(No Model.) 3 Sheets—Sheet 1.

J. A. ENOS.

DRIVING MECHANISM FOR SUSPENDED CARS.

No. 342,246. Patented May 18, 1886.

Fig. 1.

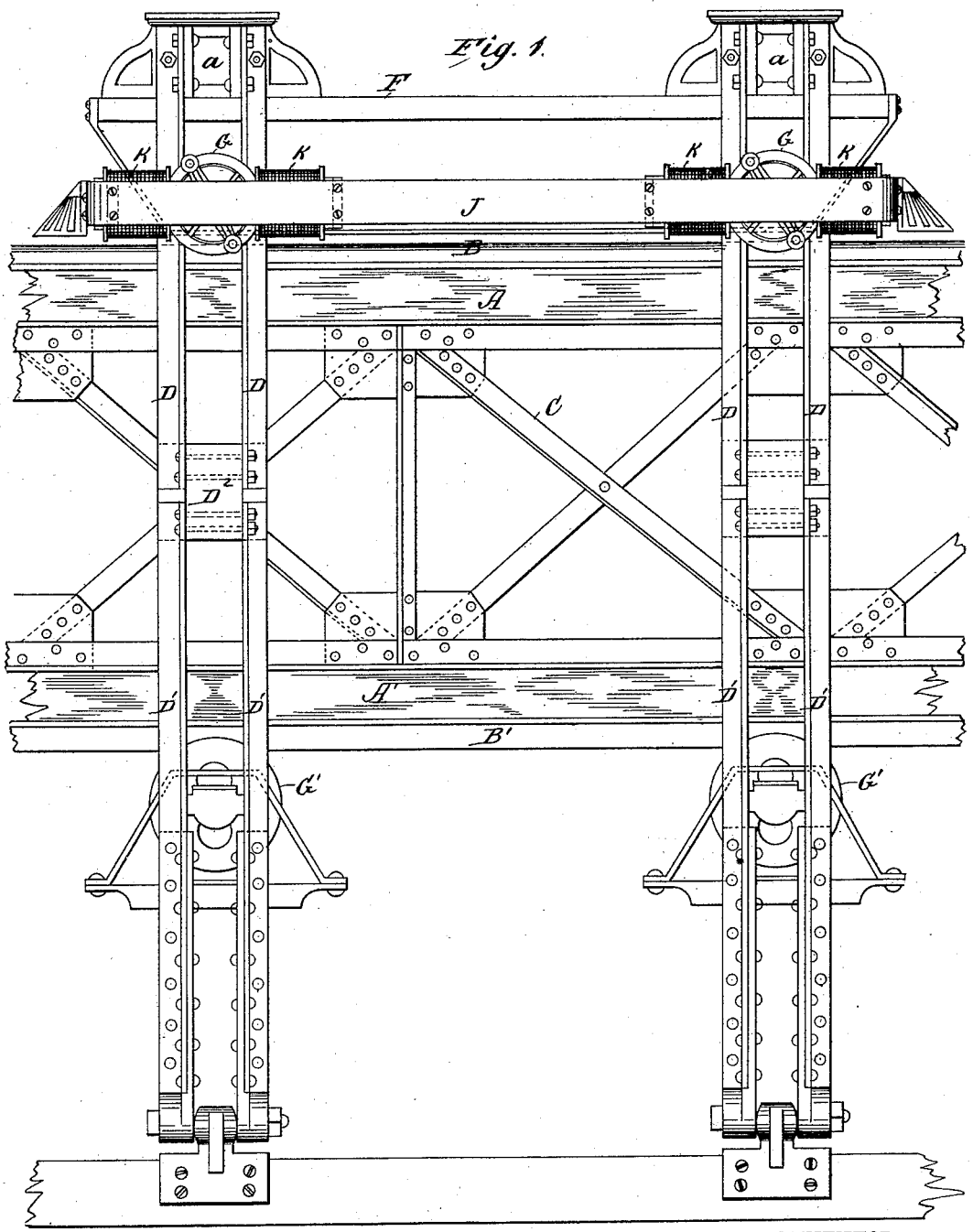

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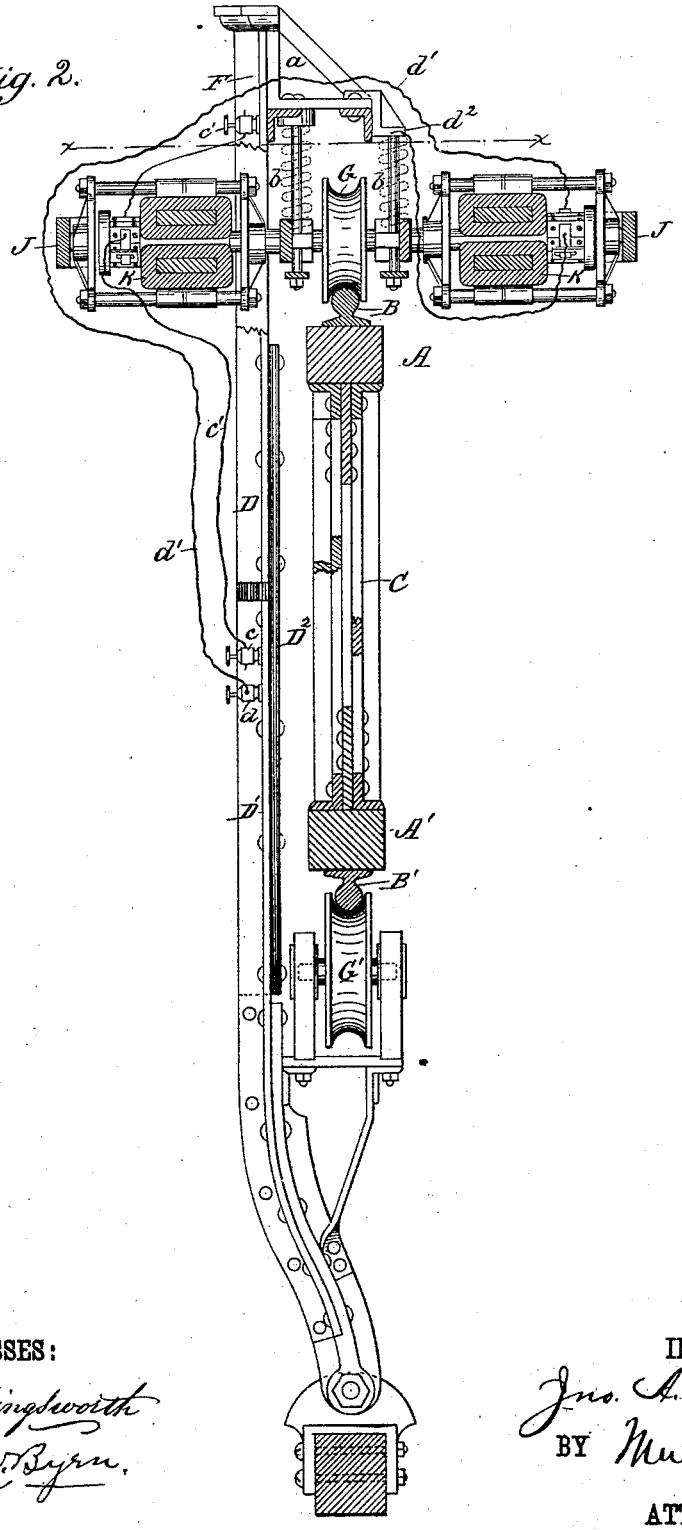
Fig. 2.



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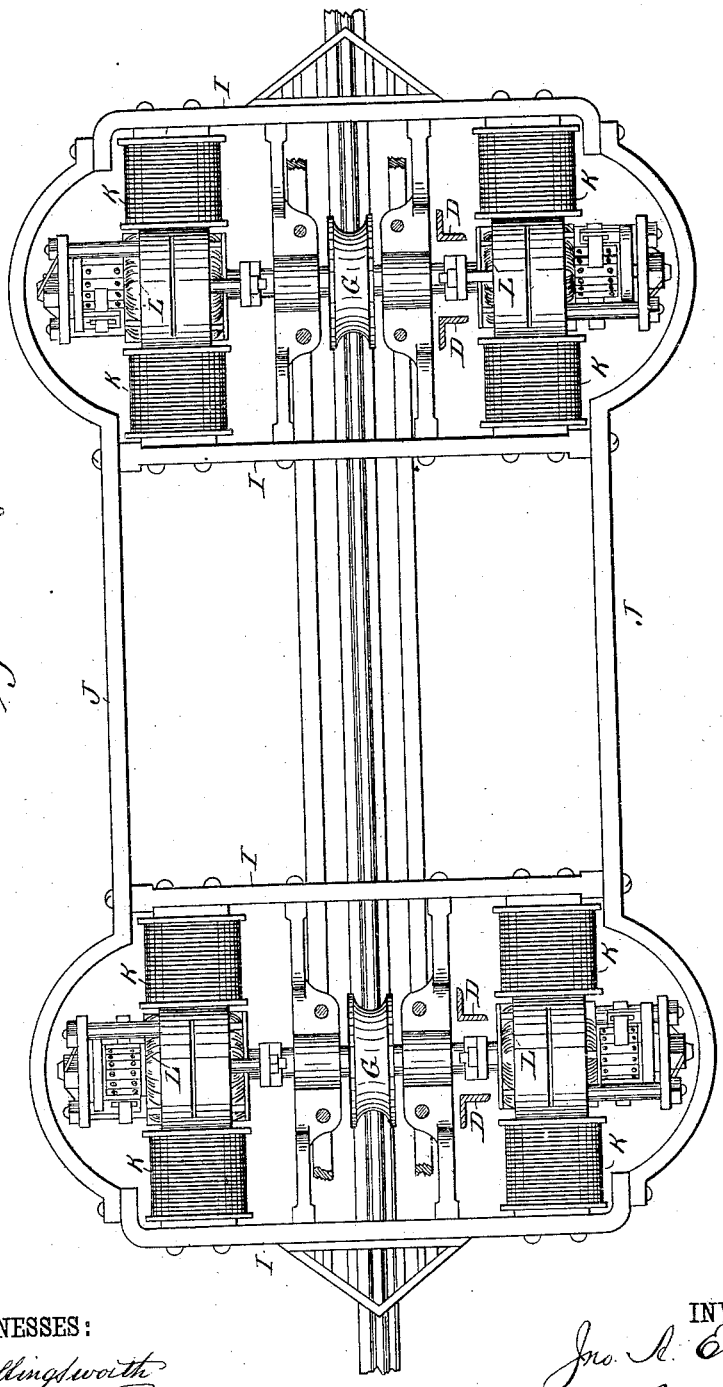

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOHN AUGUSTUS ENOS, OF PEABODY, MASSACHUSETTS.

DRIVING MECHANISM FOR SUSPENDED CARS.

SPECIFICATION forming part of Letters Patent No. 342,246, dated May 18, 1886.

Application filed November 13, 1885. Serial No. 182,720. (No model.)

To all whom it may concern:

Be it known that I, JOHN AUGUSTUS ENOS, of Peabody, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Driving Mechanism for Suspended Cars, of which the following is a description.

Figure 1 is a side elevation of the suspending-truck with the driving mechanism and hanger-bars shown applied to the elevated track. Fig. 2 is a vertical cross-section through one of the driving mechanisms of the truck-wheels, and Fig. 3 is a sectional plan view through the line *x x* of Fig. 2.

My invention is in the nature of an improved driving mechanism for propelling that class of cars which have their centers of gravity below the point of support, or which are suspended from an elevated rail; and it consists, mainly, in a supporting-truck having wheels which rest upon a single rail, combined with an electric motor, the revolving armature of which is rigidly fixed upon the same shaft as the wheels of the suspending-truck.

It also consists in the peculiar construction and arrangement of the driving-motor, in combination with the hanger of the car and an upper and lower rail, from the latter of which the current is taken and passed through the motor, and then allowed to pass to the upper rail, as hereinafter more fully described.

My driving mechanism is designed for use in connection with my suspended-railway system as covered by my Patents Nos. 331,387, 331,388, and 331,389, dated December 1, 1885, to which reference is made for a clearer understanding of the application of the present device.

A and A′ represent the upper and lower stringers, of wood, carrying upper and lower track-rails, B and B′, and braced and held apart by the bars C, as shown and described in my Patent No. 331,387.

D D′ D D′ represent the two hanger-bars, which at their lower ends are jointed to the top of the suspended car, and at their upper ends are secured to the truck-frame F, which has two grooved supporting-wheels, G G, arranged in a line and resting upon the top rail. The connection of these hanger-bars to the truck-frame at *a* and the springs *b* for giving the truck an elastic support on the wheels are substantially the same as shown in my Patent No. 331,389.

In constructing the hanger-bars I make them in upper metal sections, D, and lower metal sections, D′, which are spliced and made as one stiff hanger by wooden splice-bars D^2, but which metallic sections of the hanger are by this means insulated, or have no electrical connection with each other. To the lower sections of the hangers are attached the guide-wheels G′ G′, which bear against the lower rail, and by guiding the car prevent it from swaying sidewise from the wind, and also permit the two rails to be gripped between the two sets of wheels G and G′ to enable the car to climb grades. The object of making a break in the conductivity of the hanger-bars is to permit the electric current to be taken off from the lower rail, passed through the electric motor, and then allowed to pass to the upper rail.

Just below the connection of the hanger-bars to the truck-frame there is attached the motor-frame I I J J. This motor is an electric motor, and is composed of two electric machines for each supporting-wheel—one arranged on one side of the wheel and the other on the other side—both being exactly alike, and those of one wheel corresponding to those of the other wheel, and making four in all. The stationary field-magnets K of these motors are attached to bars I I of the frame, and the revolving armatures L are rigidly fixed to the shafts of the suspending wheels, which wheels are also rigid on these shafts. The great merit of this arrangement is that the power of the motor is applied directly to the suspending and driving wheels without the intervention of any mechanism whatever, thus avoiding the loss of any power, and forming a much more simple and practical driving mechanism. As this form of railway is an elevated railway, this arrangement of the electric motor on the same shaft with the drive-wheels is perfectly practical, as the projection of the motor from the wheels does not in this case require any ditch or trench to be dug beside the rail, as it would with the ordinary form of rail, and the benefits to be derived are obvious. With this form of motor the electric current is designed to be taken from the lower rail, passed

through the motor, and allowed to escape from the motor to the upper rail. The lower wheel and the lower section of the hanger-bar being always in electrical connection with the lower rail, two binding-posts, *c d*, Fig. 2, are placed on the lower section of each of the hanger-bars, and from one of them there leads a conducting-wire, *c'*, to one of the brushes of the commutator of one motor, from the other of which brushes this wire leads to the binding-post, c^2, in electrical connection with the supporting-wheel and upper rail, thus carrying the current through one of the motors to actuate it. From the other binding-post, *d*, a wire, *d'*, leads to the brush of the commutator of the other motor on the other side of the wheel, and, passing out from the other brush, goes to the binding-post, d^2, in electrical connection with the supporting-wheel and upper rail, thus carrying the current through this motor to actuate it. The other hanger-bar is similarly provided with electrical connections, so that all four of the electrical machines operate at once upon the shafts of the supporting-wheel, giving to the same the full power of the machines and a very effective traction for propelling the car.

Having thus described my invention, what I claim as new is—

1. The combination, with the suspending-truck for a suspended car, having a single set of wheels arranged in line, of a shaft rigidly fixed to said supporting-wheels, and electric motors on each side of said wheels, having their revolving armatures fixed rigidly on said shafts, substantially as shown and described.

2. The combination, with the suspending car-truck, of a hanger-bar for sustaining the car, made in two parts, D D', and the splice-bar D^2, connecting said hanger-sections and insulating them from each other, an electric motor having its armature on the shaft of the truck-wheels, and conducting-wires from the lower hanger-section to the motor, substantially as shown and described.

3. The combination, with the frame I J, the truck-frame having suspending and driving wheels rigidly fixed to their shafts, and the four electric motors having their revolving armature fixed rigidly on the shafts, of the supporting-wheels and their field-magnets fixed upon frame I J, as and for the purpose described.

The above specification of my invention signed by me in the presence of two subscribing witnesses.

JOHN AUGUSTUS ENOS.

Witnesses:
SOLON C. KEMON,
CHAS. A. PETTIT.