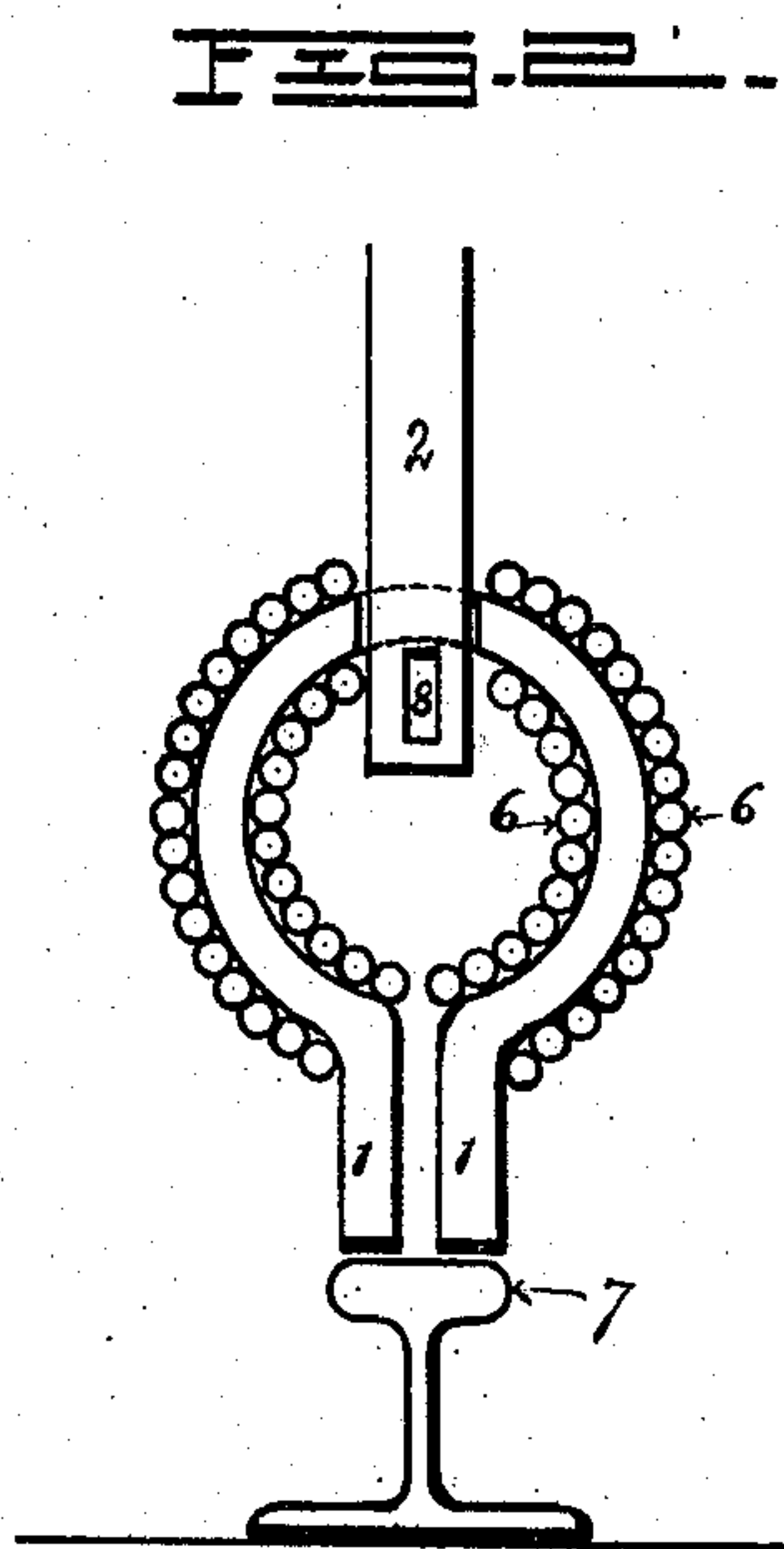
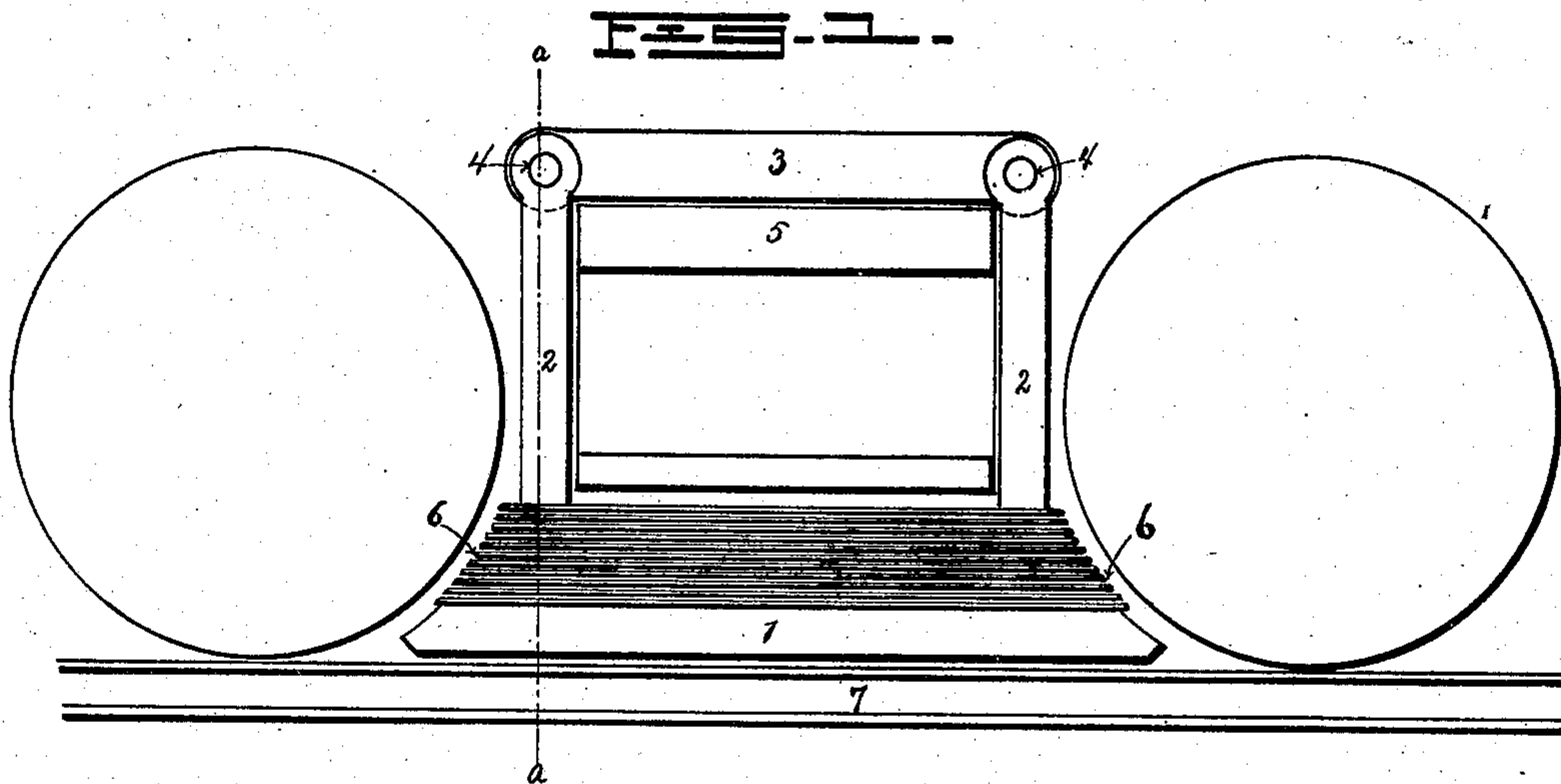


No. 867,147.

PATENTED SEPT. 24, 1907.

V. L. OCHOA.  
RAIL MAGNETIC BRAKE.  
APPLICATION FILED JAN. 5, 1907.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

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## RAIL MAGNETIC BRAKE.

No. 867,147.

Specification of Letters Patent.

Patented Sept. 24, 1907.

Application filed January 5, 1907. Serial No. 350,889.

*To all whom it may concern:*

Be it known that I, VICTOR L. OCHOA, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Rail Magnetic Brakes, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates especially to means and mechanism for overcoming the momentum of a railway car, train of cars, or the equivalent, and stopping the movement of the same and has for its object the provision of a rail electro magnetic brake that will not bind the wheels of the car wherewith it is employed, but will bind to the rail by magnetic attraction, and thus insure the detention of the car-truck, and overcome the momentum of the car or train surely and effectively, avoiding the sudden stopping and consequent damage often occurring in the use of the ordinary emergency brake.

My improved brake may be made in the form of a cylinder with a longitudinal segment or slit cut out, or may be shaped like a horse-shoe tube, of soft iron, or of steel where permanent magnets are desired, or may be made of any other suitable material, and wound longitudinally with layers of insulated wire with which to neutralize, in the case of permanent magnets, and to intensify their attractive power, when it is desired to bind or attract the rail, where they use electro-magnets, made of iron. A permanent magnet, that is, one made with a core of steel, may be demagnetized, or its capacity to attract may be neutralized, by sending a current through the winding, in opposition; that is, a current running in the opposite direction to the current which was used in making the magnet permanent. To intensify, or make the magnets stronger, the current of electricity is applied in the same direction in which the current used to make it a magnet was originally run through the wire.

Where it is not advisable to use permanent magnets, and electro-magnets are employed, these magnets are

made of soft iron wound with insulated wire, and are made to attract the rail when the exciting current is used only.

The source of electric supply may be a dynamo, or storage batteries carried by the locomotive, or individual cars.

In the drawing, Figure 1 is a side elevation of a brake embodying my invention, shown as suspended from the truck bolsters or beams; though it can be fixed in any other preferred position. Fig. 2 is a vertical, sectional view at line *a— a* of Fig. 1.

Similar numerals of reference, wherever they occur, indicate corresponding parts in both figures.

1 is the magnet proper or core.

2 are the hanging rods, made of non-conducting material.

3 is the hanging rod-support or frame.

4 are the pins or bolts by which the hanging rods are suspended.

5 is the truck bolster or beam to which the magnets are suspended.

6 are the convolutions of insulated wire of the magnet.

7 is the rail of the road or track.

8 is the hole for the reception of a key or pin in order that the magnet may be removed from the rods 2.

Having now fully described my invention, what I claim as new therein and desire to secure by Letters Patent, is:

In a device of the character herein specified, a magnet core consisting of a tube, divided longitudinally at one side, and having projecting poles; a longitudinal winding of exciting wire within and without the tube, and means for suspending said magnet from a car in close proximity to the rail, substantially as shown and described.

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

VICTOR L. OCHOA.

Witnesses:

LOUIS F. BRAUN,  
A. M. PIERCE.