

(No Model.)

J. B. BRAY.  
CAR BRAKE.

No. 256,635.

Patented Apr. 18, 1882.

Fig. 1.

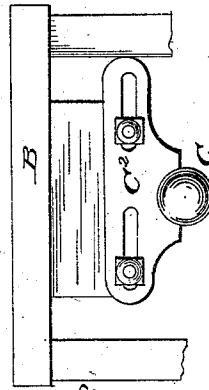
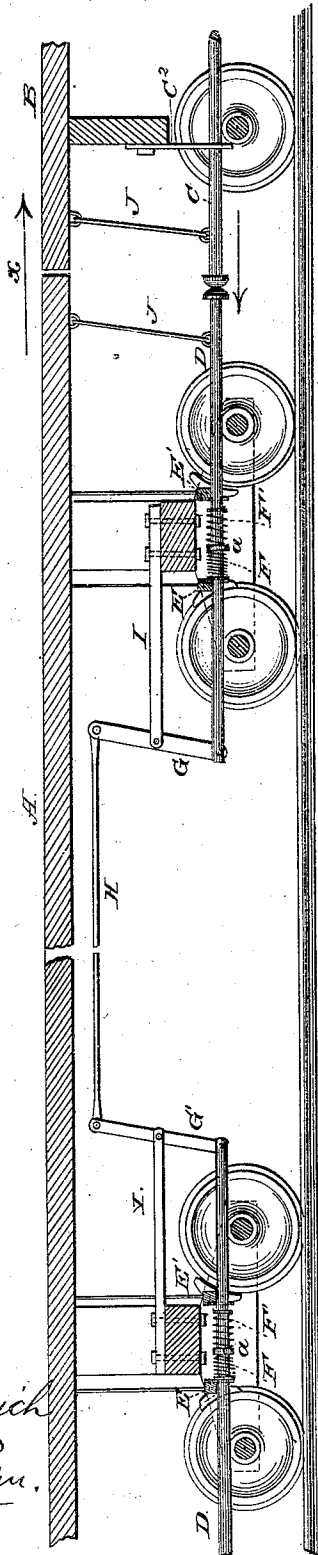


Fig. 2.

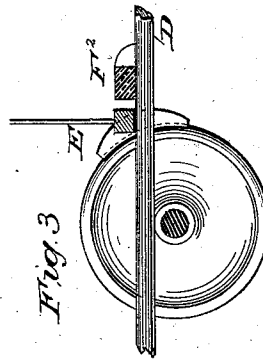


Fig. 3.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES B. BRAY, OF WAVERLY, NEW YORK.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 256,635, dated April 18, 1882.

Application filed January 25, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES B. BRAY, of Waverly, in the county of Tioga and State of New York, have invented a new and Improved Car-Brake; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical longitudinal section of a car and the rear portion of the tender. Fig. 2 is a rear end view of the tender. Fig. 3 is a detail, showing a modified arrangement of spring for applying the brakes.

My invention relates to an improvement in car-brakes of that general form in which all the brakes of the train are applied from the locomotive by means of a steam-piston acting upon a buffer, which abuts against a corresponding buffer of the adjacent car, and each of which cars is provided with a continuous buffer-rod extending the whole length of the car, and terminating at each end in heads that act upon the adjacent buffers of the next car, so that all of the brakes are simultaneously applied from the same point.

My improvement in this general form of brake consists in running short stiff buffer-rods through the trucks at each end of the car and connecting these short buffer-rods directly to the brake-beams by springs, then joining the two inner ends of the short buffer-rods to form a continuous connection by means of a traction-rod running from truck to truck of the car, which traction-rod is at each outer end connected to the inner ends of the buffer-rods through a lever, all as hereinafter more fully described.

In the drawings, A represents one of the cars of the train, and B represents the locomotive or tender, upon which is located a buffer-rod, C, that is projected to the rear (when the brakes are to be applied) by means of a steam-piston on the end of the same fitting within a cylinder whose inlet-valves for steam are under the control of the engineer. Each of the cars of the train is fitted with the same appliance, which I will now proceed to describe.

D D are short stiff buffer-rods passing

through the trucks at each end of the car, and made stout enough to resist bending or doubling up under the compressive strain to which they are subjected. These buffer-rods are provided with buffer-heads at their outer ends to receive the impact of the adjacent buffers, and the power applied to them is transmitted directly to the brake-beams E E' E' through the medium of springs F F' F', interposed between guide-plates on the brake-beams, and a rigid collar, *a*, on each of the buffer-rods.

Now, it will be seen that if both the buffer-rods were one and the same, extending the full length of the car, the strain on it being a compressive strain, it would be certain to spring or double or bend up unless it were made so heavy as to be impracticable. I therefore discontinue the stout buffer-rods between the trucks and connect them by levers G G' and a relatively small traction-rod, H. These levers I fulcrum upon a bar, I, extending from the truck-frame, and they serve to change the character of the strain between the buffer-rods proper from a compressive strain into a tensile strain or traction, which permits me to use very light iron between the two buffer-rods and still connect the latter by a practically continuous connection, which causes the driving in of one buffer-head to effect a protrusion of the other or rear buffer-head of the same car, and this transmits a similar effect to the next car in the rear.

Now, it will be seen when the cars are moving in the direction indicated by the arrow *x* and a strain from the locomotive-buffer is brought against the front buffer of the next car the front buffer-rod moves to the rear and applies, through its collar *a* and the spring F, a strain upon the rear brake-beam, E, of the front truck; and the movement being transmitted through levers G G' and rod H to the rear buffer-rod, it applies a similar strain to the rear brake-beam, E, of the rear truck through its spring F. When the cars are moving in the opposite direction and the buffer-rods are projected in the opposite direction, then their collars *a* act through the other springs, F' F', and the other brake-beams, E' E', are applied.

The object of the springs F F' is to permit the strain transmitted to be equally distrib-

uted to the front and back trucks. These springs do not bear always against the brake-beams, but are removed therefrom when the brakes are not applied a distance equal to the distance between the buffers of two cars.

To hold the outer end of the buffer-rods in proper position they are swung by rods J to the bottom of the car.

In modifying my invention I may not use the spiral form of springs shown in Fig. 1 and run the buffer-rod through guide-plates on the brake-beams; but I may in some cases run the buffer-rod beneath the brake-beams, as in Fig. 3, and interpose a spring, F<sup>2</sup>, of rubber or other material, between the brake-bar and a lug or abutment on said buffer-rod. I may also locate the levers G G' between the two pairs of wheels of each truck, instead of back of the trucks, as shown.

In defining my invention more clearly still, I would state that I do not claim broadly connecting the short independent buffer-rods by a traction-rod, as I am aware that this has been done heretofore by a chain and pulley connecting the buffer-rods and the traction rod, and I claim this feature only when the buffer-rods have a direct bearing against the brake-beams through springs, as shown and described.

To prevent the locomotive from applying the brakes in backing, the buffer C of the engine or tender is arranged in a bearing or hanger-plate, C<sup>2</sup>, that is made adjustable transversely to the car, and is connected with a hand-lever or other suitable shifting mechanism, whereby the said buffer C may be thrown out of line with the buffers on the car whenever it becomes necessary to back the train.

Instead of using my improved brake in connection with a steam-cylinder on the engine, I may employ any other mechanical means for projecting the buffer-rod that may be found desirable.

Among other advantages of my invention may be mentioned the fact that its use does not require any alteration of or injury to the common appliances already in use.

Having thus described my invention, what I claim as new is—

1. In a car-brake in which the brakes are applied by pressure upon a buffer-rod transmitted from the engine, the combination of short buffer-rods extending through the trucks, the brake-beams having a direct connection with the buffer-rods through springs, a traction-rod extending from truck to truck for transmitting the movement of one buffer to the other, and levers for connecting the buffer-rods to the traction-rod, as and for the purpose described.

2. The combination of the brake-beams, the short buffer-rods extending through the trucks and passing through a guide attached to the brake-beams and having rigid collars *a*, spiral springs arranged between the collars and the brake-beams, the levers G G', and the traction-rod H, as and for the purpose described.

3. The combination of the brake-beams, the short buffer-rods with collars *a*, extending through the trucks and passing through a guide attached to the brake-beams, the springs arranged between the collar *a* and the brake-beams, the fulcrum-bar I, attached to the truck-beam, the levers G G', and traction-rod H, substantially as shown and described.

The above specification of my invention signed by me in the presence of two subscribing witnesses.

JAMES B. BRAY.

Witnesses:

J. F. SHOEMAKER,  
EDWD. W. BYRN.