(No Model.)

R. A. BURCH & A. B. WINFREE.

CAR BRAKE.

No. 456,398. Patented July 21, 1891.

Fig. 1.

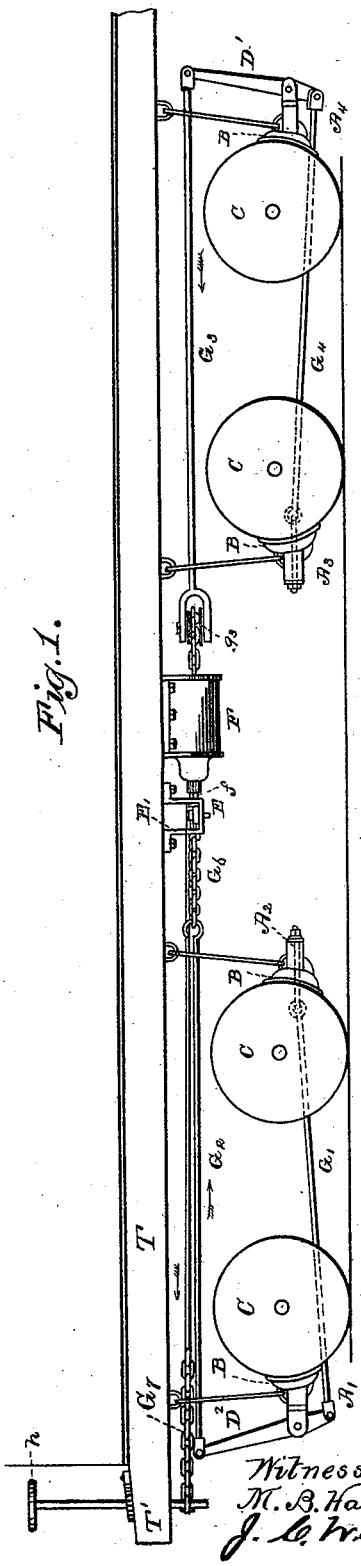
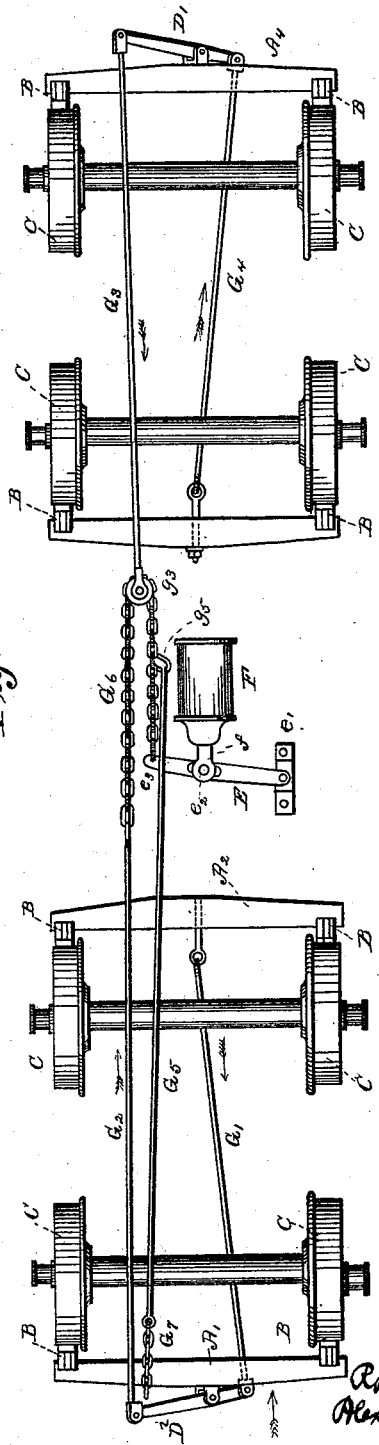


Fig. 2.



Witnesses
M. B. Harris
J. C. Wilson

Inventor.
Robert A. Burch
Alexander B. Winfree
by
Whitman & Wilkinson
Attorneys

UNITED STATES PATENT OFFICE.

ROBERT A. BURCH AND ALEXANDER B. WINFREE, OF PADUCAH, KENTUCKY.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 456,398, dated July 21, 1891.

Application filed April 20, 1891. Serial No. 389,674. (No model.)

To all whom it may concern:

Be it known that we, ROBERT A. BURCH and ALEXANDER B. WINFREE, citizens of the United States, residing at Paducah, in the county of McCracken and State of Kentucky, have invented certain new and useful Improvements in Brakes for Railway-Cars; and we 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.

Our invention relates to friction-brakes for railway-cars; and it consists of certain devices herein described and claimed.

Reference is had to the accompanying drawings, wherein the same parts are indicated by the same letters.

Figure 1 represents a side elevation of the lower part of a car fitted with our device, parts of the car-fittings being removed. Fig. 2 represents a plan view of the same, the car-body being removed.

A′, A^2, A^3, and A^4 represent the brake-beams; B, the brake-shoes; C, the car-wheels; D and D′, the brake-levers attached to the outer brake-beams on each car.

E represents a lever supported at one end in the bracket E′ and pivoted at the other e' beneath the car. e^2 represents a slot in the said lever to which the piston f of the brake-cylinder F is attached. This piston may be pushed out by the admission of compressed air or steam into the cylinder F.

G′, G^2, G^3, G^4, and G^5 are rods, while G^6 and G^7 are chains. The chain G^6 may be attached to either of the rods G^2 or G^3 and passes over a pulley upon the opposite rod. We have shown it attached to the rod G^2, passing over the pulley g^3 on the rod G^3, and having its other end secured to the end e^3 of the lever E. The rod G^5 is also attached to the said chain at any convenient place g^5, preferably about half-way between g^3 and e^3, while the chain G^7 connects the other end of the rod to the brake-staff H, which is actuated by the hand-wheel h.

T represents one of the bottom timbers of the car, and T′ the platforms.

The operation of our device is as follows: If it be desired to work the brakes from the locomotive, air or steam is admitted to the brake-cylinder F by means of suitable flexible connections, (not shown,) such as are now generally in use. If it be desired to work the brakes by hand, turn the hand-wheel h and brake-staff H. In either case the chain G^6 is pulled around the pulley g^3, and the rods G^2 and G′ and G^3 and G^4 are drawn in the direction of the arrows, thereby pressing the brake-shoes B against the peripheries of the wheels C. The brakes are withdrawn by the usual springs (not shown) when the air or steam in the cylinder F is allowed to escape or when the brake-staff is unwound. By having the levers D and D′ pivoted at the center of their brake-beams and the rods G′ and G^4 attached to the center of the opposite beams, respectively, the pressure upon each of the four brake-shoes at the same end of the car is made uniform, and by our combination of the hand-wheel and the brake-cylinder attachments we provide a simple and effective means of applying the brakes whether the car be coupled up in a train or be detached from the locomotive. Moreover, by the extreme simplicity of our device the lost motion and loss from friction in actuating the various parts are made very small.

Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In a system of friction-brakes for railway-cars, the combination, with the brake-beams A′, A^2, A^3 and A^4, having brake-shoes B, of rods G′ and G^4, connected to the inner brake-beams, the levers D′ and D^2, connected to the outer brake-beams and to the said rods, the rods G^2 and G^3, connected at their outer ends to the said levers, a chain and pulley connecting said rods at their inner ends, and means for pulling on said chain and applying said brake-shoes to the wheels of the car, substantially as described.

2. In a system of friction-brakes for railway-cars, the combination, with the brake-beams A′, A,^{2} A^3 and A^4, having brake-shoes B, of rods G′ and G^4, connected to the inner brake-beams, the levers D′ and D^2, connected to the outer brake-beams and to the said rods, the rods G^2 and G^3, connected at their outer ends to the said levers, a chain and pulley connecting said rods at their inner ends, a lever pivoted beneath the car and connected

to the said chain, a piston attached to said lever, and a cylinder inclosing said piston, with means for admitting air or steam into said cylinder, substantially as described.

3. In a system of friction-brakes for railway-cars, the combination, with the brake-beams A′, A^2, A^3 and A^4, having brake-shoes B, of rods G′ and G^4, connected to the inner brake-beams, the levers D′ and D^2, connected to the outer brake-beams and to the said rods, the rods G^2 and G^3, connected at their outer ends to the said levers, a chain and pulley connecting said rods at their inner ends, a rod leading from the said chain and pulley to one end of the car, a chain attached to the said rod, and a brake-staff for winding up said chain and applying the brakes by hand, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

ROBERT A. BURCH.
ALEXANDER B. WINFREE.

Witnesses:
R. P. STANLEY,
F. G. RUDOLPH.