

(No Model.)

W. B. PURVIS.
MAGNETIC CAR BALANCING DEVICE.

No. 539,542.

Patented May 21, 1895.

Fig. 1

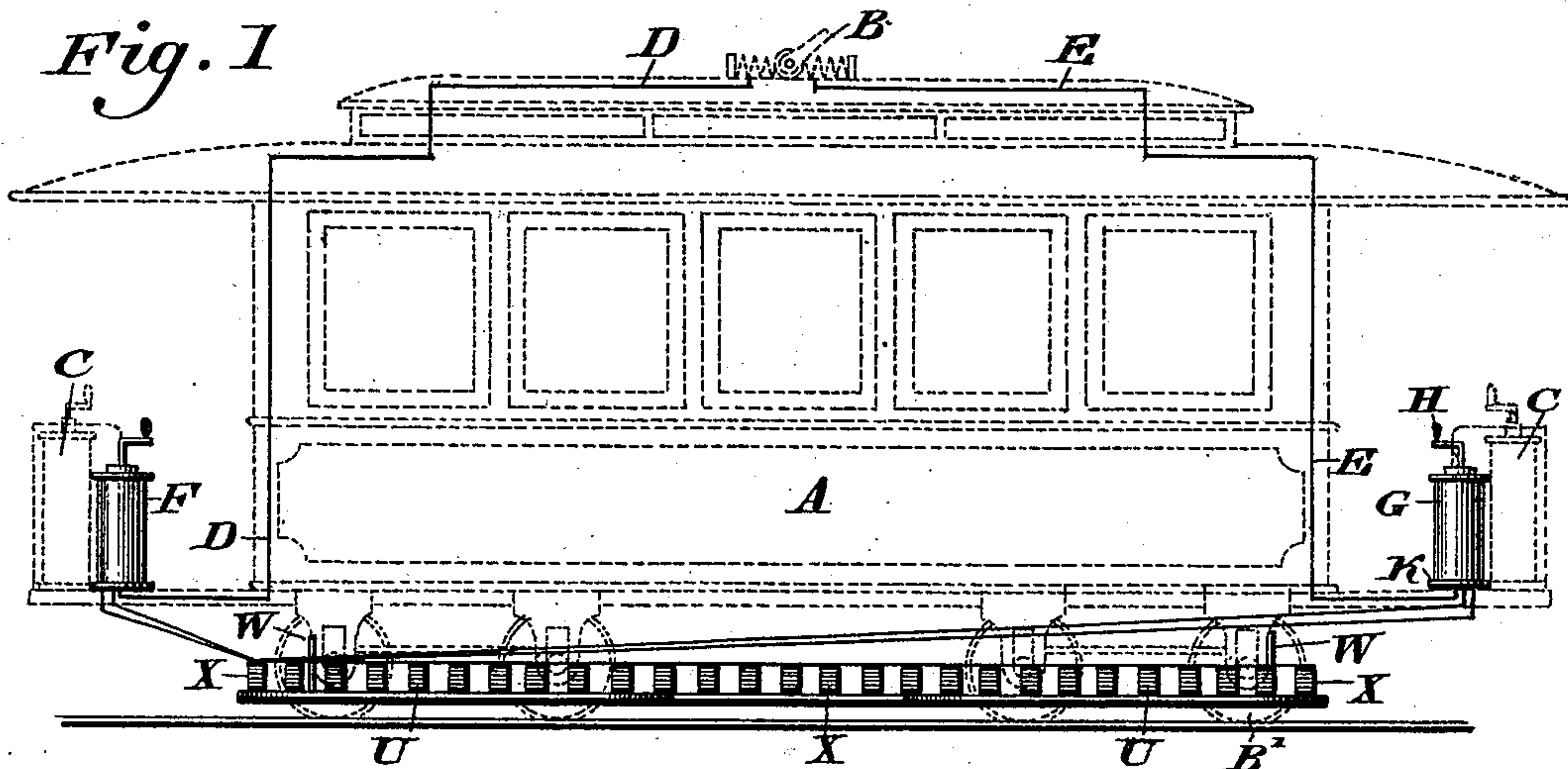


Fig. 2

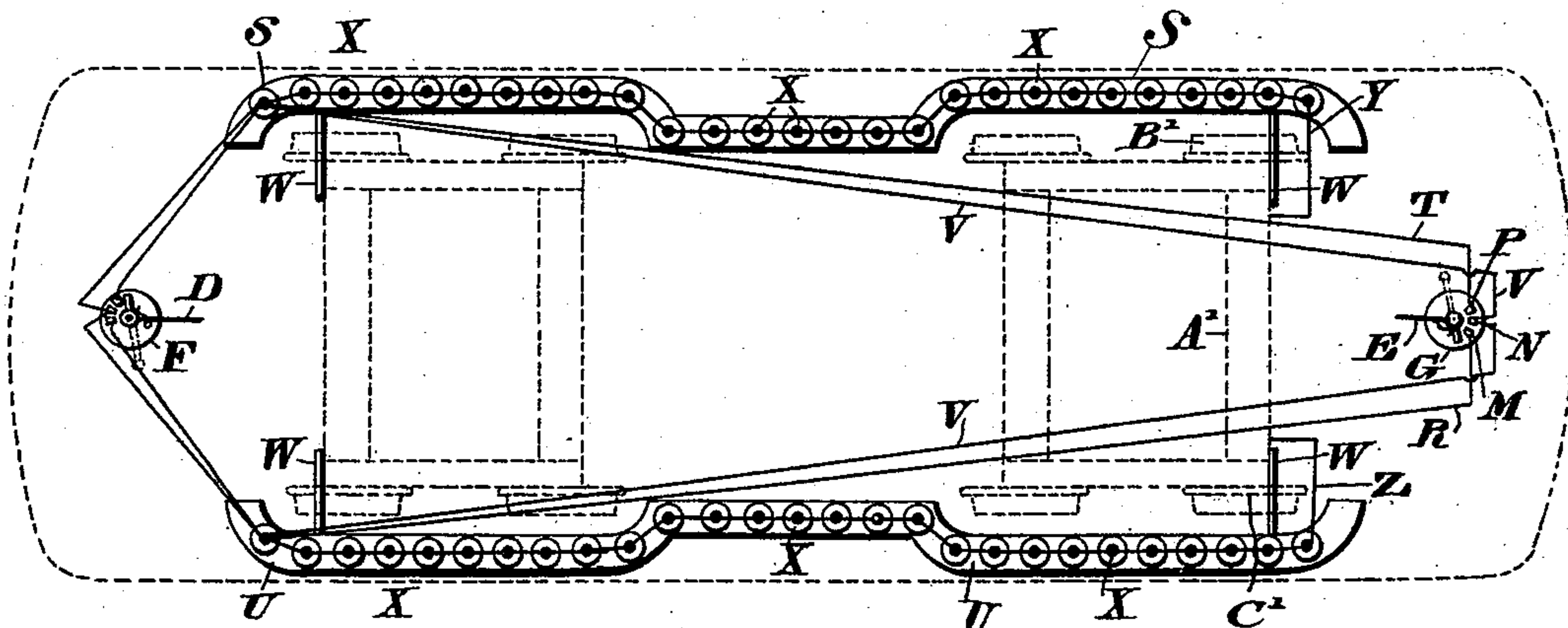
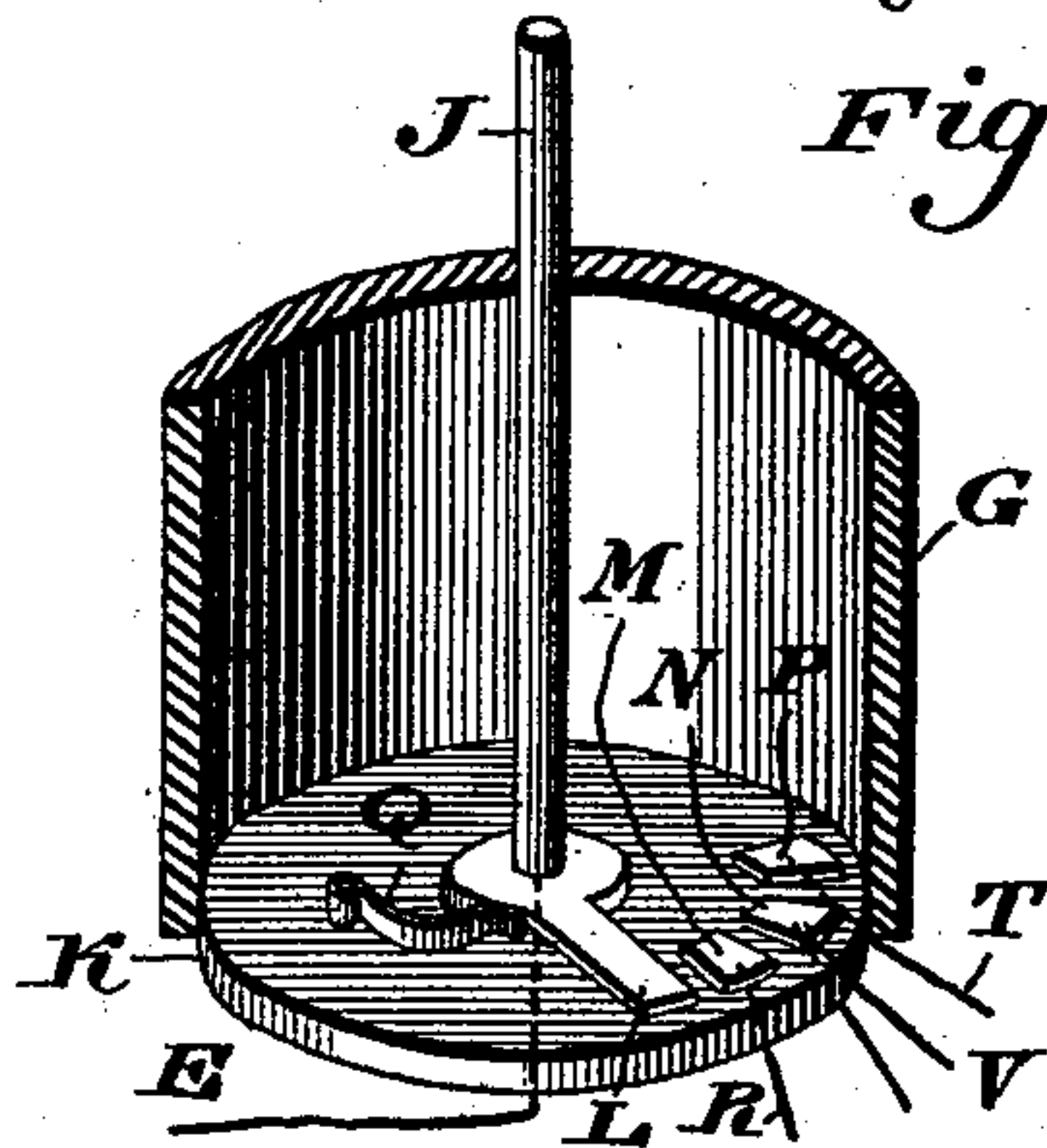


Fig. 3.



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ONE-HALF TO JOHN ALEXANDER CRAIG, OF SAME PLACE.

MAGNETIC CAR-BALANCING DEVICE.

SPECIFICATION forming part of Letters Patent No. 539,542, dated May 21, 1895.

Application filed May 26, 1894. Serial No. 512,514. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. PURVIS, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Magnetic Car-Balancing Devices, which improvement is fully set forth in the following specification and accompanying drawings.

My invention relates to magnetic car balancing devices, and consists of means for causing the wheels of trolley or other cars to adhere closely to their tracks when desired, the device being at all times under the control of the motor-man, and comprising bars supporting a system of coils on either side of the car, which are capable of being magnetized at will, either separately or simultaneously, whereby they will attract the rails, and the car wheels will be caused to adhere more closely thereto, thereby reducing to a minimum the liability of jumping the track, and the wheels will be prevented from slipping in icy or wet weather, or when going around curves, all as will be hereinafter set forth.

Figure 1 represents a side elevation of a magnetic car-balancing device in position embodying my invention. Fig. 2 represents a plan view of the same. Fig. 3 represents in perspective, on an enlarged scale, a sectional view of the switch.

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

Referring to the drawings, A designates a trolley car, B the trolley pole, and C the trolley switches, the above parts being of the ordinary construction, and forming no part of my invention.

D designates as shunt wire leading from a suitable source of power to the switch F of the balancing device, and E designates another wire leading to the switch G at the other end of the car, the shunt wires D and E leading in the present instance from a convenient point near the base of the trolley pole.

The switches F and G are in all respects similar, and a description of one will suffice for both.

Referring to the right hand switch G, H designates a handle which is secured to a stem

J, the latter being suitably inclosed and journaled in the base K.

L designates an arm preferably of brass, which has electrical connection with the shunt wire E, and is attached to the said stem J, and adapted to be moved thereby into contact with the plates M, N, and P, which are preferably of copper, and rest upon a properly insulated surface.

Q designates a spring adapted to bear upon the arm L.

R designates a wire leading from the contact plate M to the electro magnet on the end of the supporting bar U, under the left hand side of the car, and T designates a similar wire leading from the plate P to the end electro magnet on the bar S, which is under the right hand side of the car, while from the plate N extend the conductors V, which lead to the same end electro magnets under each side of the car.

The bars S and U are preferably of iron and are located one under each side of the car, as shown in Fig. 2, and are attached to the truck by suitable insulating supports W. The said bars S and U are in the present instance curved outwardly to make room for the car wheels, and support the electro magnets X, which have a core formed of wood or other insulating material, wound with insulated wire, each magnet being connected to its neighbor, so that a continuous connection will exist between the magnets along each end of the bars S and U, a wire Y leading from the end magnet of the bar S, nearest the switch G to the car axle A', and a wire Z leading from a corresponding magnet on the bar U, also to the said axle, thus conducting the electricity to the earth after it has performed its work of magnetizing either or both of the bars S and U.

The connections from the switch F to the end magnets nearest thereto, are made in precisely the same way as has just been described in connection with switch G, so that the device can be operated from either end of the car and the electric current can be conducted to either of the magnet supporting bars, thus magnetizing the same by manipulating either of the switches F or G.

The operation will now be apparent. Suppose the track to be wet or icy, and the wheels on both sides slipping, the motor-man standing at the switch G, turns the handle of the stem J, so that the arm L contacts with the plate N, whereupon the electric fluid will be conducted from the wire E through the wires V to the end magnets farthest from the switch G on the bars S and U, thence through the magnets X by the wires Y and Z to the axle A', thence to the earth, thus magnetizing both bars S and U, thereby causing the latter to attract the tracks beneath, thereby increasing the adhesion of the wheels to the rails.

If it is desired to cause the wheels on the side B' or C' to adhere closer to the track, the arm L is moved into contact with the plate M or P, the effect of which is evident.

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

1. In a magnetic balancing device for trolley and other cars, two series of connected magnets suitably supported under the opposite sides of a car, a switch at one end of the car having an arm receiving electrical power from a suitable source, wires connected with a contact plate of said switch at one end, and with the magnets on the ends of the sides of the car farthest from the said switch, and wires connected with the magnets at the switch end of the car and the adjacent axle of the running gear of the car, said parts being combined substantially as described.

2. In a magnetic balancing device, a series of connected magnets suitably supported on one side of a car, a switch at one end of said car having an arm in an electric circuit, a contact plate adapted to be engaged by said arm, wires leading from said contact plate to the end magnet farthest from said switch,

and a connection with the magnet at the other end of said series and the adjacent axle of the running gear of the car, said parts being combined substantially as described.

3. The shunt wires D and E, leading from a suitable source of power to the switches F and G, said switches being provided with the arm L, and the plates M, N, and P, the electro magnets X, and supporting bars S and U therefor, and connections from said switches to and through said magnets, whereby said bars can be magnetized and car wheels be caused to adhere more closely to either side of the track independently or simultaneously to both sides as may be desired, said parts being combined substantially as described.

4. In a magnetic balancing device for trolley and other cars, the bars U and S having the series of connected magnets X supported thereon, a switch having an arm L connected with an electric circuit, the contact plate N with wires V leading to one end of said series of magnets, and wires at the other end of said series connecting with the axle of the running gear, said parts being combined substantially as described.

5. In a magnetic balancing device for trolley and other cars, the bar U having a series of magnets X supported thereon, a switch having an arm connected with an electric supply, the contact plate N, the wire R connected to the end one of said series of magnets, and the wire Y leading from the other end of said series of magnets to an axle on the car, said parts being combined substantially as described.

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