

(No Model.)

2 Sheets—Sheet 1.

J. L. OWEN.
CAR BRAKE.

No. 454,224.

Patented June 16, 1891.

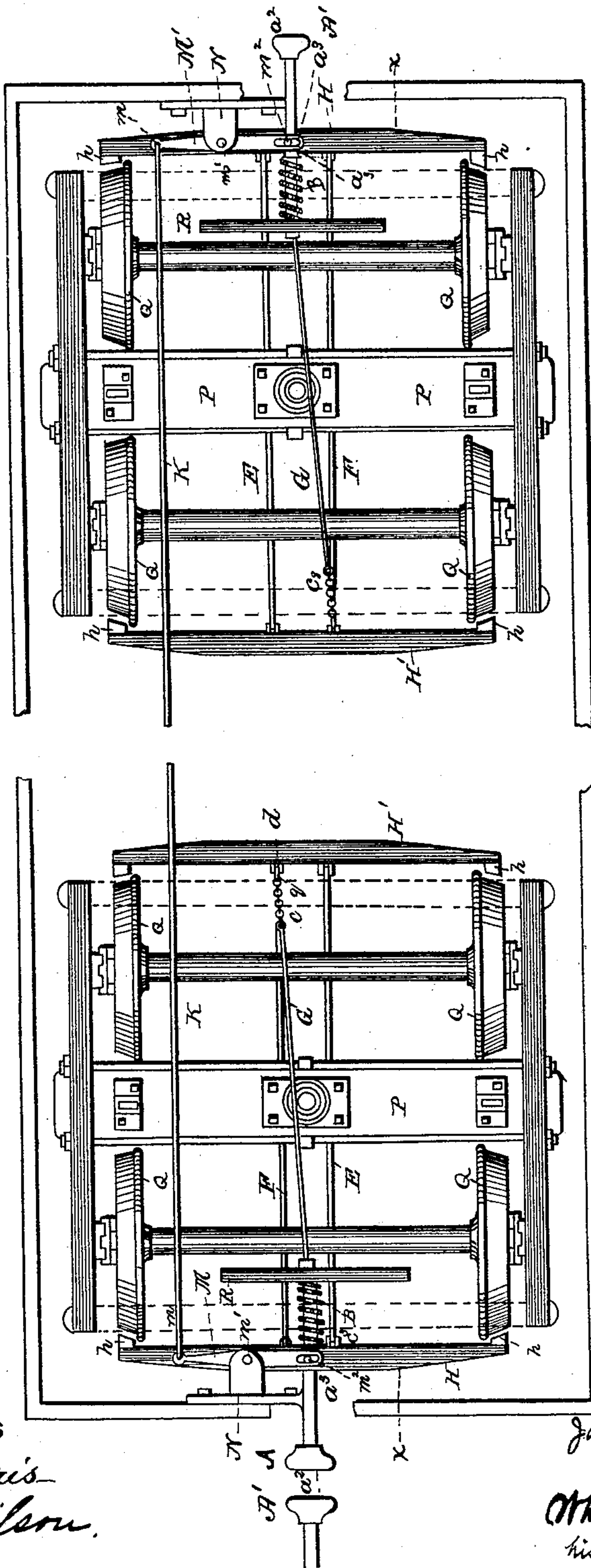


Fig. 1.

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his Attorneys

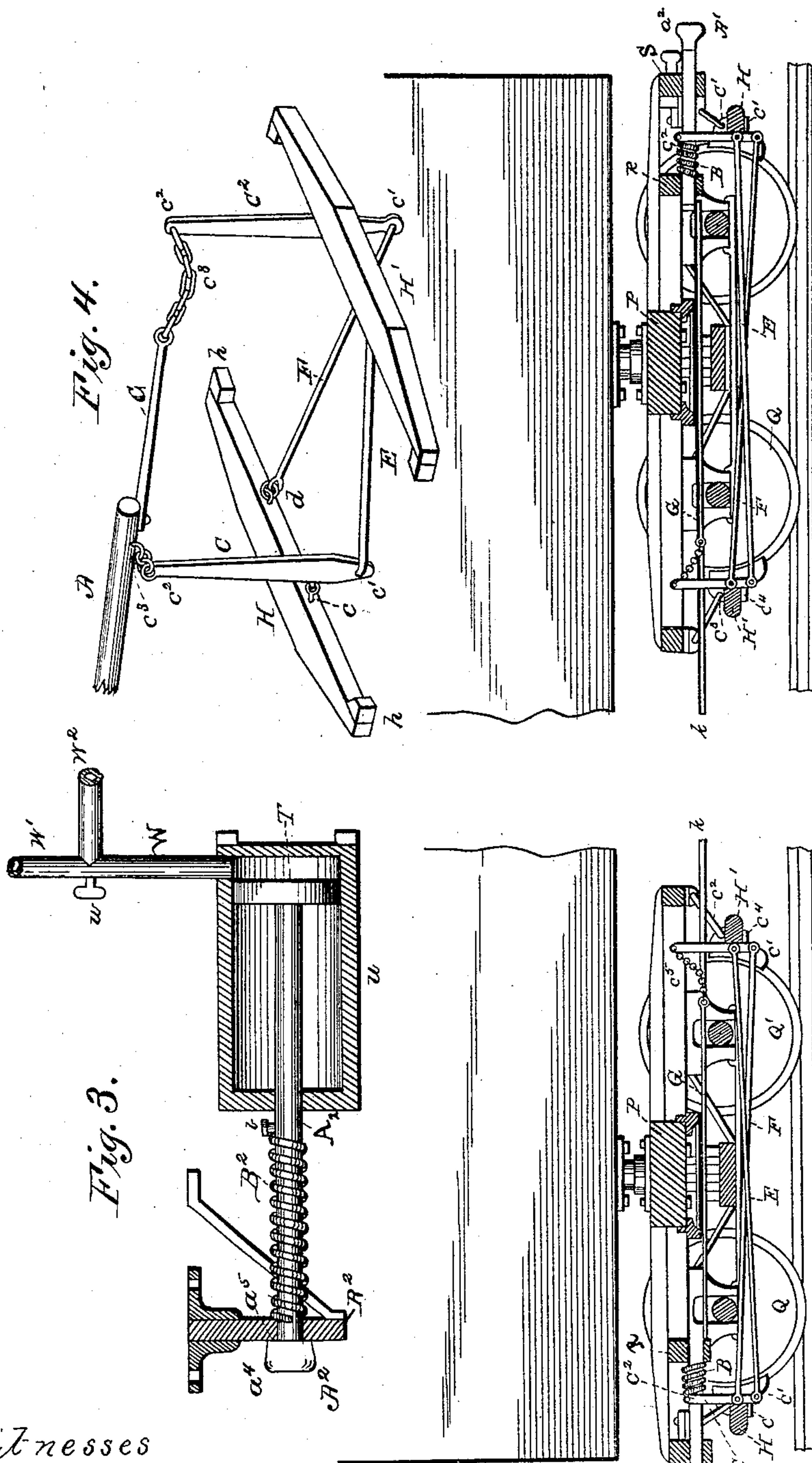
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UNITED STATES PATENT OFFICE.

JAMES L. OWEN, OF CUMMINGS, SOUTH CAROLINA.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 454,224, dated June 16, 1891.

Application filed October 10, 1890. Serial No. 367,749. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. OWEN, a citizen of the United States, residing at Cummings, in the county of Hampton and State of South Carolina, have invented certain new and useful Improvements in Railway Friction-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to car-brakes, and has for its object the providing of a suitable friction-brake which, operated from the locomotive, may be simultaneously and instantaneously shut down on all the cars in the train. In order to accomplish this, I have a series of push-bars, one for each truck, beneath the cars, all capable of being actuated by a push-rod under the tender of the locomotive. Each push-bar applies brakes to the wheels on its own truck, and also transmits its motion by means of a side rod and appropriate mechanism to the push-bar at the other end of the car, which in turn applies brakes to the wheels of its truck and passes the motion along to the push-bar under the next car.

My invention will be understood after reference to the accompanying drawings, wherein the same parts are indicated by the same letters.

Figure 1 represents a plan view of my improved brakes on the two trucks of a car, the car-body and the couplers being removed to better illustrate my invention. Fig. 2 represents a vertical section of Fig. 1, made by the plane $x x$. Fig. 3 shows a device attached to the locomotive for putting the various push-bars in motion. Fig. 4 is a perspective view of two shoe-pieces with my levers and rods attached.

A and A' are two short push-bars under each end of the car and lying beneath the coupler, which latter is not shown in Fig. 1. Each push-bar moves in appropriate guides R and S, Fig. 2, and is held in its normal position by the spring B. This spring abuts against the cross-timber and guide R, and also against a shoulder a on the push-bar, thus holding the said shoulder normally at a fixed

distance from R. The lever C is attached to the push-rod by a few links of chain c^3 to allow for slack in reversing the motion of the push-bar. The lever is pivoted to the shoe-piece H at c , and its shorter arm engages in a rod E, shackled to the opposite shoe-piece H' of the truck. These shoe-pieces are normally kept clear of the wheels of the car by springs; but as this is not a part of my invention the said springs are not shown. To the bottom of the push-bar is shackled or bolted another rod G, secured by a few links of chain c^8 to the lever C², pivoted at c^4 . The lower end of this lever engages in a rod F, whose opposite end d , Fig. 3, is shackled to the opposite shoe H of the same truck. The motion of the push-bars is transmitted from truck to truck by means of the levers M and M', secured to the push-bars A and A', respectively, by means of the bolt a^3 and slot m^2 . These levers are pivoted at m' and engage at their outer ends in the side rod K.

Under the tender of the locomotive I have a brake-cylinder U, whose piston-rod A² is the first push-bar. This push-bar has a shoulder a^5 in the head a^4 , which engages the guide R² and limits the backward motion of the push-bar. This push-bar is normally held backward by the spring B², whose end b is secured to the push-bar. At the far end of the cylinder I have a large steam-pipe W, with two branches W' and W² leading to the steam-drum on the boiler and to the throttle, respectively.

w is an independent valve for turning on steam from the boiler direct should the automatic mechanism at the throttle get out of order or should it be desired to apply the brakes independently for any reason.

The throttle-valve is arranged so that when steam is shut off from the engines it is automatically turned onto the brake-cylinder, and when turned onto the engines it is cut off from the brake-cylinder, which is then opened to the air, thus allowing any steam already in that cylinder to escape. The escape for the steam from this cylinder, whether let in by the throttle or the independent supply-valve, and the mechanisms of the valves, not being original with me and being readily capable

of construction by any skilled mechanic, are not described in my invention.

Now, supposing the locomotive to be on the right and it be desired to stop the train, by closing the throttle steam is admitted through W^2 to U , which, pressing on the piston T , shoves the push-bar A^2 against the spring B^2 . The head a^1 strikes the head a^2 of the push-bar A' and pushes that bar back. A' drags back the lever C' , pivoted at c , and by the rod E draws the two shoe-pieces H and H' together, applying the brakes h to the wheels Q and Q' of the truck. By means of the lever M' and side rod K the end m of the lever M is moved to the right and the push-bar A is shoved out to the left. This push-bar passes the motion along to the push-bar under that end of the next car, while at the same time it applies the brakes to the wheels under its own truck, for as it moves to the left it drags the rod G , which pulls the upper arm of the lever C^2 , and by means of the rod F draws the two shoe-pieces H and H' toward each other, thus applying the brakes h .

It will be seen that it is immaterial which end of the car is next the locomotive. Thus if the locomotive be to the left then the push-bars will move from left to right, and the push-bar A will drag the lever C and by means of the rod E , pivoted at its lower end, will bring the two shoe-pieces H and H' of the left truck closer together, while the levers M and M' and side bar K will push out the push-bar A' , which will operate the rod G , lever C^3 , and rod F , and thus apply the brakes to the second truck of the car, while at the same time the push-bar A' being thrust out will pass the motion of the push-rods along to the next car in the train, and so on.

When steam is cut off from the brake-cylinder, the springs B and B^2 will draw the push-bars back to their normal position and the brakes will be taken off.

It will be readily seen that my invention is applicable to all kinds of steam-railway cars, whether passenger or freight, and, with modifications in the motive power for the push-rod (such as using compressed air or other gas) under the tender, is equally applicable to electric cars, cable cars, or other vehicles running in continuous trains.

I do not wish to limit myself to the devices herein described and shown, as many modifications will readily suggest themselves to a skilled mechanic which can be used without departing from the spirit of my invention.

I do not claim, broadly, either the use of a push-rod for applying brakes to railway-cars or applying the brakes from the locomotive or tender, but

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

1. In a railway-train, the combination of two push-bars under each car actuated from the locomotive, with a system of levers attached

to said push-bars for applying brakes to the wheels of the car, and a side rod connected by levers to each push-bar, by which the motion of said push-bar may be transmitted to the other push-bars in the train, substantially as described.

2. In a railway-train, the combination of a push-bar attached to each truck and actuated from the locomotive, with a system of levers so arranged as to apply the brakes when the push-bar is forced in either direction, and a side rod connected by levers to each push-bar, by which the motion of each push-bar may be transmitted to the push-bar on the other truck of the car and from it to the other push-bars in the train, as herein set forth.

3. In a railway-train, the combination of a push-bar beneath the tender, impelled by compressed gas, with two push-bars A and A' at each end of the car, respectively, the levers M and M' and side rod K for transmitting the motion from one push-bar to the other and to the other push-bars throughout the train, the levers C and C' , secured to the push-bars A and A' , respectively, with the links of chain c^3 and pivoted on the shoe-pieces H and H' , the rods E and E' , connecting the lower ends of said levers with the opposite shoe-pieces H' and H , the levers C^2 and C^3 , pivoted to the said shoe-pieces H' and H and connected to their respective push-bars by means of the rods C' and chains c^8 , their lower ends being connected to the shoe-pieces H and H' by the rods F , and the brakes h and h' , substantially as described.

4. In a railway-train, the combination of a push-bar beneath the tender, impelled by compressed gas, with two push-bars A and A' at each end of the car, respectively, said push-bars being normally held in mid-position by means of the springs B , the levers M and M' and side rod K for transmitting the motion from one push-bar to the other and to the other push-bars throughout the train, the levers C and C' , secured to the push-bars A and A' , respectively, with the links of chain c^3 and pivoted on the shoe-pieces H and H' , the rods E and E' , connecting the lower ends of said levers with the opposite shoe-pieces H' and H , the levers C^2 and C^3 , pivoted to the said shoe-pieces H' and H and connected to their respective push-bars by means of the rods G' and chains c^8 , their lower ends being connected to the shoe-pieces H' and H by the rods F , and the brakes h and h' , substantially as described.

5. In a railway-train, the combination of a push-bar attached to each truck and actuated by a push-bar forming part of or connected to the piston-rod of the cylinder beneath the tender, the piston being impelled by compressed air or any other compressed gas suitably admitted and exhausted, with a system of levers so arranged as to apply the brakes

when the push-bar is forced in either direction, and a side rod connected by levers to each push-bar, by which the motion of each push-bar may be transmitted to the push-bar
5 on the other truck of the car and from it to the other push-bars in the train, as herein set forth.

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

JAMES L. OWEN.

Witnesses:

BENJ. P. CUTTINO,
WM. R. HAMMOND.