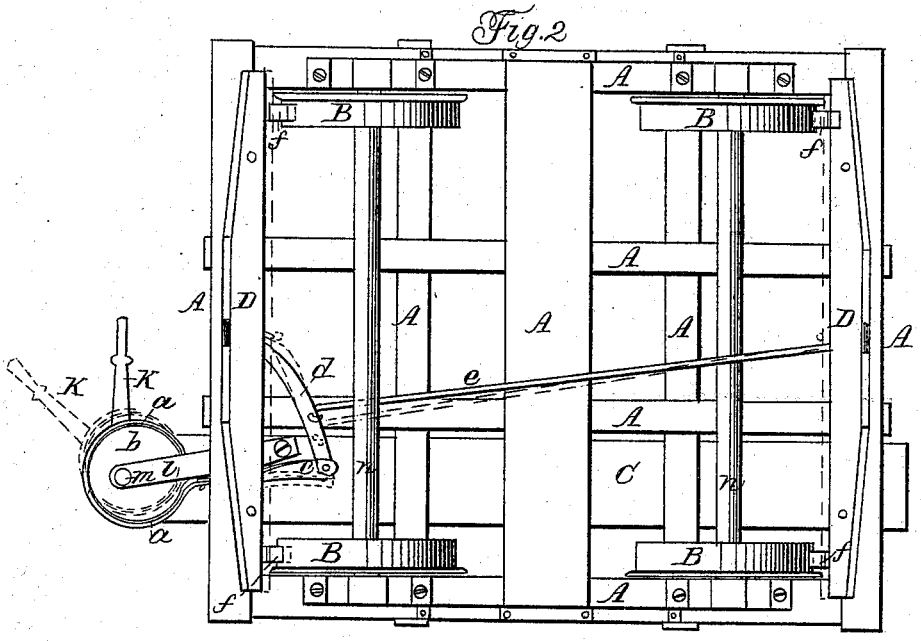
F. E. CANDA.

Car Brake.

No. 47,700. Patented May 16, 1865.

Fig. 2



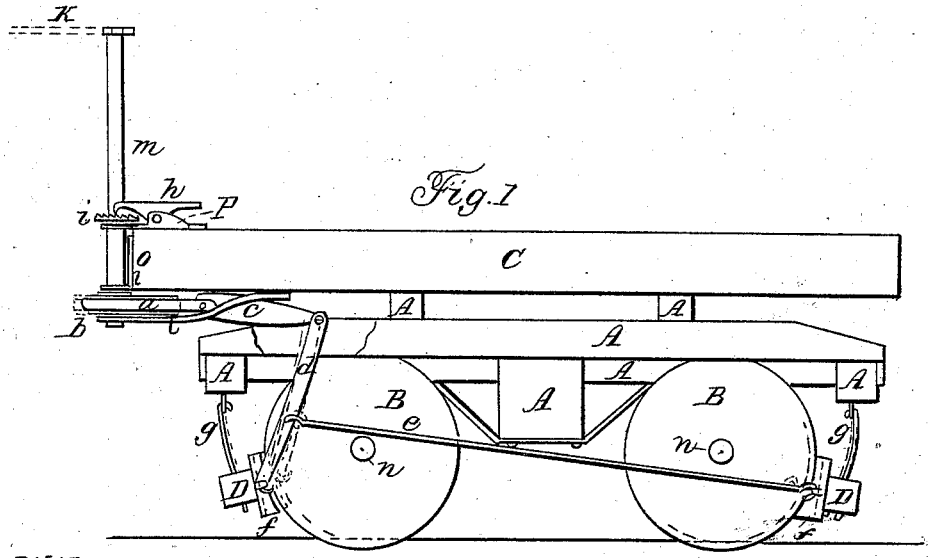




Fig. 1

Witnesses

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# UNITED STATES PATENT OFFICE.

FERDINAND E. CANDA, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN RAILROAD AIR-BRAKES.

Specification forming part of Letters Patent No. **47,700**, dated May 16, 1865.

*To all whom it may concern:*

Be it known that I, FERDINAND E. CANDA, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Mode of Operating Brakes to Railway-Car Wheels; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section, and Fig. 2 a bottom view.

Like letters refer to similar parts in both of the figures.

The nature of my invention consists in applying an eccentric or cam wheel to the lower end of the windlass or shaft by which car-brakes are operated; in providing such eccentric or cam wheel with a band for distributing the pressure, and in combining this device with the other parts of a car-brake.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The truck-frame A A, &c., the wheels B, the brake-bars D, the rubbers *f*, the rods *c* and *e*, and the lever *d* are all made in any of the known forms, as the design of improvement is that it may be used in connection with any of the known forms of trucks or brakes.

The bar C is designed only to show a portion of the bottom of the car-box, and used simply for the purpose of attaching the windlass so that the model can be operated. I attach this windlass in any of the known forms, and do not confine myself to the form shown at *l*, *o*, and *p*.

The windlass—where my invention principally applies—is made of iron or other suitable material. At the lower end I attach the eccentric wheel or cam *b*, which is made about twelve inches in diameter, and attached to the shaft *m* about three inches from the center, so as to make a variation of about six inches at any given point by turning half-way around. In operating the brake it will not usually be necessary to turn the lever *k* more than one-fourth of the distance around. I also make a groove in the periphery of the eccentric wheel or cam *b*, in which I fit the belt *a*. This belt is made of wrought-iron or other suitable material, and made to fit nearly the entire circumference of the eccentric, as shown, and attached to the rod *c*. This belt may be made of cast-iron by making it in pieces or sections, and it will be obvious that it need not fit the entire circumference of the eccentric wheel *b*. The windlass could also be made to operate by fastening the belt or a chain at a point on the wheel *b*; but in that case it would have no further effect than a crank. By using the eccentric and belt the draft or strain is distributed and sustained on both sides of the eccentric, one side letting down while the other is taking up, so that by applying the same amount of power to the lever *k*, I can get a much stronger pressure on the brakes than could be obtained by the same arrangement without a sliding belt. Another advantage which I obtain by this arrangement is the rapidity with which it can be operated, as its full strength can be brought to bear by turning the lever *k* half around. This lever *k* can be made of a single bar, as shown, or made in the form of a wheel, as may be desired.

The ratchet *i* and pawl *h* are made and attached so that in braking the brake is held by the pawl in position without being set or operated by the brakeman. The brake is unfastened by placing the foot on the rear end of the pawl *h*.

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

1. The belt *a*, when used for distributing the pressure on the wheel *b*.

2. The combination of the eccentric wheel or cam *b* and the belt *a* with the connecting rod or chain *c*.

3. The arrangement of the shaft *m*, eccentric wheel or cam *b*, belt *a*, and the ratchet and pawl *i* and *h*, all being arranged and operating substantially as set forth and specified.

FERDINAND E. CANDA.

Witnesses:
L. L. BOND,
G. N. SHEARS.