(No Model.)

N. S. POSSONS.

GEARING FOR ELECTRICALLY PROPELLED VEHICLES.

No. 434,949. Patented Aug. 26, 1890.

Fig. 1.

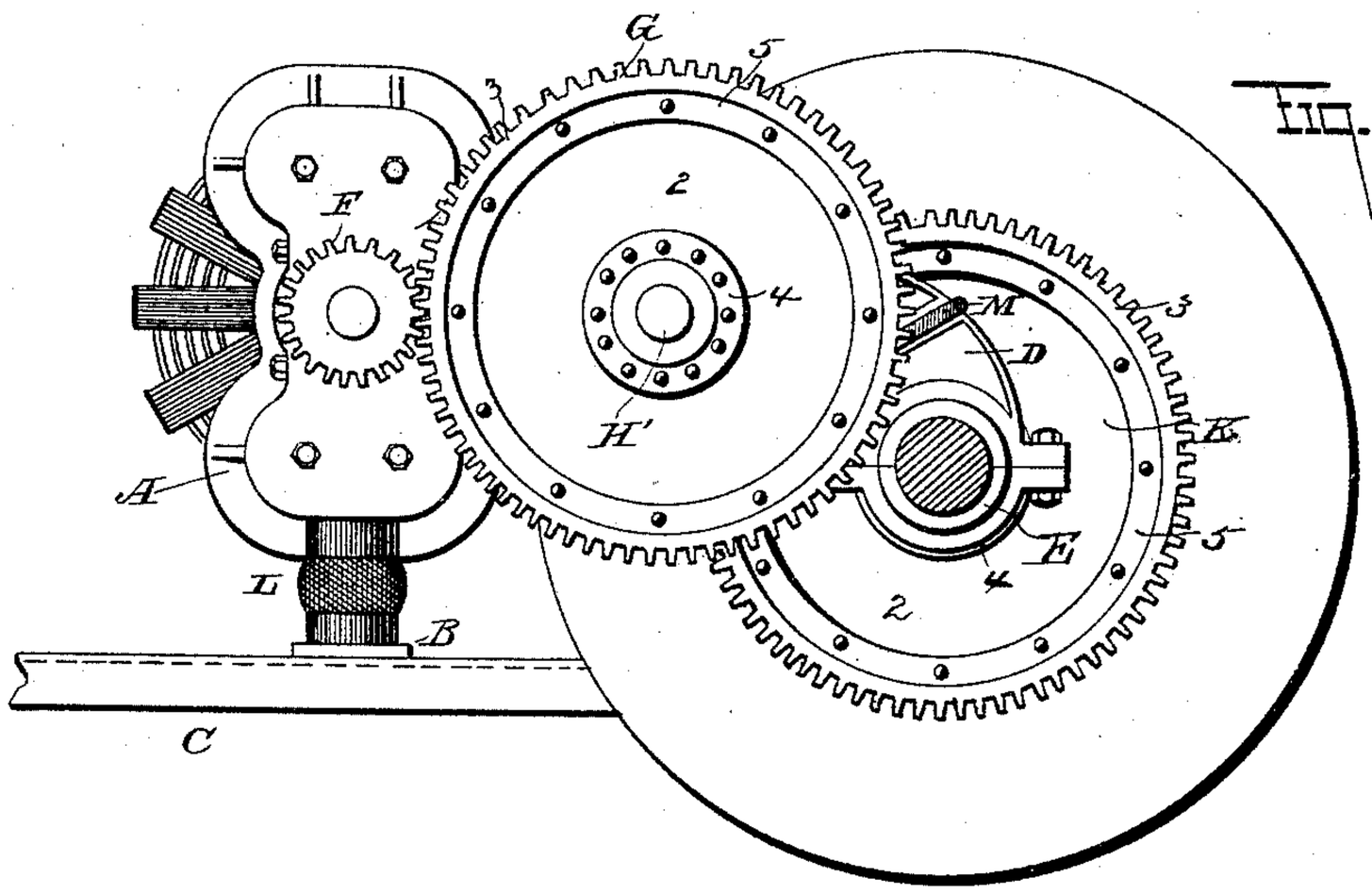
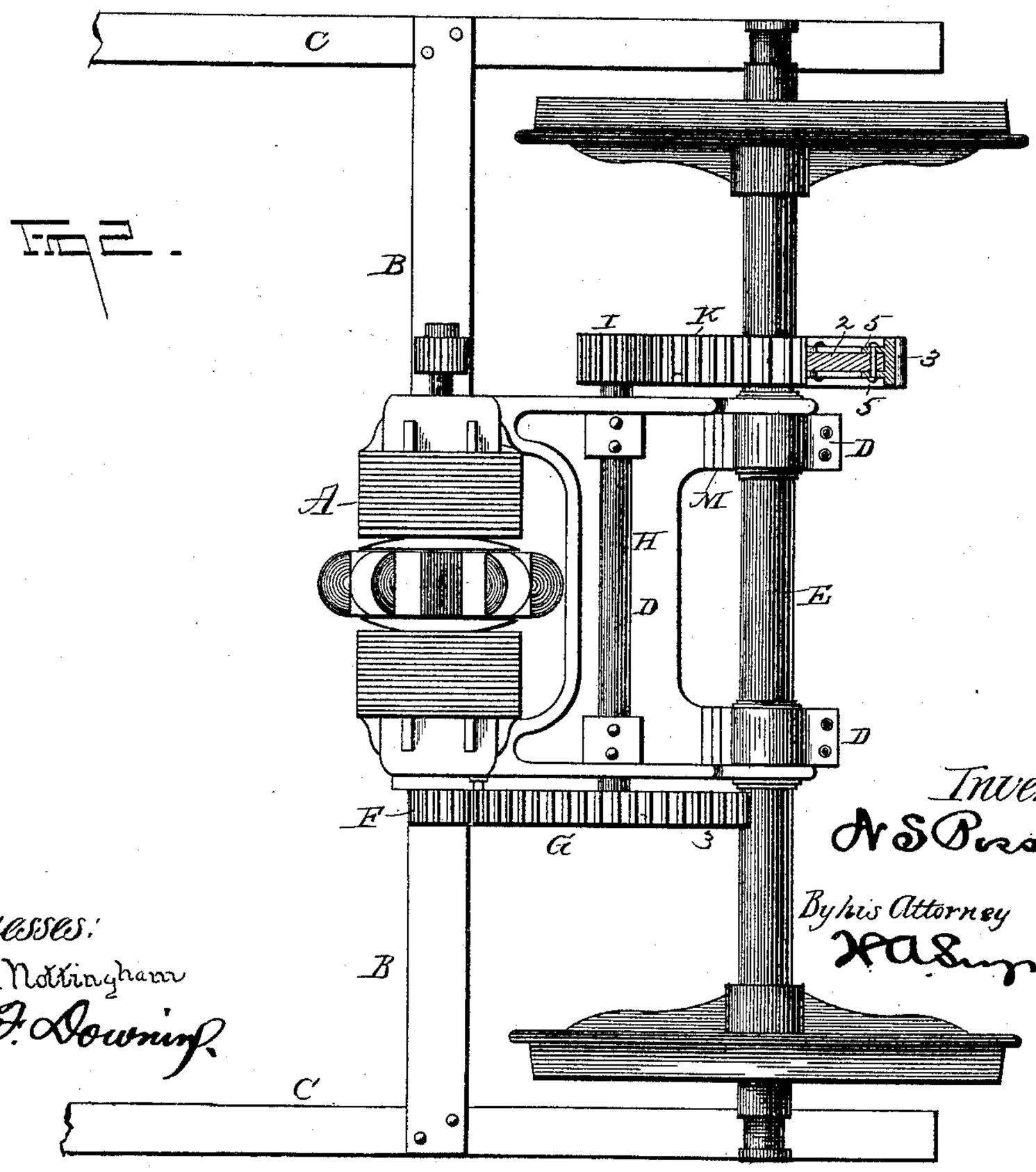


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

NATHAN S. POSSONS, OF CLEVELAND, OHIO.

GEARING FOR ELECTRICALLY-PROPELLED VEHICLES.

SPECIFICATION forming part of Letters Patent No. 434,949, dated August 26, 1890.

Application filed May 28, 1890. Serial No. 353,435. (No model.)

To all whom it may concern:

Be it known that I, NATHAN S. POSSONS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Gearing for Electrically-Propelled Vehicles or Railway-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable other skilled in the art to which it appertains to make and use the same.

This invention relates to the means for connecting the propelling-motor with the wheel-base of an electric vehicle or railway-car, and is applicable to vehicles or cars to which the electricity is supplied in any way, either from a source (as secondary batteries, for example) which travels with the car or from an electric line with which a trolley or traveler on the car makes contact. It is customary to transmit the propelling-power to the wheel-base from a motor whose frame is coupled or connected directly with the axle of said wheel-base and to employ a reducing-train of metal spur-gears comprising a counter-shaft on said frame with pinions and large wheels.

The invention, although included for all the uses to which it may in whole or in part be applicable, has reference more particularly to such spur-gearing for an electric motor which is insulated from the wheel-base of the vehicle by way of its mounting or in which at least the armature-shaft is so insulated.

In accordance with the present invention the webs of the spur-gears, or, in other words, the portion between the toothed rims and the hubs, are made of wood or other like non-conducting material, so that the motor is insulated from the wheel-base through its gearing and the gearing is made less noisy in operation. It is not necessary that all the gears should have wooden webs. Nor is it necessary that the whole web should be of wood, provided a sufficient portion thereof is made of wood to insulate the toothed rim from the hub; but it is considered best to have substantially the whole web of each of the two larger gears of wood, and this construction is specially claimed.

In the accompanying drawings, which form part of this specification, Figure 1 is a partial view in plan of the wheel-base and driving mechanism of an electrically-propelled vehicle or car, and Fig. 2 is a partial view of the same in side elevation and vertical section.

As shown, the motor A is supported on a metal cross-beam B, which rests upon the longitudinal metal beams C, the latter being connected with the body of the car (not shown) by the pedestals for the journal-boxes and by braces in any ordinary or suitable way. The motor is further connected by the frame D with the axle E, which forms part of the wheel-base of the vehicle, and to which the armature-shaft is geared by a train of reducing spur-gears. This train comprises a pinion F on the shaft of the motor-armature, a gear-wheel G on the counter-shaft H, mounted in bearings on the frame D, a pinion I on said counter-shaft, and a large wheel K on the axle E. The motor is insulated from the wheel-base of the vehicle by means of the cushion L, of non-conducting material, between the motor and the cross-beam B, and by the interposition of insulating material M between the two parts of the frame D. Thus the field-magnet and frame of the motor, as well as the armature, are insulated from the wheel-base.

What is thus far described, apart from what is hereinafter set forth, is not within the present invention, and it has been shown and explained mainly as an illustration of electric-propelling machinery in which the armature and body of the motor are insulated from the wheel-base by way of the mounting therefor. Any other known or suitable arrangement of machinery may be used instead in which the motor, or the armature at least, of such motor is so insulated.

The pinions F and I, as shown, are ordinary metal gears, while the large wheels G and K have each the web or portion 2 between the toothed rim 3 and the hub 4, of wood, paper, or other non-conducting and (as compared with metal) non-resonant material. The introduction of this non-conducting material not only renders the gearing less noisy, but it also insulates the armature and body

of the motor from the wheel-base by way of the propelling-gearing. Inasmuch as the insulating material M is interposed between the bearings of the counter-shaft K and the car-axle, the making of the web of the wheel K of non-conducting material would suffice to insulate the armature and body of the motor from the wheel-base by way of the propelling-gearing and to reduce the noise to a useful extent with an ordinary metal gear for the wheel G.

As shown, the toothed rim 3 and hub 4 are provided with flanges 5, to which the web 2 of wood is bolted; but any known or suitable mode of constructing gear-wheels with webs of wood or other suitable non-conducting material may be adopted.

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

1. An electric motor having its armature insulated by way of the mounting and provided with gearing comprising one or more wheels, with webs of wood or noise-deadening non-conducting material, whereby said armature is also insulated by way of its transmitting-gearing, substantially as described.

2. The combination, with the wheel-base, motor-supporting means, and electric motor of an electrically-propelled vehicle, said motor being insulated by way of its mounting, of the propelling-gearing between the wheel-base and said armature, comprising one or more gears with toothed metal rims and with webs of wood or noise-deadening non-conducting material, whereby said motor is insulated, also by way of said propelling-gearing, substantially as described.

3. The combination of the wheel-base, the electric motor, the frame whereby the said motor is coupled or connected directly with an axle of said wheel-base, the other motor-supporting means and the reducing-train of spur-gears, comprising a counter-shaft on said frame and pinions on the armature-shaft and counter-shaft, respectively, and having one or both said large wheels constructed with webs of wood or noise-deadening non-conducting material, said motor being insulated from said wheel-base both by way of its mounting or supporting means and also by way of the propelling-gearing, substantially as described.

4. The combination, with the wheel-base, motor-supporting means, and propelling-motor of an electrically-propelled vehicle, said motor having at least its armature insulated by way of the mounting therefor, of the propelling-gear between the wheel-base and said armature, comprising one or more toothed gears with webs of wood or non-conducting material, whereby the armature at least of said motor is insulated by way of the propelling-gear, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

NATHAN S. POSSONS.

Witnesses:
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