

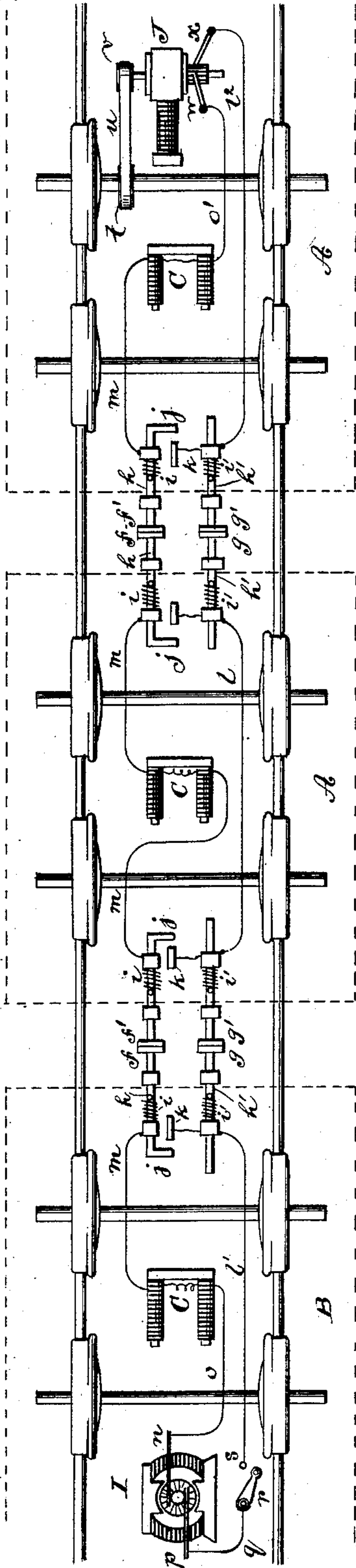
(No Model.)

J. HERRINGTON.

ELECTRO MAGNETIC CAR BRAKE.

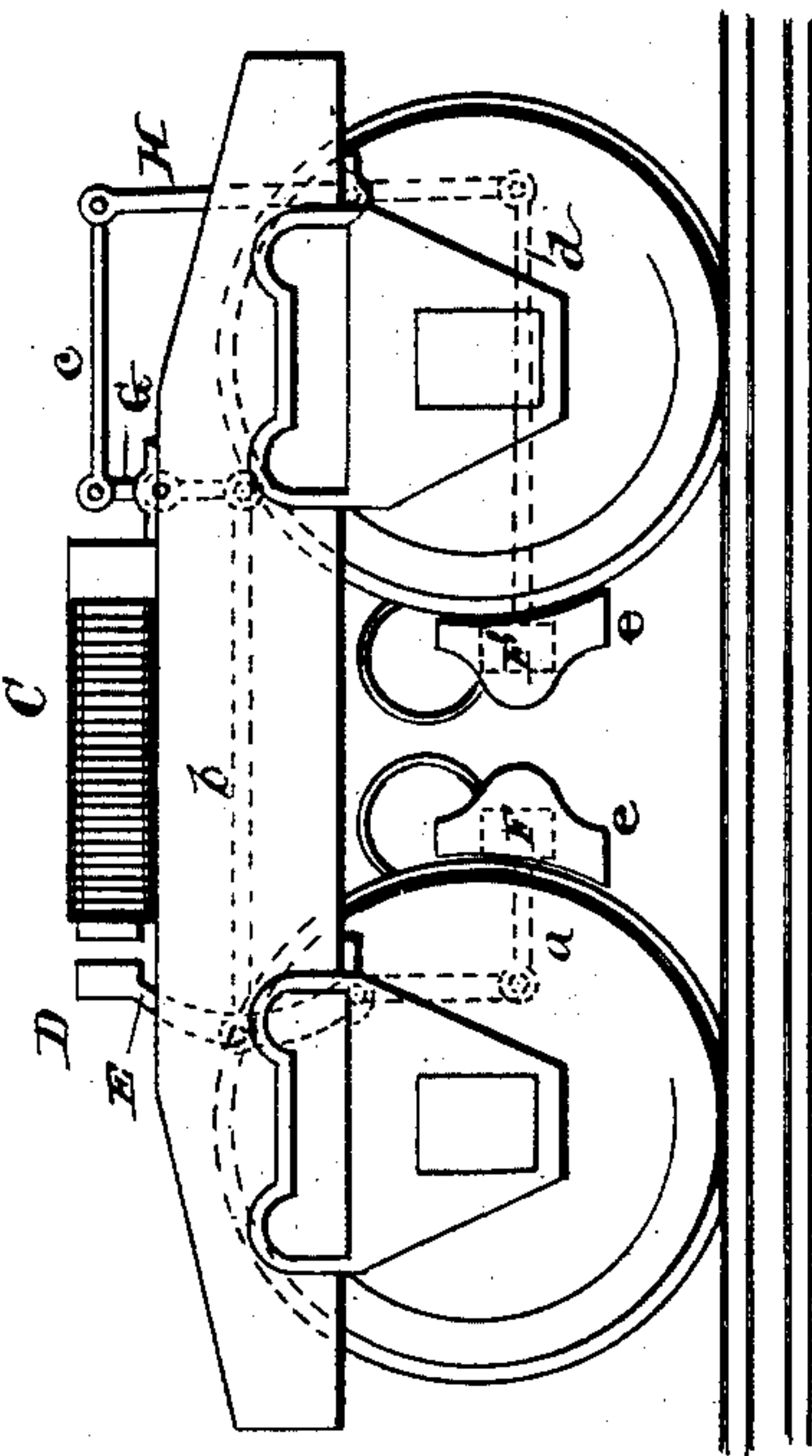
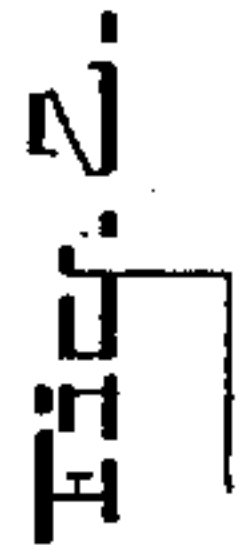
No. 367,627.

Patented Aug. 2, 1887.



WITNESSES:

O. D. Mott
6 Bedford Sq



INVENTOR:

INVENTOR:
J. Herrington
BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JACOB HERRINGTON, OF SHARON, PENNSYLVANIA.

ELECTRO-MAGNETIC CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 367,627, dated August 2, 1887.

Application filed March 30, 1887. Serial No. 233,017. (No model.)

To all whom it may concern:

Be it known that I, JACOB HERRINGTON, of Sharon, in the county of Mercer and State of Pennsylvania, have invented a new and Improved Electro-Magnetic Car-Brake, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a plan view of my improved electro-magnetic car-brake, and Fig. 2 is a side elevation of one of the car-trucks to which my improvement has been applied.

Similar letters of reference indicate corresponding parts in both views.

The object of my invention is to provide a simple and efficient electro-magnetic car-brake which may be operated from the locomotive or from one of the cars of the train; also, to provide means for maintaining the electric circuit in case of the separation of the cars of the train and for automatically establishing the circuit when the cars are coupled.

My invention consists in the combination, with brake-levers attached to the car-trucks, of an electro-magnet and armature and electrical conductors extending through the car; also, in the combination, with the conductors, of a series of automatic electric couplings, which establish connection between the conductors of adjacent cars when the cars are coupled, and which will automatically close the circuit between the wires of each car on the separation of the cars.

It also further consists in the combination, with the brake-magnets and electrical conductors connected therewith, of an electric generator preferably a dynamo located on the locomotive, and arranged to be driven by a motor taking steam from the locomotive-boiler; also, in the combination, with the conductors, of an auxiliary electric generator, preferably a dynamo placed on the last car of the train and driven by connection with one of the car-axles.

Upon each car A, and also upon the tender B, is located an electro-magnet, C, which is provided with an armature, D, (shown in Fig. 2,) mounted on a lever, E, pivoted in the car-truck, and connected with one of the brake-bars, F, by the link a. The connection with the other brake-bar, F', is effected through the connecting-rod b, pivoted to the lever E, the lever G,

pivoted in the truck-frame, the connecting-rod c, pivoted to the said lever G, the lever H, also pivoted in the truck-frame, and the link d, connected with the end of the lever and with the brake-bar F', so that whenever a current is sent through the magnet C the armature D is drawn forward with more or less force, depending on the strength of the current, and the brake-bars F are drawn toward the car-wheels, bringing the brake-shoes e into contact with the periphery of the wheels.

The couplings by which the circuit is completed between the cars are provided with two pairs of buffers, f f' g g'. The buffers f f' are connected with rods h, extending underneath the platform of the cars and pressed outward by springs i, abutting against the inner guides of the rods h and engaging pins passing through the said rods. The inner ends of the rods h are provided with right-angled arms j, which extend horizontally toward the center of the car, and in the path of the arms j are arranged contact-points k. The buffers g g' are connected with rods h', which extend through guides attached to the car-platform and are pressed outward by springs i'. The contact-points k are connected electrically with the inner guides of the rods h', and through the said guides with the wires l, extending underneath the cars. The inner guides of the rods h are connected by wires m with the terminals of the electro-magnet C in all of the cars, except the tender and last car of the train.

Upon the locomotive is arranged a dynamo-electric machine, I, driven in any convenient manner by power generated by the steam of the locomotive. One of the brushes, n, of the dynamo is connected by a wire, o, with the magnet C, placed under the tender. The other terminal, p, of the dynamo is connected by a wire, q, with the arm of the switch r, and the contact-points of the said switch r is connected by a wire, l', with the inner guide of the rod h' of the tender.

Upon the rear car of the train is placed a dynamo-electric machine, J, which is driven by means of a pulley, t, on one of the axles of the car, and by a belt, u, the armature-shaft of the dynamo being provided with a pulley, v, for receiving the said belt. The brush w of the dynamo J is connected with the electro-mag-

net C of the car carrying the dynamo by the wire *o'*, and the brush *x* of the dynamo is connected with the inner guide of the rod *h'* of the rear car by the wire *l'*.

5 In the ordinary working of my improved brake the circuit remains open until it is desired to operate the brakes, when the switch-lever *r* is placed on the contact-point *s*, thus closing the circuit and causing the magnet C
10 to be energized by the current from the dynamo I or the dynamo J, or both. Should the train separate, the portion without the engine would be stopped by the automatic application of the
15 brakes. When the cars separate, the arms *j* of the rods *h* are carried forward against the contact-points *k*, thus closing the circuit, and the dynamo J, being in motion, generates a current which energizes the magnets on the detached portions of the train and applies the
20 brakes. The portion of the train attached to the locomotive, by virtue of the closing of the circuit between the arm *j* and contact-point *k* of the last car, is in condition for the application of the brakes by the turning of the switch
25 *r*, bringing it into contact with the point *s*. In this case the brakes on the portion of the train attached to the locomotive will be applied by the current generated by the dynamo I on the engine or tender.

30 Having thus fully described my invention, I

claim as new and desire to secure by Letters Patent—

1. In an electro-magnetic car-brake, the combination of the magnets C, carried by the cars of the train, the armatures D, systems of
35 levers connecting the armatures with the brake-bars, the dynamo-electric machine carried by the locomotive, and a dynamo-electric machine carried and driven by one of the cars of the train, substantially as described. 40

2. The electric couplings consisting of the buffers *f f' g g'*, the spring-actuated rods *h h'*, the contact-points *k*, and the arms *j*, formed on the rods *h* and adapted to engage the contact-points *k*, substantially as described. 45

3. In an electro-magnetic brake system, the combination of the dynamo-electric machine I, the magnets C, the auxiliary dynamo-electric machine J, the electric couplings formed of the buffers *f f' g g'*, the spring-actuated rods
50 *h h'*, contact-points *k*, arms *j*, formed on the rods *h*, and the electric conductors, one of said dynamo-electric machines being carried on the locomotive, while the other is carried and driven by one of the cars, substantially as described. 55

JACOB HERRINGTON.

Witnesses:

JOHN H. ELLIOTT,
JAS. D. PEST.