

(No Model.)

E. B. HESS.

ELECTRO MAGNETIC CAR BRAKE.

No. 324,470.

Patented Aug. 18, 1885.

Fig 1

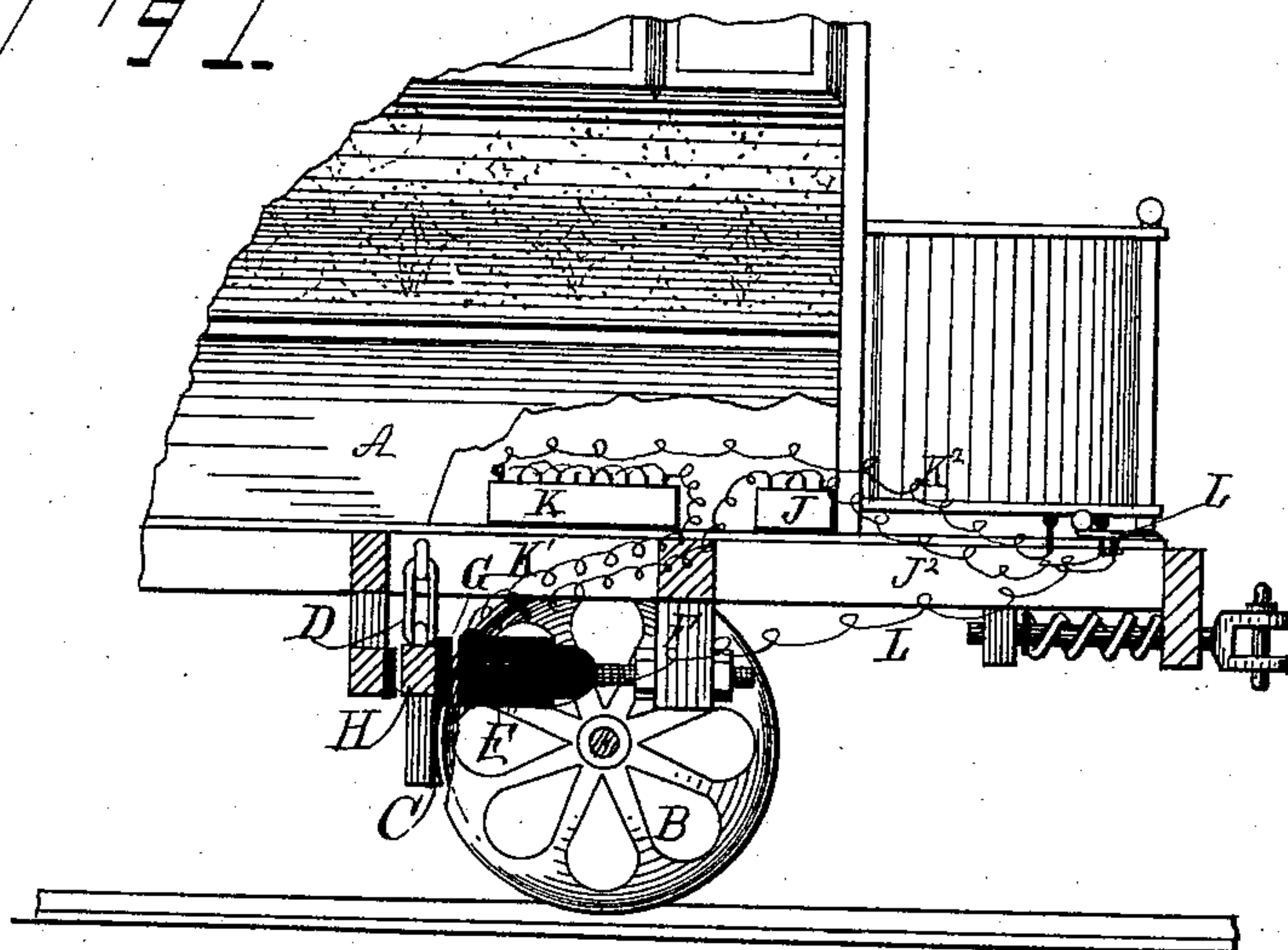


Fig 2

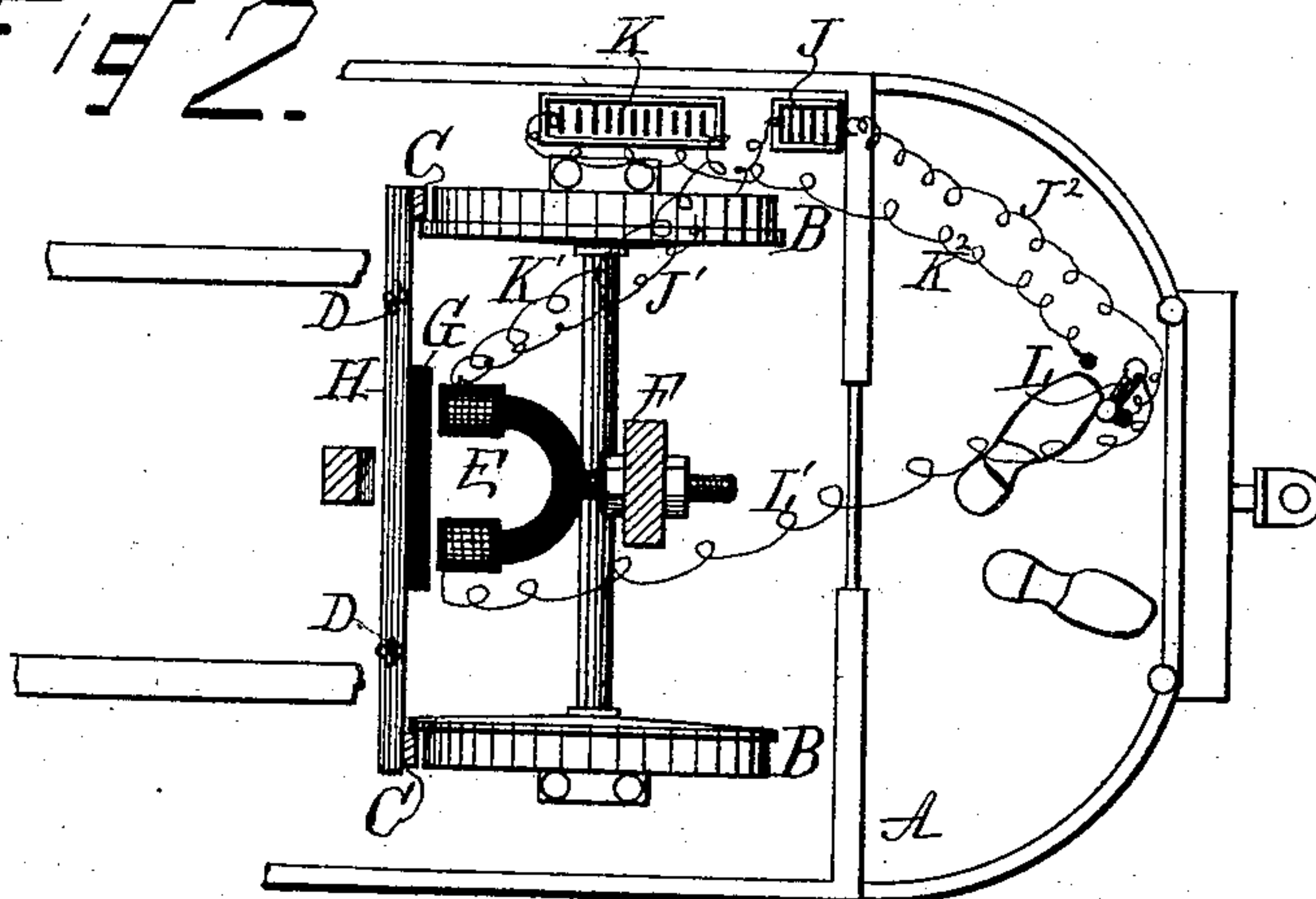
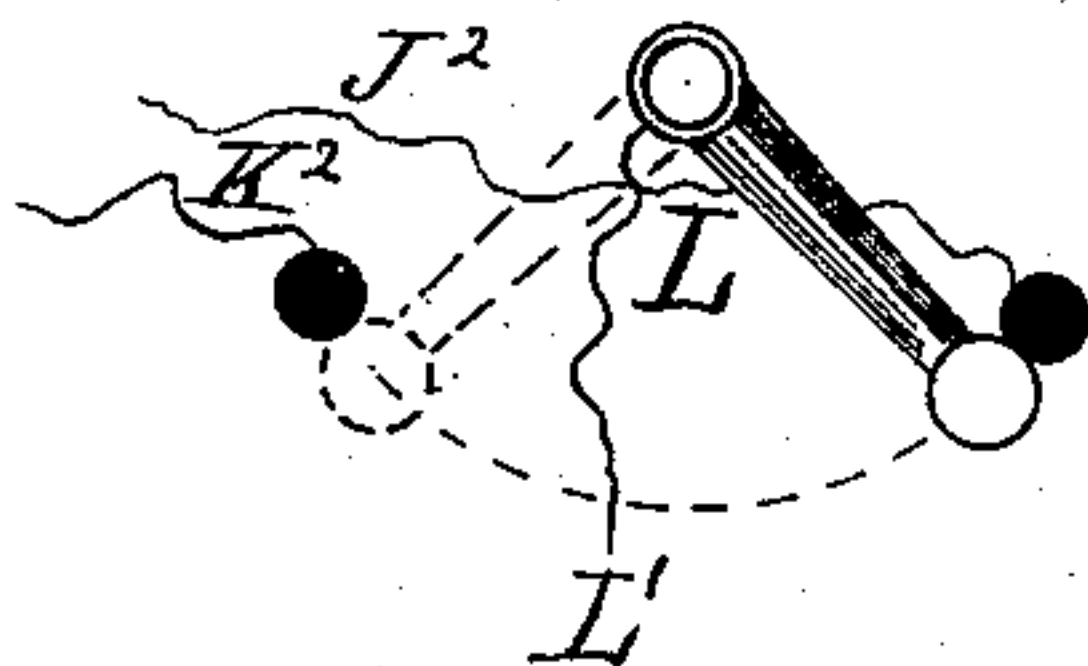


Fig 3



WITNESSES

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ELECTRO-MAGNETIC CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 324,470, dated August 18, 1885.

Application filed May 18, 1885. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. HESS, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Electro-Magnetic Car-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.

This invention relates to that class of devices by the aid of which car-drivers are enabled to apply the brakes to a car without exercising their own strength; and its object is to provide means whereby electric force generated in a galvanic battery may be directed to apply the brakes of a car with more or less power.

To this end my invention consists in the construction and combination of parts forming an electric car-brake hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of a portion of a car, showing my invention. Fig. 2 is a plan view of the running-gear of a car, showing a portion of my invention; and Fig. 3 is a detail view of a portion of the same.

A represents a car of any usual form mounted on wheels B. C represents the brakes, suspended, as usual, by links D to swing away from contact with the wheels by their own gravity. E is an electro-magnet in horseshoe form, rigidly fixed to a stationary portion, F, of the car. G is an armature opposed to the poles of the magnet and attached directly to the cross-bar H of one pair of brakes C. Whenever the magnet is vitalized it attracts the armature and swings the brake into contact with the wheels with whatever force there is in the battery which vitalizes the magnet.

I provide two separate batteries, J and K, one pole of each of which is connected with one pole of the magnet by wires J' and K', respectively. One of these batteries—J, for example—is made strong enough, either by the size or number of its cells, to apply the brake gradually in the manner most approved in general use. The other battery, either by in-

creased size or by an increased number of cells, is made sufficiently strong to suddenly apply as much force to the brakes as can be of service in stopping the car as quickly as possible. The opposite pole of the magnet is connected with the pivot of a commutator, L, by a wire, L'. This commutator may be swung from side to side on the said pivot to engage its arm with wires J² and K², connecting it with the remaining pole of either of the said batteries or to stop half-way between them, and it may be arranged to be operated either by the hand or foot of the car-driver. By this means the driver may stop the car in general service in the gradual manner most agreeable to passengers and most economical in the wear and tear of machinery; or in sudden emergencies—such as a person or obstacle on the track, &c.—he may stop the car as quickly as possible, and that with no appreciable effort.

Any number of brakes may be connected directly or indirectly with the brakes C, to be operated by the same batteries, magnet, and armature; but I always make the magnet a fixture in order that the wires may connect with it without possibility of being broken or disconnected, and in order that when the car is being roughly jolted the armature may, while dancing about with the pendent brake, be attracted to the right point to apply the brake to the wheels on the instant that connection is made between a battery and the magnet.

The magnet may be secured to the car-body in street-cars as usually mounted; or it may be secured to the truck when the truck is pivoted to the car, as in railway-cars. There may be a buffer behind the part to which the armature is attached to prevent the latter from swinging too far away from the magnet.

I am aware that car-brakes have before been actuated by electro-magnets, and that electro-magnets have for some purposes been arranged to be connected with two batteries of different powers at the will of the operator, and I do not claim the same, broadly, as my invention.

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

The combination of a car mounted on wheels and having a platform for the driver, a brake hung freely opposite to the wheels, an armature fixed to the hanging brake, a horseshoe-magnet fixed to the car opposite to the said armature, two batteries of different power located on the car, a commutator pivoted to the car within reach of the driver, an electric connection between the said pivot and one arm of the horseshoe-magnet, electric connections between the other arm of the said horseshoe-magnet and one of the poles of each battery, the terminal of the other pole of each battery located in the path of the said pivoted commutator, one terminal to form electric con-

nection with the commutator when the latter is at one end of its path, and the other terminal to form electric connection with the said commutator when the latter is at the other end of its path, substantially as shown and described, whereby the car-driver may readily apply the power of either the weaker or the stronger battery to the brakes, for the purpose set forth. 20

In testimony whereof I affix my signature in presence of two witnesses. 25

EDWARD B. HESS.

Witnesses:

J. R. LITTELL,
C. A. NEALE.