W. L. CARD.
Automatic Car-Brake.

No. 200,602. Patented Feb. 26, 1878.

FIG. 1.

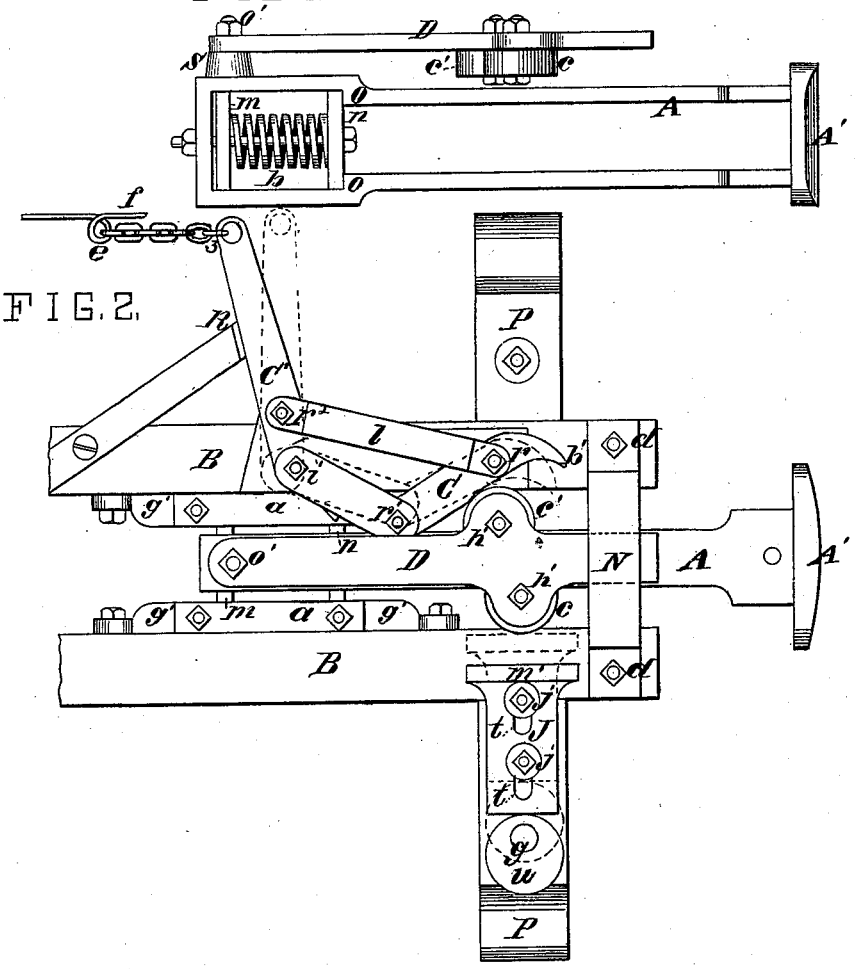

FIG. 2.

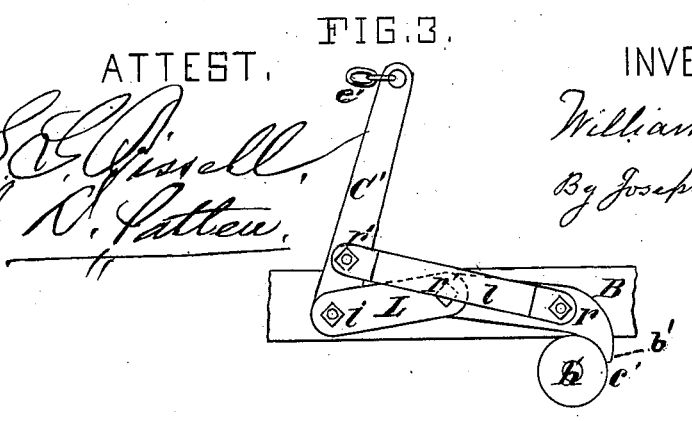

FIG. 3.

ATTEST.

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WILLIAM L. CARD, OF MOBERLY, MISSOURI.

IMPROVEMENT IN AUTOMATIC CAR-BRAKES.

Specification forming part of Letters Patent No. **200,602**, dated February 26, 1878; application filed October 15, 1877.

To all whom it may concern:

Be it known that I, WILLIAM L. CARD, of Moberly, in the county of Randolph and State of Missouri, have invented certain new and useful Improvements in Automatic Car-Brakes; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to apparatus which, by the inward or outward movement of the draw-bar of railway-cars, will automatically either set or release the brakes. The striking together of any two draw-heads of a train of cars having on my brakes will actuate certain automatic parts, and cause the brakes on the car ends which strike to be firmly set, while, on the other hand, the drawing apart of the cars to the link's length will cause the brakes to be released.

When my brake device is attached to a car or to a train of cars, if the apparatus is properly thrown into operative position, an onward movement of the locomotive will release all the brakes, and so they will remain as long as the train is under steady headway; but if a sudden stoppage or check of speed causes the locomotive to slacken up, the draw-heads on the various cars will strike together and force the draw-bars inward.

Now, by an attachment to the draw-bars, I cause their inward or outward movements to revolve a friction-wheel against a powerful toggle-lever, which, by its forcible straightening, in an instant sets the brakes.

On the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a side view of a draw-bar. Fig. 2 is an under plan, showing the various parts of the complete apparatus as attached to the draft-timbers and cross-sill timbers of a car. Fig. 3 is a detail view of parts of the same.

To the draw-bar A is secured, by the pivot-bolt O′, the sliding bar D. The post S serves to give it elevation and play above the draw-bar, to enable the friction-wheels *c c′* to act without hinderance.

Between the follower-plates *m n* is the commonly-used draft-spring *b*. The two shoulders *o o* upon the draw-bar receive the force applied in causing the car to back.

To the usual draft-timbers B and to cross-sill P are strongly bolted the draw-bar lugs *g′*, which are connected in pairs by straps *a*.

The draw-bar A reciprocates freely between the said lugs *g′*, and has its outer end supported by the plate N, which is held by bolts *d* to the timbers B. The reciprocal action of said draw-bar A is used to operate the car-brakes in the following manner: The toggle-lever C, which is firmly attached to the draft-timber B, is also attached to the brake-lever C′, and thereby to the brake-rod *f*, by the connecting-links *e′* and the loop *e*. The relaxation of said toggle-lever causes it to fall within the reciprocating plane of the said draw-bar when it is properly adjusted for action, with the result that, when the friction-wheels on the said sliding bar are moved by the abutment *m′* of the sliding plate J to the position indicated by the dotted lines, the backward movement of the draw-bar forcibly revolves the wheel *c′* against the toggle-lever, and by straightening it the lever C′ is thrown into the position shown by dotted lines, which effectually sets the brakes. On the end of one of the members C of the toggle-joint is formed the hook *b′*, which on the outward movement of the said draw-bar is pushed aside by the friction-wheel *c′*. The sliding plate J is bolted to the cross-sill P, and is moved in and out by half-turns of the cam *u* effected by the brakeman with a windlass on stem *g*. From the fixed pivots *r* and *r′* reaches the brace-strap *l* connecting the levers C and C′.

The inward moving of the plate J keeps the wheels *c* and *c′* in positive working relation to the toggle-lever C, and the functions of the lever C′ can be performed by the brakeman with the ordinary hand-brake when the said sliding plate J is moved outward.

The automatic operation of the device is as follows: When the force of the inward movement of the draw-bar is communicated to the

toggle-lever by the friction-wheel c', the brake-lever C′ is thrown forward, and transmits its movement to the brake-rod f through the link-connection shown, and to the brake-beams and brake-shoes.

To adjust the device for positive operation, the ordinary tension-nuts on the brake-rods should be tightened to a degree which will permit no slack to exist in the brake-rod or the links connecting them with the brake-lever C′. Otherwise the slack may be so great as to allow the said lever C′ to expend the entire sweep imparted to it by the toggle-joint, without causing the brake-rods and brake-beams to move sufficiently to insure the setting of the brakes.

The adjustment of the sliding plate J can be attended to on the top of or from the side of the car, as a windlass on the cam-stem g may be placed. The cam u can be turned either to the right or left, with the same result that one half-turn of the cam either sets the plate J in or a reverse half-turn allows the wheel C to push it out of the path of movement of the draw-bar.

Having thus described my brake apparatus and the operation of its individual parts, I hereby disclaim originality in the production of automatic movements of car-brakes through the reciprocating action of a railway draw-bar.

What I claim is—

1. The combination, with the draw-bar of a railway-car, of the sliding bar D, having attached thereto the friction-wheels c c', as described.

2. The toggle-lever C, with hook b' and brake-lever C′, in combination with brake-rod f through link-connections e and e'.

3. The combination of the cam u, stem g, and the plate J, having slots t t, the raised guide-track m', and guide-pins j, for the purpose set forth.

4. The combination, with the car-timbers B and cross-sill P, of the toggle-lever C, connecting with and operating a car-brake through the intermediate brake-lever C′, connecting-links e', loop e, and brake-rod f, as and for the purpose described.

5. The combination of the draw-bar A, sliding bar D, and friction-wheel c with the sliding plate J, secured to cross-sill P by guide-pins j, and movable by stem g and cam u, as and for the purpose set forth.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

WILLIAM L. CARD.

Witnesses:

S. S. BISSELL,

JOSEPH E. WARE.