

S. D. CARPENTER.
MAGNETIC CAR BRAKE.

No. 19,132.

Patented Jan. 19, 1858.

Fig. 1.

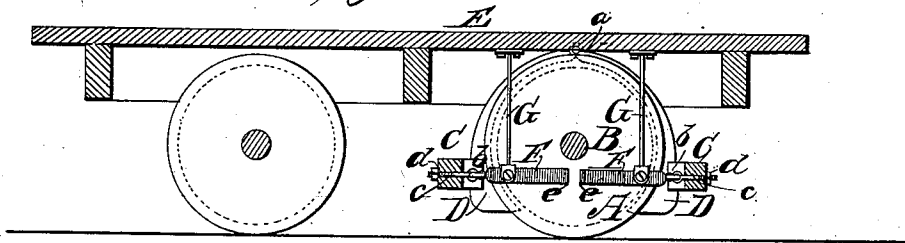
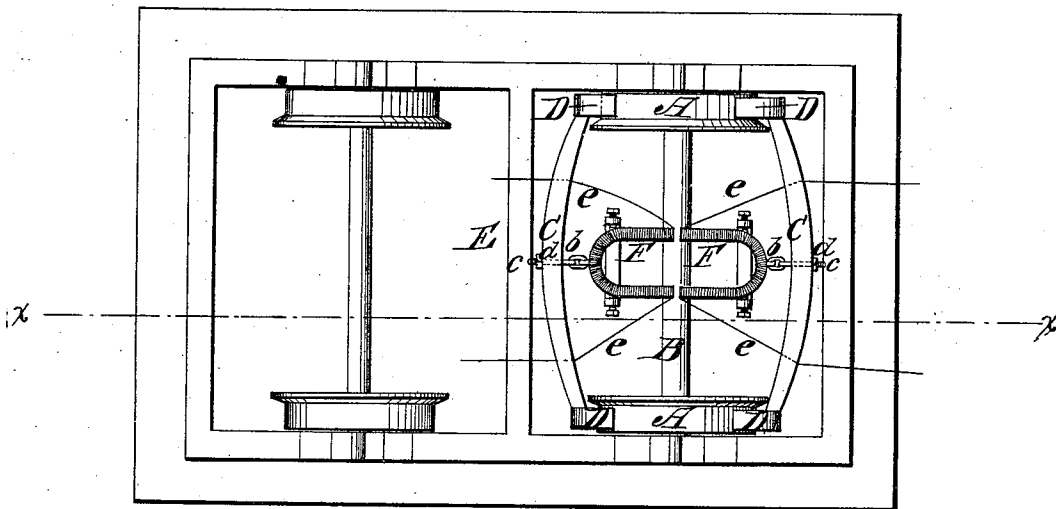


Fig. 2.



UNITED STATES PATENT OFFICE.

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IMPROVED APPLICATION OF ELECTRO-MAGNETIC BATTERIES TO CAR-BRAKES.

Specification forming part of Letters Patent No. 19,132, dated January 19, 1858.

To all whom it may concern:

Be it known that I, S. D. CARPENTER, of Madison, in the county of Dane and State of Wisconsin, have invented a new and useful Improvement in Magnetic Car-Brakes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section of a brake with my improvement applied to it. *xx*, Fig. 2, shows the plane of section. Fig. 2 is an inverted plan of the same.

Similar letters of reference indicate corresponding parts in the two figures.

This invention consists in attaching two electro-magnets to the shoe-bars of each pair of wheels, one to each bar, as hereinafter shown, whereby the power will be applied in the most direct manner, and the whole arrangement rendered extremely simple and efficacious.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A A represent a pair of wheels of a car-truck. B is the axle.

C C are two shoe-bars, which are placed at opposite sides of the wheels, and are each provided with a shoe, D, at each end. From this description it will be seen that each wheel, when the brakes are applied, is acted upon by two shoes, D.

The shoe-bars C C may be suspended in the usual way, or the upper ends of the shoes D of each wheel may be connected by a joint, *a*, and attached to the upper part of the truck E, as shown clearly in Fig. 1.

To the center of each shoe-bar C an electro-magnet, F, of horse-shoe form is attached. These magnets are connected with the shoe-bars by means of a link, *b*, and screw-bolt, *c*, the latter passing through the bars, and having a nut, *d*, on their outer ends. (See Figs. 1 and 2. The magnets are also attached to pendent springs G G, the upper ends being attached to the upper part of truck E. The springs G G are merely flat steel strips sufficiently elastic to allow the magnets, when the circuit is closed, to meet so as to apply the brakes or press the shoes D against the treads of the wheels. The

springs at the same time have sufficient elasticity to throw back the magnets when the circuit is open or broken.

The wires *e* of the magnets are connected with a battery placed on the locomotive at any convenient spot, so that the circuit may be readily opened and closed. When the circuit is closed the inner ends of the two magnets will approach each other and meet, the shoes D by this movement being pressed against the peripheries or treads of the wheels, and producing the necessary friction to stop the cars.

The pressure of the shoes D may be regulated as desired by adjusting the magnets in this wise; by turning the nuts *e* it will be seen that a greater or less distance may be made between the inner ends of the magnets. When this distance is small the pressure of the shoes against the wheels will be slight; when the distance is greater the pressure, of course, will be greater, for the inner ends of the magnets will meet if the distance be not too great, and consequently the pressure must be increased.

This arrangement, it will be seen, is very simple, and the power is applied in a very direct manner, levers, clutches, and various other devices frequently employed being dispensed with. The efficacy of the brake is also augmented in consequence of having two shoes to each wheel.

Although two electro-magnets are herein shown and described, still one only may be used, a magnet being attached to one shoe-bar and an armature to the other. I prefer, however, to use two, one to each shoe-bar, as shown and described.

I am aware that car-brakes have been operated by electro-magnets connected with proper batteries and arranged in various ways, but I am not aware that magnets have been applied directly to the shoe-bars, as herein shown, so that the magnets are rendered capable of adjustment and the pressure of the shoes allowed to be graduated thereby.

I do not claim, therefore, broadly and irrespective of the arrangement herein shown, the application of electro-magnets to car-brakes for operating the same; but

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

1. The employment or use of electro-magnets, one or more, attached directly to the bars C and springs G G, for the purpose set forth.

2. The particular manner of attaching the magnets to the shoe-bars, viz., by means of the links *b* and screw-bolts *c*, substantially as

shown, whereby the magnets may be adjusted for the purpose of graduating the pressure of the shoes upon the wheels when the circuit is closed.

S. D. CARPENTER.

Witnesses:

W. TUSCH,

J. W. COOMBS.