

(No Model.)

2 Sheets—Sheet 1.

C. J. VAN DEPOELE.
MAGNETIC SHIELD FOR ELECTRIC MOTORS.

No. 443,019.

Patented Dec. 16, 1890.

Fig. 1

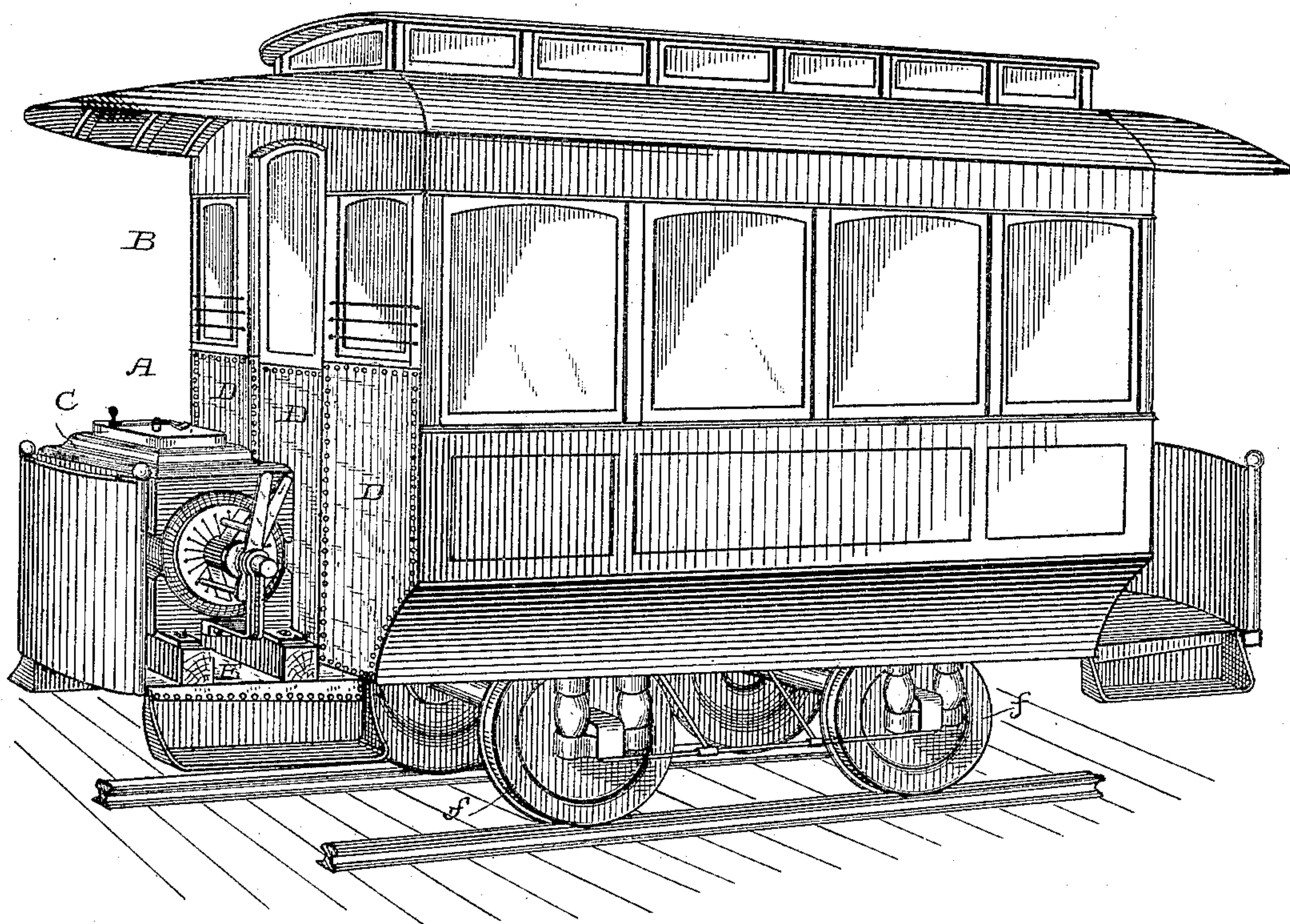
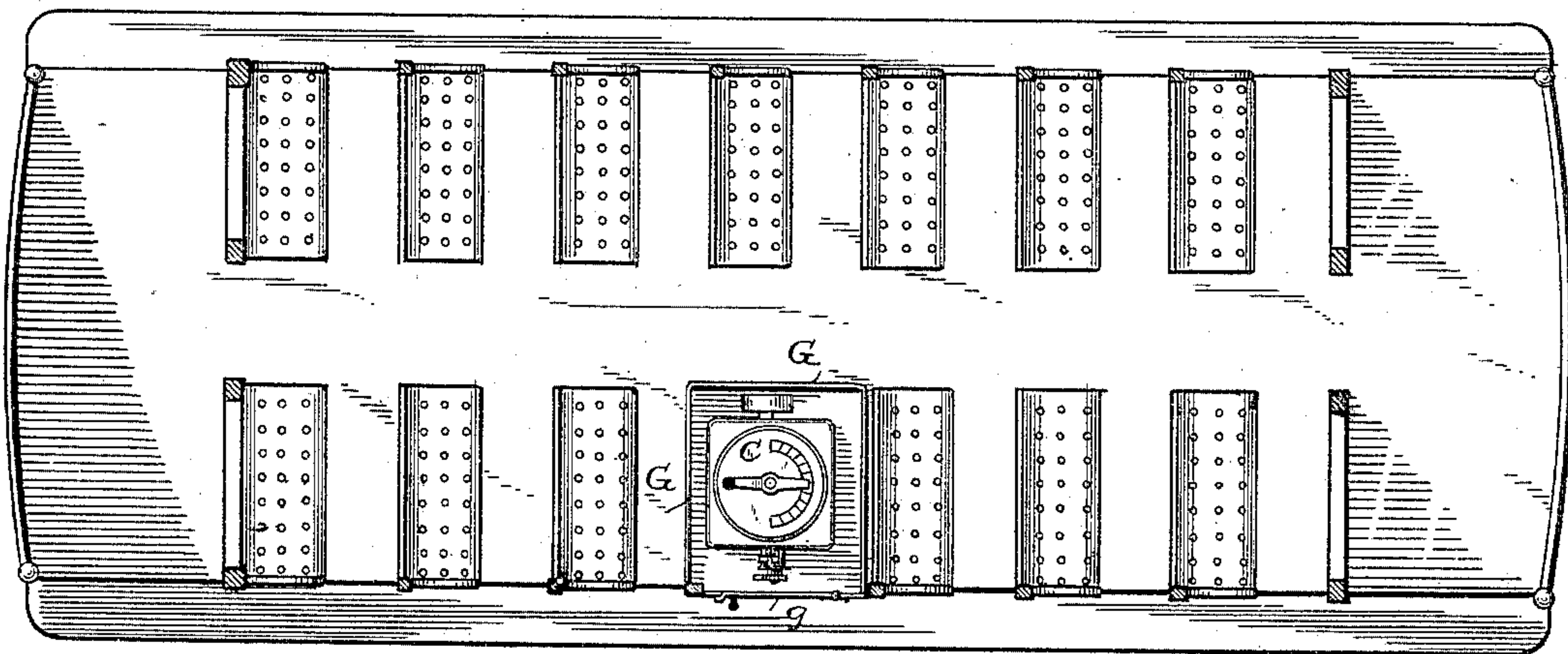


Fig. 2



Witnesses

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By his Attorney

Frankland Jannus.

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2 Sheets—Sheet 2.

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Fig 4

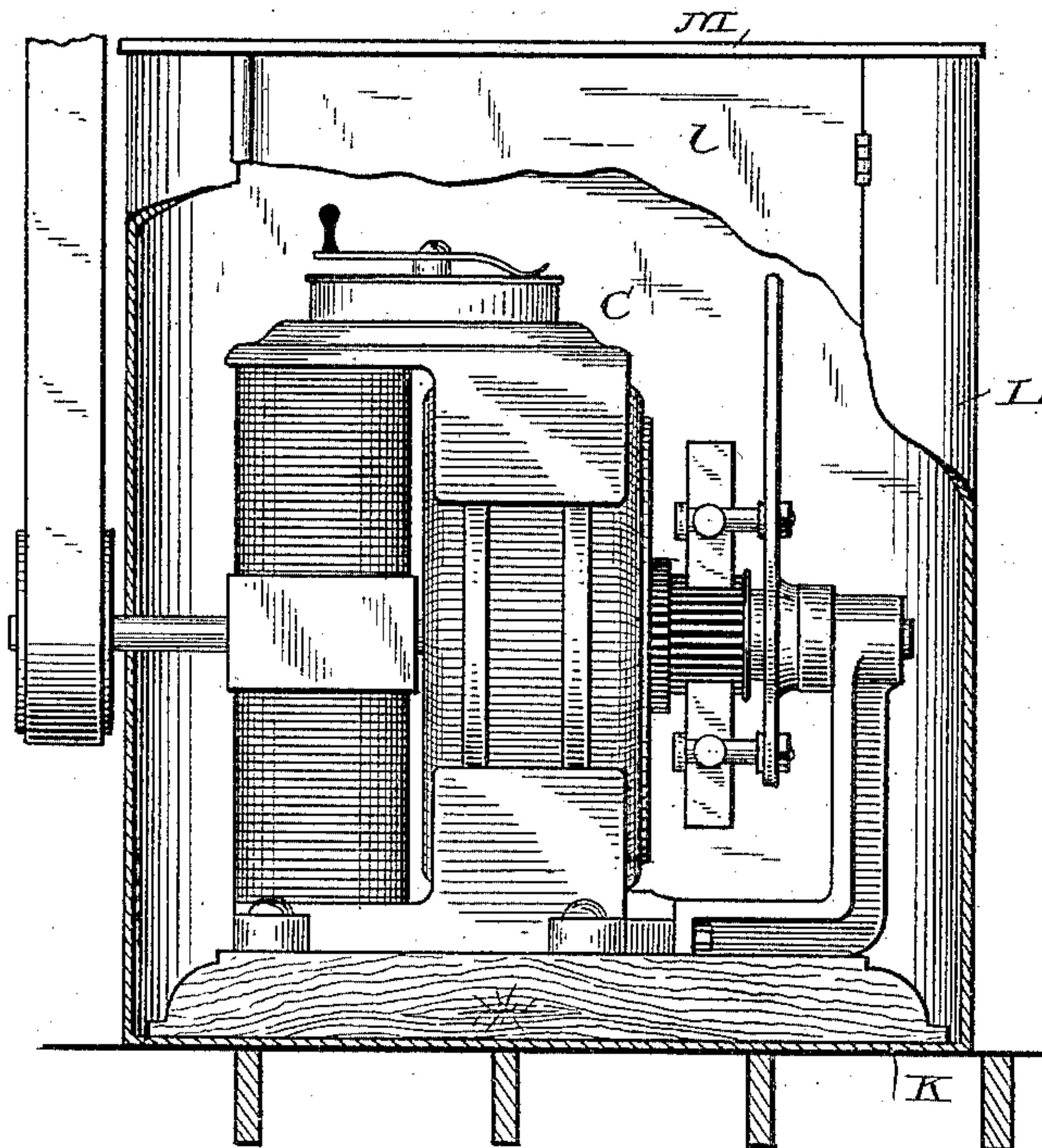
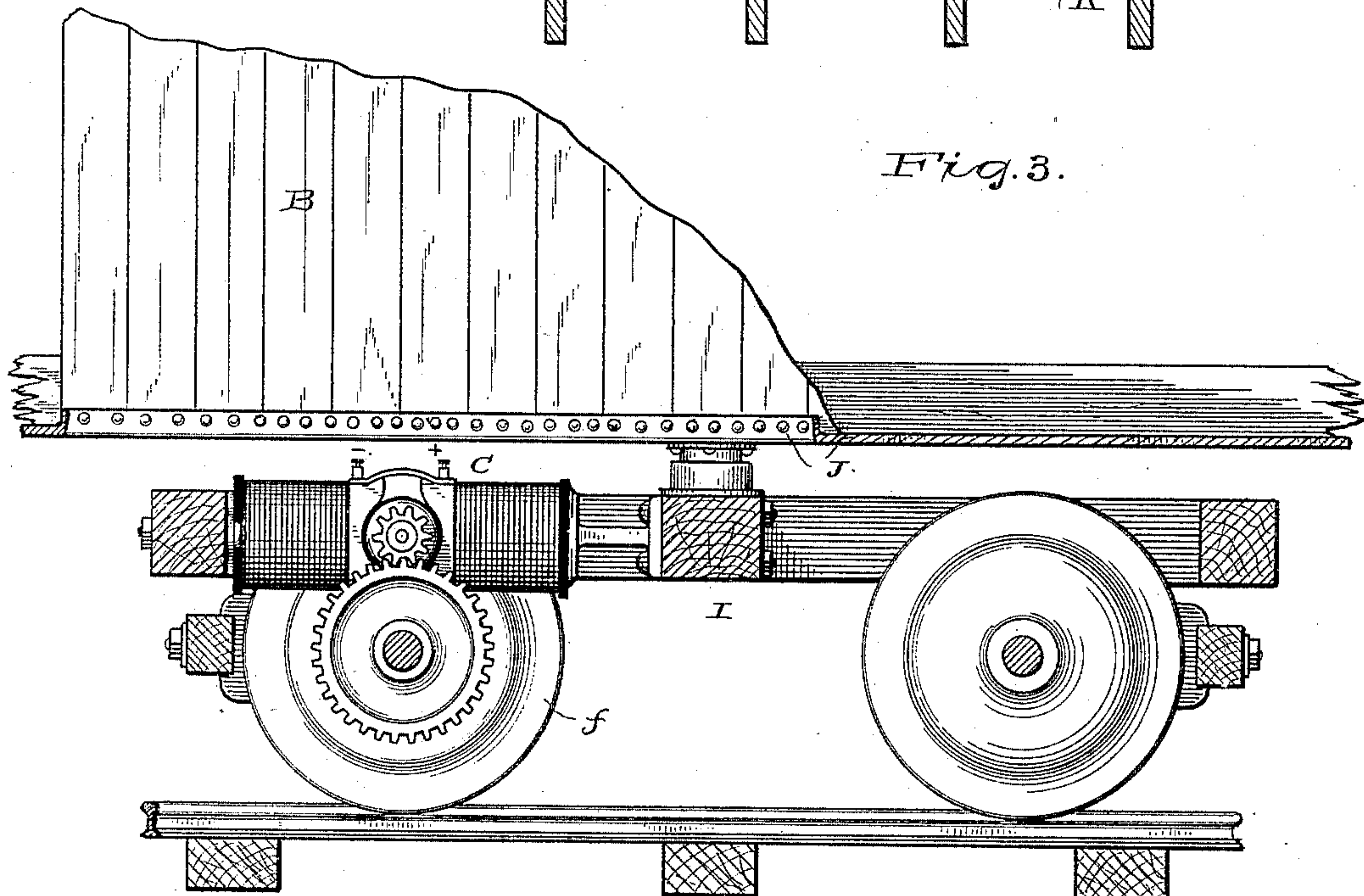


Fig. 3.



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UNITED STATES PATENT OFFICE.

CHARLES J. VAN DEPOELE, OF CHICAGO, ILLINOIS.

MAGNETIC SHIELD FOR ELECTRIC MOTORS.

SPECIFICATION forming part of Letters Patent No. 443,019, dated December 16, 1890.

Application filed August 4, 1887. Serial No. 246,098. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. VAN DEPOELE, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Magnetic Shields for Electric Motors, of which the following is a description.

My present invention relates to improvements in electric railways, and is in the nature of an arrangement for the protection of whatever may be carried on cars driven in whole or in part by electric machinery from the magnetizing effects of the lines of force radiating from the field-magnets of the motor.

As an electric apparatus comes more generally into use it is found that the watches of passengers as well as those of the train-men are liable to become so thoroughly magnetized by the magnetic influence of the motor as to be seriously and permanently injured, and in many instances rendered practically useless. Hence great objection is made to the use and introduction of electric railways on the ground that watches as well as all fine machinery using steel parts are liable to a species of injury from magnetization which is not perceptible to the eye and almost beyond cure, the existence of the difficulty not being perceptible until, if a watch, it has become so inaccurate that in operating a railway it would be very dangerous indeed and apt to cause accidents. The difficulties arising from these sources are altogether obviated by inclosing the motor in a sheet-iron casing or in any convenient manner interposing an iron shield between the motor and the interior of the vehicle.

In the accompanying drawings, Figure 1 is a perspective view of the end portion of the car provided with my anti-magnetic shield, the motor being mounted upon the front platform. Fig. 2 is a plan view of a car in which the motor is mounted in the center and surrounded by a magnetic shield. Fig. 3 is an elevation, partly in section and partly broken away, showing a portion of a car having its motor mounted below and a shield against its under side. Fig. 4 is a view in elevation showing a motor and its inclosing-shield.

Similar letters denote like parts throughout.

Upon the front platform A of the car B is mounted a motor C, the armature-shaft thereof being in mechanical connection with the carrying-wheels in any convenient manner.

D is a shield of iron interposed between the motor and the end of the car for the purpose of preventing the lines of force surrounding and emanating from all electric apparatus from passing into the car and affecting the watches of the passengers. The shield D may be in one piece or continuous, but as shown is in three separate pieces separately attached to the door and to the side portions alongside the door. It is also convenient to place a magnetic shield below the motor, the sheet-iron E upon the floor of the platform of the car being provided for that purpose. In this manner the magnetic lines of force radiating from the motor are entirely isolated and prevented from spreading except in directions where they can do no injury.

In Fig. 2 the motor C is shown at about the center of an open car F, one of the seats being removed to make space therefor, the motor being understood to be in mechanical connection with one or both supporting-wheels through suitable opening in the floor of the car. The motor C is surrounded by a casing G, built up of sheet-iron or of wood covered on the inside with sheet-iron, a suitable door g being provided, through which access can be had to the working parts of the motor. When it is found desirable to mount the motor directly upon the truck of a car, as shown in Fig. 3, in which the motor C is secured to and carried by the truck I, I attach a magnetic shield so that it shall extend over and entirely cover the motor. I find that a very simple and effectual plan is to cover the under, upper, or lower side of the entire floor of the car with sheet-iron, as shown at J, by which means the entry of magnetic lines into the car is entirely prevented and the most perfect protection is obtained.

It will be understood that my invention is not limited to the watches of passengers in street-cars, since I find it applicable as well to stationary motors, dynamos, and other electric apparatus, as the same is frequently

used in factories where numbers of persons are employed, and the prevention of injury to their watches and to fine steel articles being produced by electric apparatus, whether moving or stationary, is the main object I have in view.

In Fig. 4 is shown a stationary motor C standing upon a magnetic shield K, surrounded by a similar anti-magnetic casing L, provided with door *b*, and covered by a sheet-iron top M, hinged to the casing L in any convenient manner. By these means the motor is so completely inclosed that the radiation of magnetic lines beyond the shield is entirely prevented, while the motor itself is at any time readily accessible. My invention does not, however, extend to or include an organization embodying a magnetic shielding medium which constitutes a part of the motor and the field-magnet system thereof.

The slight modifications necessary to adapt my invention to circumstances different from those herein referred to will at once suggest themselves to a competent electrician, and are therefore within the scope of my invention.

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

1. The combination, with an electric motor

and a vehicle upon which said motor is mounted, of a sheet-iron casing constituting a magnetic shield and permanently interposed between the motor and the interior thereof, whereby the passage of magnetic lines from the motor to the interior of the vehicle is prevented, substantially as described.

2. The combination, with a vehicle and an electric motor mounted thereon for propelling the same, of a magnetic shield consisting of a partition or casing of iron permanently interposed between the motor and the interior of the vehicle, whereby the radiation of magnetic lines from the motor to the interior of the vehicle is prevented, substantially as described.

3. The combination, with an electric motor having a power-transmitting device connected with its armature-shaft, of a permanent casing entirely inclosing all the parts of said motor except the power-transmitting device, thereby preventing the radiation of magnetic lines beyond the casing in any direction.

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

CHARLES J. VAN DEPOELE.

Witnesses:

WILLIAM A. STILES,
EVERELL D. STILES.