" cars will not interfere with its action.

I am aware that automatic brakes for railway-cars have heretofore been invented, and I do not claim such, broadly; but what I do claim is my device as herein particularly described.

When the car K is in motion, moving in the direction indicated by the arrow in the drawings, and it is desired to slacken the speed or stop the train immediately upon the slowing-up of the engine or forward car, the draw-head B, coming in contact with the draw-head or buffer of the forward car or engine, is driven in, and the rod or shaft A is in turn driven back, either partially or full up, until the shoulder *c* comes in contact with the hanger or support *e*, the rod A being supported by and passing through the hangers *e e' e''*, which are affixed to the bottom of the body of the car. When the rod A is thus driven back, the shoulder *m*, being firmly affixed to it, passing through the projecting part of the hanger *e''*, is driven against the spring R on the shaft A, which in turn, bearing against the sleeve L and sleeve H, drives back the said sleeves H and L, and the upper end of the prongs of the lever F, being bound in firmly in the frame P by the elliptical shoulder *f*, as when the shoulder is crosswise to the frame, the upper or long arm of the said lever F is driven back, the fulcrum of the lever F being at the point where it is pivoted to the connecting-rod D. When the lever F is driven back, the rod D, being connected to it, is also driven back, which immediately brings the brake-shoes *o'*, attached to the brake-beam G', to bear against the wheels Y', and this bearing once being had and the fulcrum thus obtained the brake-shoes *o* of the brake-beam G are brought rigidly to bear against the wheels Y, which in turn change the bearing of the lever F and establish a fulcrum, whereby in the backward motion of the long arm the rod D, being pivoted to the lever F a few inches above the pivotal point of the lever to the brake-beam G, is in turn pressed more tightly and the brake-shoes *o'* brought more rigidly to bear against the wheels Y'.

In order to throw the brake device out of gear, as when in the process of backing, the rod W is provided to one side and independent of the shaft A, being supported also by passing through the hangers *e' e''*. This rod W is operated backward or forward by the lever I, the lever I passing through a slot provided in the end of the rod W, as shown in the drawings, the slot being longer than the width of the lever to allow of play in length according to the length of the stroke of the rod W, as desired. When the car is backed, the crank *b*, attached to the axle of the wheels Y, is so adjusted as to strike the lower end of the lever, and driving it backward it in turn drives backward the rod W. Attached firmly to the rod W, at or near the other end, is the cam or elliptical shaped plate N, as shown in the drawings, at an angle, so that as the rod W is driven back the lever *g*, attached to the sleeve H, is depressed by the cam N bearing upon its end until the elliptical shoulder *f*, being part of the sleeve H, loses its horizontal position and attains a vertical position in the frame P, whereupon the said elliptical shoulders *f*, being relieved from bearing against the upper end of the prongs of the lever F, the elliptical shoulders *f* are driven full up to the end of the frame P by the spring R, and the lever F thereby released. The brake-shoes are in turn released from the wheels or prevented from operating. When the rod W is driven full back, the arm *g* is released by the cam N passing beyond the line of the arm *g*. When the rod W is driven forward, the upper edge of the cam N presses against the arm *g* and elevates the arm to about a vertical position, and upon the rod W being driven full forward the cam N, passing beyond the arm *g*, it is again released and allowed to assume its normal position, so that the arm *g* is operated by the motion of the rod W in either direction.

The sleeve *y*, to which the arm *g* and weight *d* are attached, is adjusted to the sleeve H loosely by a square hole fitting upon the squared sleeve H, so that while the sleeve *y* and its lever and weight retain their position by means of the shoulders or bearings *p p* the sleeve H may pass backward and forward through it, and yet upon being turned laterally the arm *g* will turn the sleeve H. When the car is propelled forward by the draw-head B being drawn out, the nut *t* in the rod A coming in contact with the end of the sleeves L H, they are in turn forced to a forward position, and the shoulders *f* in passing through the prongs of the lever F, being in a vertical position upon passing through, by the adjustment heretofore described, resume their horizontal position, and the device is in gear ready for the brakes to be applied in the slackening of the motion of the forward car. The shoulders *c c*, coming in contact with the supporters or hangers *e e*, prevent the draw-head B and rod A from being drawn out too far. The frame P is also connected by the rod *j* to a hand-brake, as shown, so that the brakes may be released by hand

when desired. An ordinary car hand-brake may be employed, connected with the brake-beams $G\ G'$, to work the brakes by hand.

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

1. In a car, the draw-head B and rod A , in combination with the sleeve H , the sleeve L , the elliptical shoulders f , the shoulder m , the spring R , the frame P , the lever F , the brake-beams $G\ G'$, connected by the rod D and having the brake-shoes $o\ o'$, the nut t , the lever I , the crank b , adjusted to the axle of the wheels Y , the rod W , the cam or plate N , attached to the rod W , the arm g , sleeve y , and weighted arm d , adjusted to the sleeve H , and the hangers or supports $e\ e'\ e^2$, constructed and operated in the manner and for the purposes hereinbefore substantially set forth and described.

2. In a car, with the draw-head B and rod

A , the combination of the sleeve H , the sleeve L , the elliptical shoulders f , the shoulder m , the spring R , the frame P , the lever F , the brake-beams $G\ G'$, connected by the rod D and having the shoes $o\ o'$, the nut t , the lever I , the crank b , adjusted to the axle of the wheels Y , the rod W , the cam or plate N , attached to the rod W , the arm g , sleeve y , and weighted arm d , adjusted to the sleeve H , the rod j , connected with the hand-brake z and the frame P , and the hangers or supports $e\ e'\ e^2$, constructed in the manner and for purposes as hereinbefore substantially set forth and described.

In testimony whereof I have hereunto set my hand this 27th day of June, A. D. 1887.

HOWARD S. RICHARD.

Witnesses:

H. B. GILL,

HORACE PETTIT.