

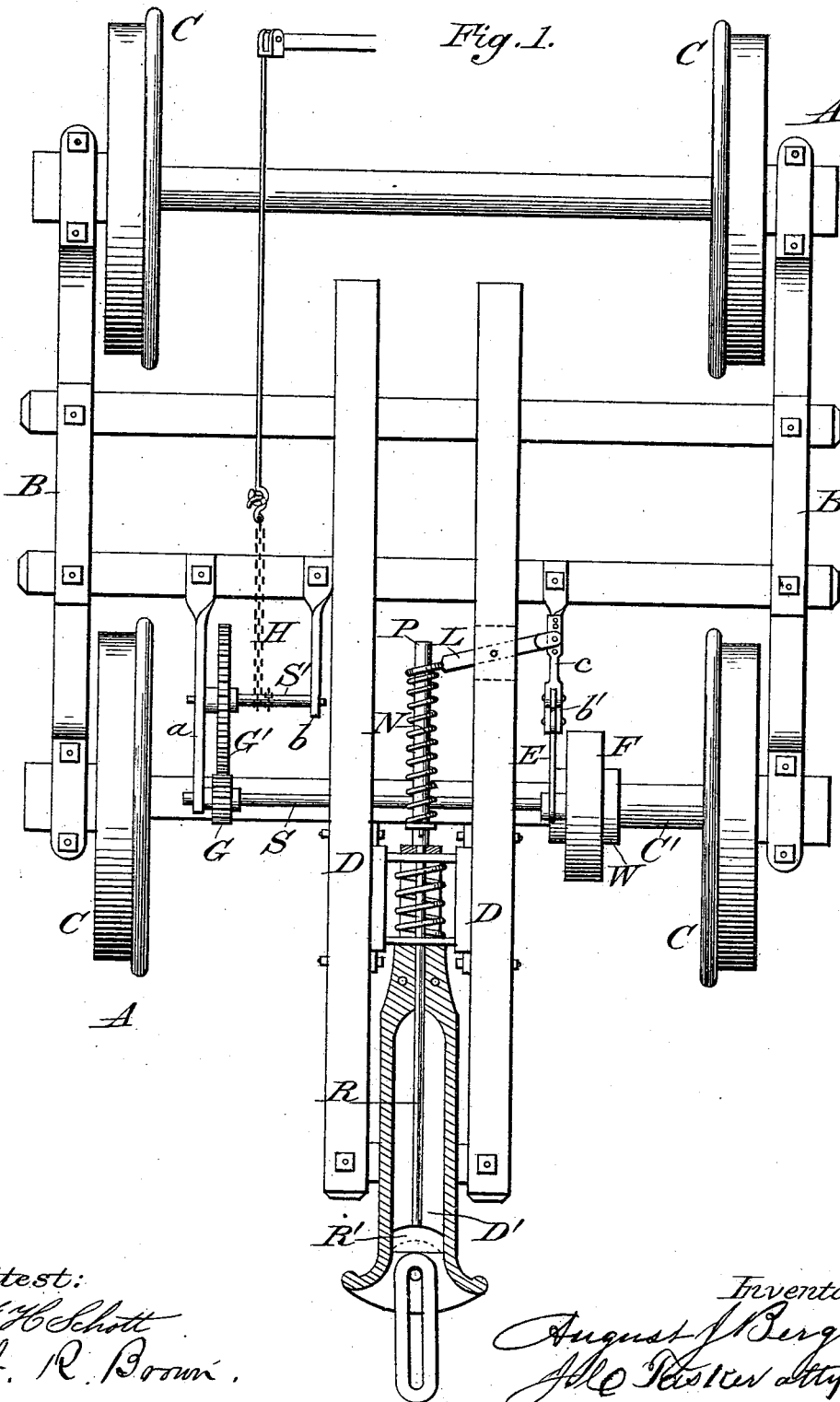
(No Model.)

3 Sheets—Sheet 1.

A. J. BERG.  
AUTOMATIC CAR BRAKE.

No. 262,636.

Patented Aug. 15, 1882.



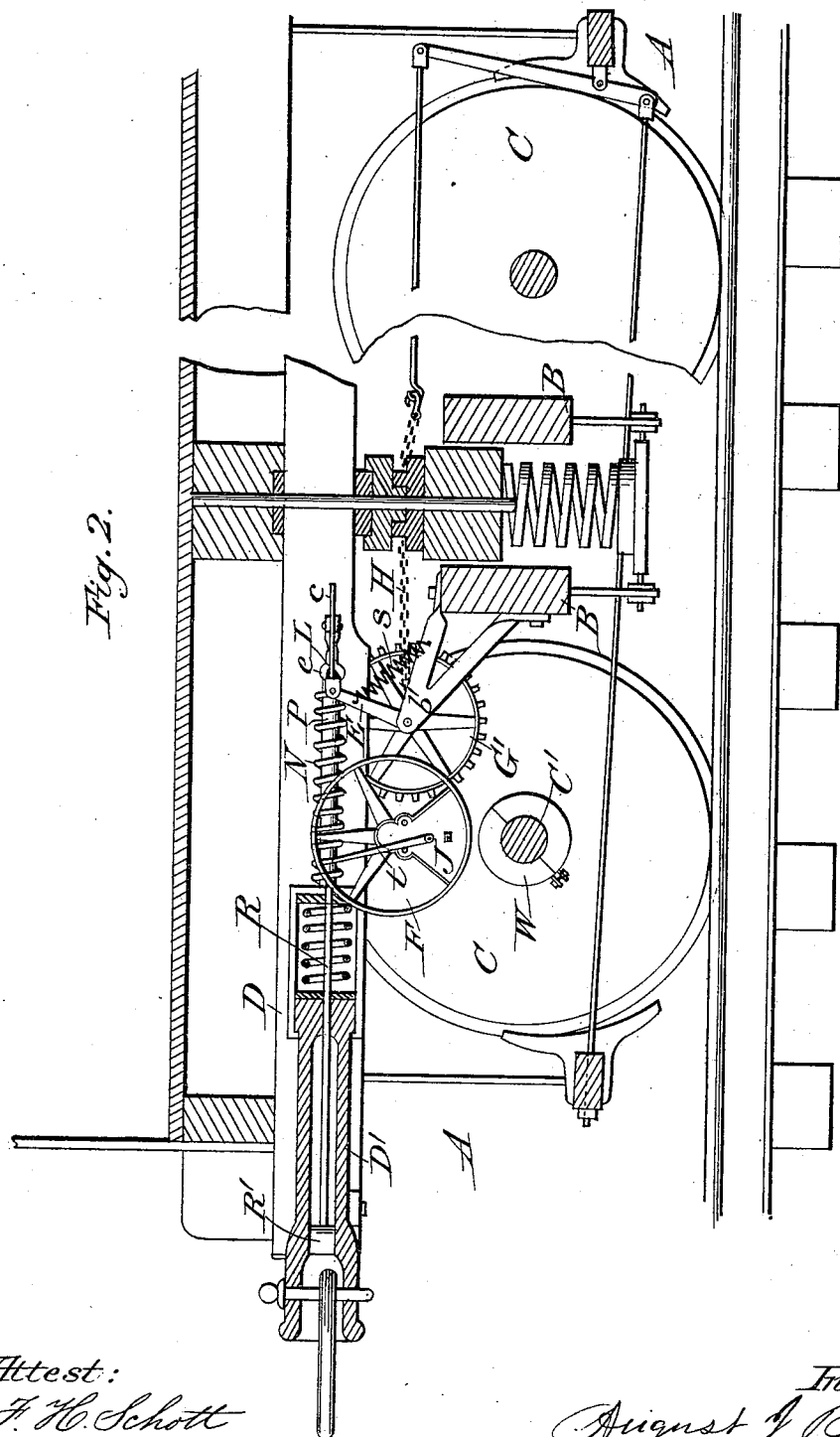
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Attest:

F. H. Schott  
A. R. Brown

Inventor.

August J. Berg  
J. O. Parker atty

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3 Sheets—Sheet 3.

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Fig. 3.

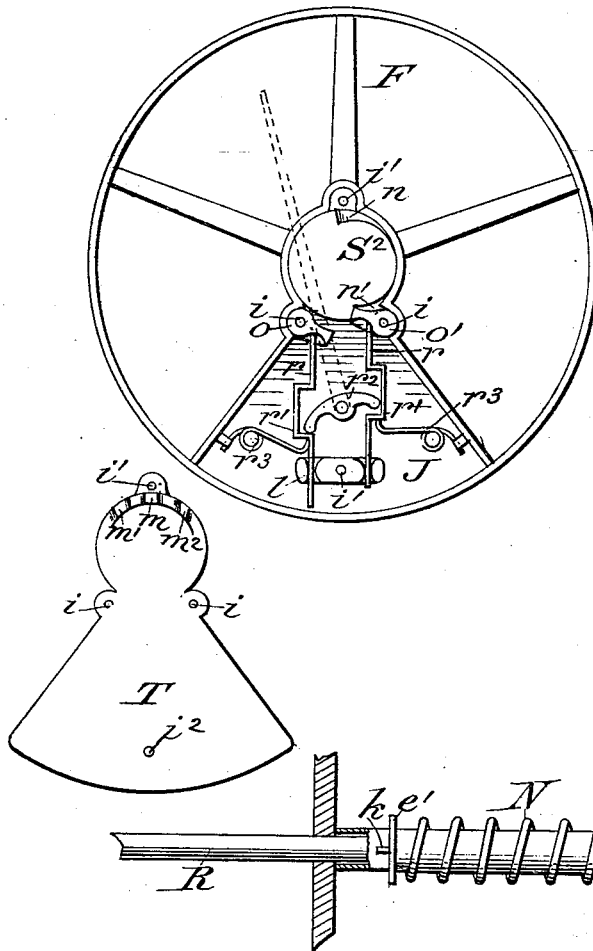


Fig. 4.

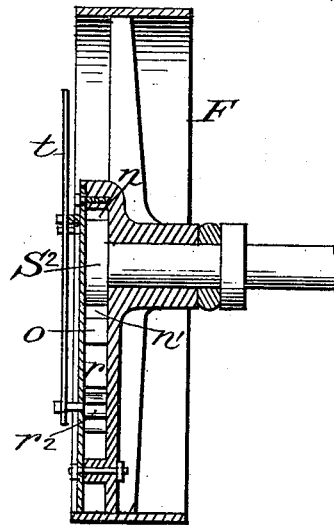
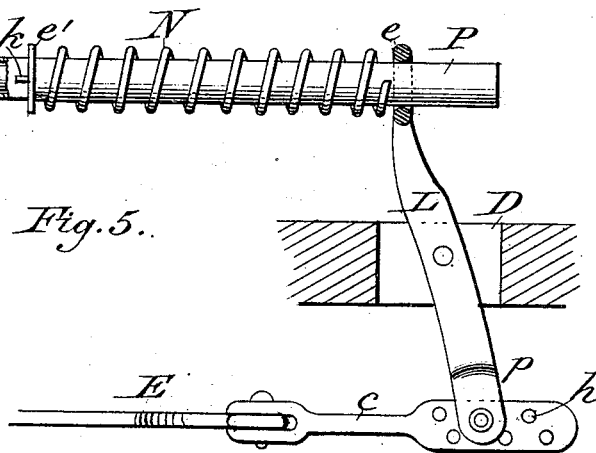


Fig. 5.



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# UNITED STATES PATENT OFFICE.

AUGUST J. BERG, OF CHICAGO, ILLINOIS.

## AUTOMATIC CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 262,636, dated August 15, 1882.

Application filed March 13, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST J. BERG, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Car-Brakes, of which the following is a specification.

My invention relates to that class of automatic car-brakes which are actuated by the closing of the cars together, caused by their momentum when the engine or forward part of the train is checked; and the object of my invention is to provide a brake of this class capable of being actuated when the car is drawn from either end or in either direction, and at the same time remain inoperative when the train is backed, or which may be set to remain at all times inoperative.

To this end my invention consists in certain elements and combinations of mechanism hereinafter fully described.

In the accompanying drawings, Figure 1 is a plan view of an ordinary car-truck with my improved brake attached. Fig. 2 is a partial sectional elevation of the same. Fig. 3 is a detailed view of the adjustable friction-wheel with the cover removed. Fig. 4 is a sectional view of the same. Fig. 5 is a detailed view, referred to hereinafter.

In the said drawings, A A represent an ordinary car-truck, which may be made after any of the numerous styles at present in use.

B B are the truck-transoms; C, the wheels; D D, the draft-timbers, and D' the draw-bar, all arranged in the ordinary manner.

Over one of the axles, as C', supported at one end in a bearing in the end of a bracket, *a*, secured to the truck-transom B, and at the other in a bell-crank, E, is a shaft, S, provided at one end with a friction-wheel, F, and at the other with a gear-wheel or pinion, G, which meshes with a gear, G', on a shaft, to which is attached the brake-chain H, and which is journaled at one end in the bracket *a* and at the other in a short bracket, *b*, also secured to the truck-transoms B. The bell-crank E, in the end of the longer arm of which is journaled the shaft S, is supported at its center by a bracket, *b'*, secured to the transoms.

To the upper end of the bell-crank E is at-

tached an adjustable connecting-link, *c*, connected at its other end to a cross-lever, L, by a pin, *p*, which fits in one of a series of holes, *h*, with which the connecting-link *c* is provided. The cross-lever L extends through a slot in one of the draft-timbers D, in which it is pivoted near its center, and is provided at its other end with an eye, *e*, through which projects one end of a pipe, P, attached at its other end to the end of a push-rod, R, provided with the enlarged end R', which works in the draw-bar D', and which projects through the rear end of said draw-bar, its follower-plates, springs, and loop, and is connected to the pipe P, as before stated, by means of a key, *k*, the end of the push-rod fitting loosely in the end of the pipe, thus making a flexible joint and providing for the easy removal of the push-rod if at any time it is desired.

Around the pipe P, with one end resting against the eye *e* of lever L and the other against the washer *i*, which rests against the key *k*, is a spring, N.

On the axle C', directly under the friction-wheel F, is secured a ring or band, W, of rubber or other suitable material, which may be made in halves and secured to the axle by hooks or in any convenient manner to avoid the necessity of removing the truck or car wheels to place it in position. The friction-wheel F is held away from band W by a spring, *s*, attached at one end to bell-crank E and at the other to bracket *b'*.

The operation of the mechanism thus far described is as follows: The forward part of the train being checked, the cars by their momentum close together, and the coupling-link is forced into the draw-bar D' and strikes the push-rod R, forcing it back, and through the medium of the spring N presses back the end of the lever L, and by means of the connecting-link *c* and bell-crank E brings the friction-wheel F in contact with the rubbering or band W on the axle C', causing the friction-wheel to be rotated, and through shaft S and gears G and G' revolves, the shaft S' and winds up the brake-chain H, and through the medium of the ordinary brake-levers closes the brake-shoes against the wheels, and thus stops the car.

It is evident that if the push-rod R and lever L were rigidly connected the friction-wheel

F would be forced positively against the rubber W, and by an extra heavy pressure at the draw-bar would cause the breaking of some of the connections or the sliding of the car-wheel by the continued revolution of the friction-wheel F after the brakes were properly set. This, however, is obviated by the spring U, by the use of which a yielding pressure is obtained for the friction-wheel F, and by having the connecting-link *c* adjustable by the series of holes *h* the pressure may be readily adjusted to set the brakes to the proper tightness without sliding the wheels.

It will be seen by the use of the mechanism thus described the brakes would be set whenever pressure is applied to the push-rod R, the car being in motion in either direction, and would thus cause the brakes to be set when the train is backed, which would defeat the object of this invention, and to overcome which I have provided the device shown in Fig. 3 and described as follows: The end of the shaft S, on which is placed the friction-wheel F, has an enlarged end,  $S^2$ , provided with two or more ratchet-notches, *n* and *n'*, facing in opposite directions. The hub of the friction-wheel is enlarged at one end and bored out to receive the said enlarged end  $S^2$ , and is also provided with a recess or box, J, in which are pivoted two small pawls, O O', the side of the box J being made to conform to the shape of the rounded ends of said pawls, which fit snugly therein, thus relieving the bolt on which they are pivoted of any undue strain which might come thereon. To each of the pawls is attached at one end a small bar or rod, *r*, provided near the middle of its length with an offset, *r'*, and sliding in grooves in a lug, *l*, which serves to guide them.

$r^2$  is a cam-piece journaled at the bottom in the bottom of the box J, and provided at the top with an extended bearing, which projects through the cover T, and on which is secured a hand or pointer. The ends of the cam-piece  $r^2$  rest respectively in the offsets *r'* *r'* in the bars *rr*.

$r^3$  are springs the ends of which rest against the offset in bars *rr* and serve to press the pawls O O' into contact with the enlarged ends  $S^2$  of shaft S, except when held away by the cam-piece  $r^2$ , as hereinafter described. A cover, T, fits tightly over the box J and end  $S^2$  of shaft S, and is secured in its place by bolts or screws, which pass through holes *i i' i'*, those which pass through *i* serving as pivots on which the pawls O O' turn. By this arrangement the whole is closed up perfectly tight and kept free from dirt. The hand *t* is made of thin steel or other flexible material, and is arranged so that the resilience thereof tends to hold it in one of the three notches *m m' m'* in cover T. When the hand is placed in notch *m* that is in the position shown in dotted lines in Fig. 3, the pawl O is drawn away from the end  $S^2$  of shaft S by means of cam-piece  $r^2$  engaging with bar *r'*, while the pawl O' is freed and is pressed by spring  $r^3$  against the end  $S^2$ , and engages with

the notch *n'* when the wheel F is turned forward, but turns loosely thereon when the wheel is turned backward. If the hand is turned to the opposite side and placed in notch *m'*, the pawl O will engage with notch *n* in the end  $S^2$  of shaft S, with a similar result when the wheel F is revolved in the opposite direction, while the pawl O' will be withdrawn, and thus provide for the setting of the brakes when the car is going in the opposite direction. If the hand is placed in the center notch, *m*, both pawls will be withheld and the friction-wheel F left free to turn in either direction upon the shaft S without moving the brakes. The hand *t* which operates the cam-piece  $r^2$  is long, and projects beyond the hub of the wheel F, so it can be readily seen from either side of the car, and may be easily adjusted by reaching over the top of the car-wheel without the necessity of getting under the car.

It will be seen that this arrangement may be readily applied to either end of the truck or car and the several parts modified to suit the various styles of trucks and cars now in use without departing from the spirit of my invention.

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

1. The combination of the push-rod R, pipe P, having coiled spring N, the pivoted lever L, adjustable link *c*, bell-crank E, and friction-wheel F, substantially as and for the purpose described.

2. The combination, with the draw-bar coupling-link, brake-lever, and axle, of the push-rod R, having head R', pipe P, attached to said rod and having coiled spring N, the pivoted lever L, having eye *e*, the adjustable connecting-link *c*, bell-crank E, friction-wheel F, elastic band W, secured to the axle O', shaft S', gears G G', and brake-chain H, substantially as and for the purpose described.

3. The combination of the pawls O O', bars *rr*, cam-piece  $r^2$ , and spring  $r^3$  with ratchet end  $S^2$  of shaft S, substantially as described and shown.

4. The pawls O O', bars *rr*, having offsets *r'* *r'*, cam-piece  $r^2$ , and hand *t*, in combination with shaft S, substantially as shown and described.

5. The friction-wheel F, having box J, provided with cover T, and containing pawls O O', bars *rr*, cam-piece  $r^2$ , spring  $r^3$ , in combination with shaft S, substantially as described and shown.

6. The friction-wheel F, having box J and cover T, in combination with pawls O O', bars *rr*, cam-piece  $r^2$ , spring  $r^3$ , hand *t*, and notches *m m' m'*, substantially as described and shown.

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

AUGUST J. BERG.

Witnesses:

P. A. STALEY,  
FRANK JOHNSON.