

(No Model.)

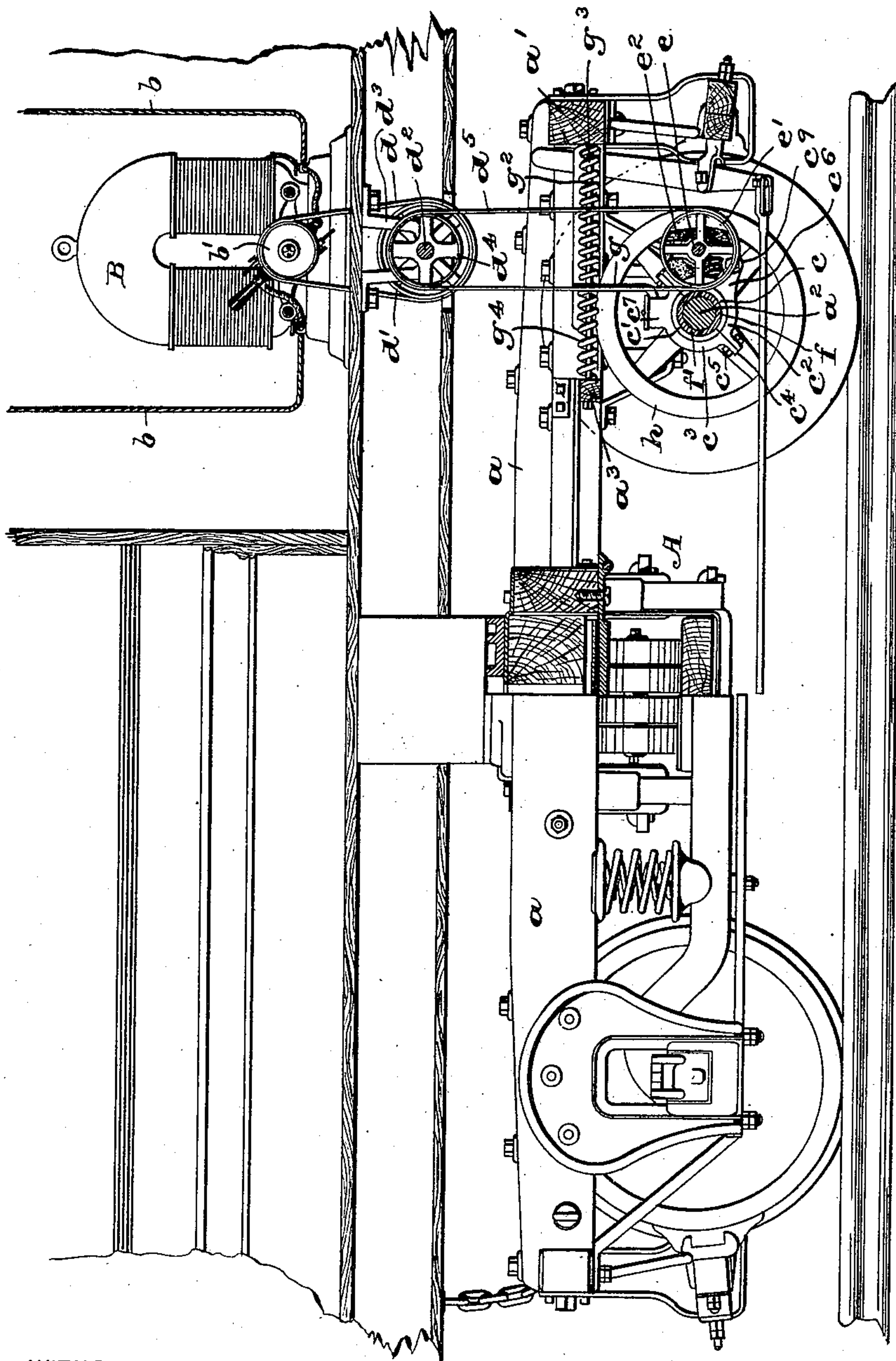
2 Sheets—Sheet 1.

M. MOSKOWITZ.

MEANS FOR GENERATING ELECTRICITY FROM CAR WHEEL AXLES.

No. 564,335.

Patented July 21, 1896.



WITNESSES:

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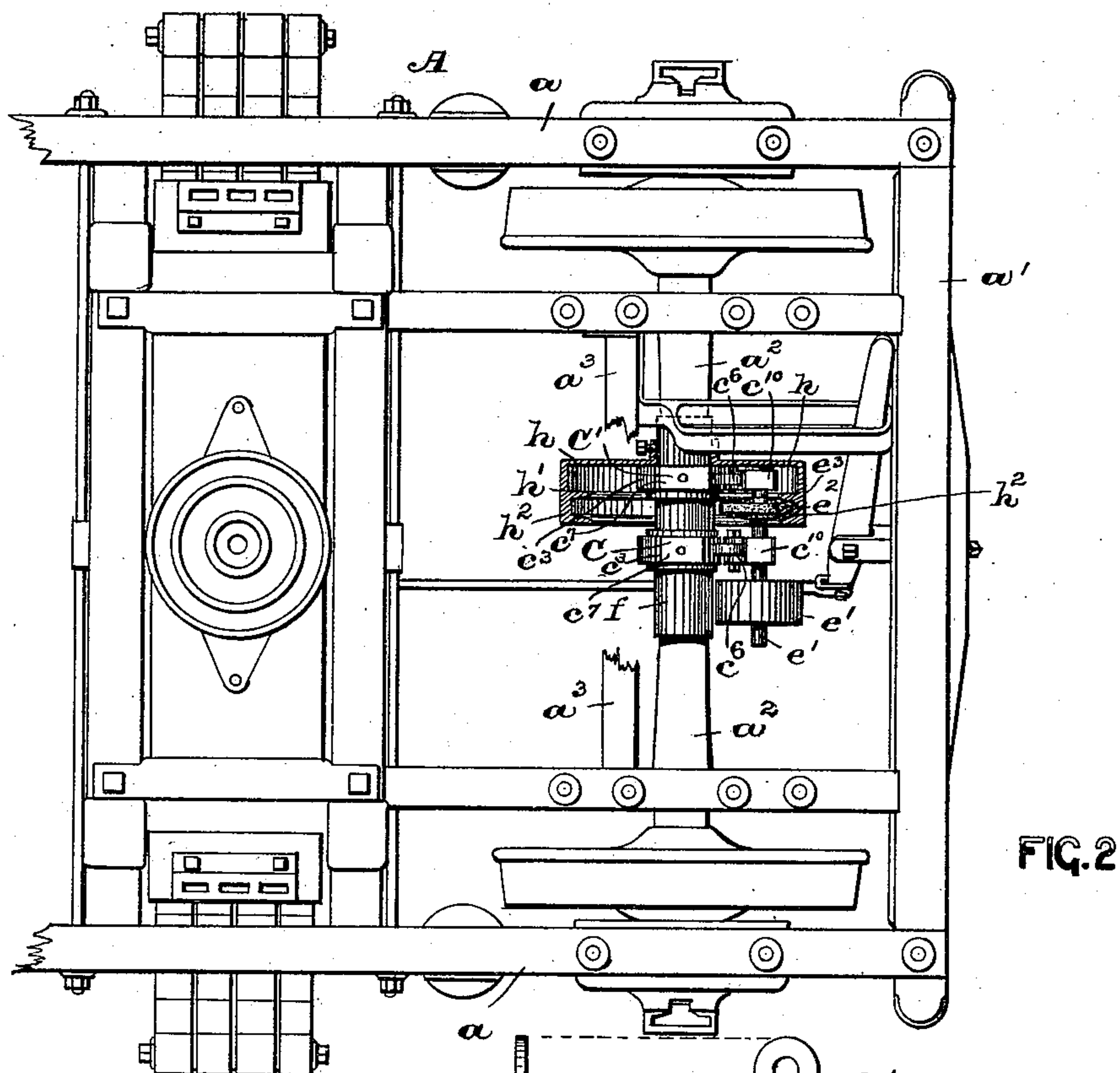


FIG. 2

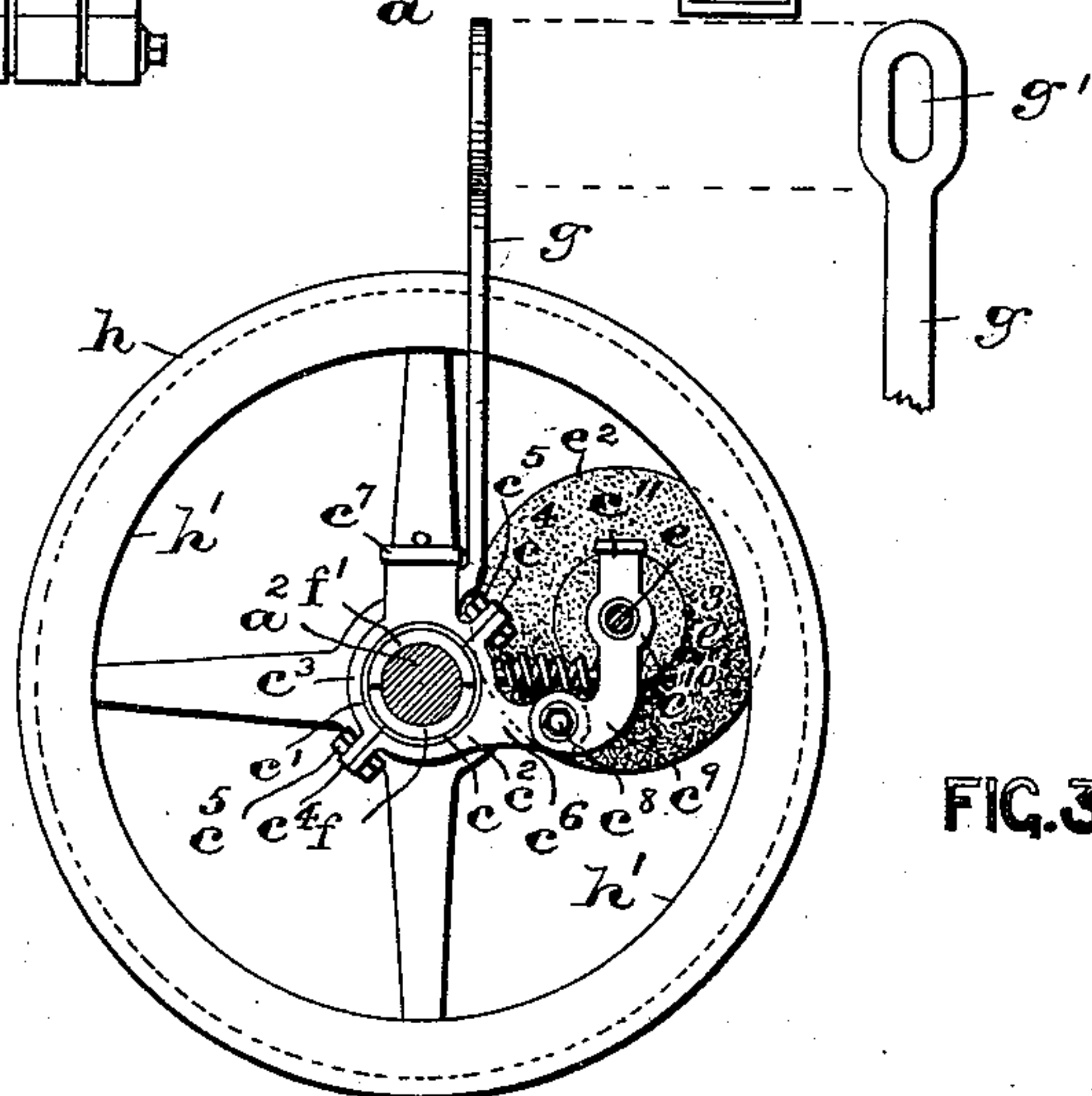


FIG. 3

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UNITED STATES PATENT OFFICE.

MORRIS MOSKOWITZ, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE NATIONAL ELECTRIC CAR LIGHTING COMPANY, OF WEST VIRGINIA.

MEANS FOR GENERATING ELECTRICITY FROM CAR-WHEEL AXLES.

SPECIFICATION forming part of Letters Patent No. 564,335, dated July 21, 1896.

Application filed March 14, 1896. Serial No. 583,167. (No model.)

To all whom it may concern:

Be it known that I, MORRIS MOSKOWITZ, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Means for Generating Electricity from Car-Wheel Axles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My present invention has reference to a novel construction of mechanism to be arranged on a car-wheel axle for driving the armature-shaft of a dynamo, within the car or on the car-wheel truck, and thereby generate electricity for lighting or heating purposes; and the invention therefore has for its object to provide a mechanical means operatively arranged on the car-wheel axle, having a pair of gear-wheels of which the pinion is an internal wheel and rotates in frictional contact with the inner peripheral surface of the outer wheel to cause greater frictional contact, and hence greater force of power.

A further object of this invention is to produce a device of this nature, in which the pinion is automatically adjustable in relation to the contact-surface of the outer wheel.

The invention therefore consists in the novel arrangement and combinations of the parts to be hereinafter fully set forth, and finally embodied in the clauses of the claim.

The invention is clearly illustrated in the accompanying sheets of drawings, in which—

Figure 1 is a view of part of a railway-car and its truck, the latter being represented partly in section and partly in side elevation, a dynamo within the car-body, and my novel construction of mechanism on the car-wheel axle for operating the same. Fig. 2 is a plan view of a portion of the car-truck of a railway-car, illustrating in horizontal section my novel form of dynamo-operating mechanism on a sleeve secured on the car-wheel axle. Fig. 3 is a side view of said mechanism on an enlarged scale.

Similar letters of reference are employed in all of the above-described views to indicate like parts.

In said drawings, A indicates the car-truck, *a a* the equalizing-bars, and *a'* are the cross-beams at the ends of the truck.

B is any suitable construction of dynamo, and *b* are the circuits connected therewith for supplying the electric lights and other electrical translating devices within the car with electrical energy.

As will be seen more especially from Fig. 1, the pulley-wheel *b'* on the armature-shaft of the dynamo is connected by means of a belt *d* with a pulley-wheel *d'* on a shaft *d²*, rotating in brackets *d³*, secured to the bottom of the car-body. On said shaft *d²* is a second pulley-wheel *d⁴*, over which passes a belt *d⁵*, operatively connected with a pulley-wheel *e'* of a shaft *e*, which is operated from the driving mechanism connected to and directly with the car-wheel axle *a²*. Upon said axle *a²* I have secured in any well-known manner two half-sections *f* and *f'*, which form a suitable sleeve. Upon this sleeve I secure the brasses *c* and *c'* in half-sections, and upon these brasses I have secured the portions *c²* and *c³*, which are provided with the flanges *c⁴* and bolts *c⁵* for securing them together to form the bearings C and C', substantially as shown in Fig. 2. Each of the portions *c³* of said bearings C and C' is provided with an arm *c⁶*, while the portions *c²* may be provided with oil-cups *c⁷*, as clearly indicated in Fig. 3. Pivotally connected with said arms *c⁶*, on the pins or bolts *c⁸*, are the upwardly-curved arms *c⁹*, provided with the bearing portions *c¹⁰* and the oil-cups *c¹¹*, substantially as shown. Rotatively arranged in said bearing portions *c¹⁰* is the hereinabove-mentioned shaft *a*, provided with the pulley *e'*. Secured to the said shaft *e*, in any well-known manner, is a pinion or friction wheel *e²*, which is preferably formed with the conical sides *e³*, and may be covered with rawhide or any other suitable material. Said pinion or friction wheel has its conical sides in frictional contact with an annular groove *h'*, formed on the inner peripheral surface *h²* of a suitable wheel *h*, which is operatively secured directly on the car-wheel

axle a^2 , or may be secured to the sleeve-sections f and f' on said axle, as will be clearly evident.

As will be seen more especially from Fig. 3, suitable springs i may be arranged between the arms c^9 and the bearing portions c^3 , which tend to maintain a constant frictional contact between the conical sides e^3 of the pinion e^2 and the correspondingly-shaped sides of the groove h' of the wheel h , and hence the operative contact of said parts, when it is desired to drive the dynamo.

As has been stated, the wheel h turns with the car-wheel axle a^2 , but to prevent the turning of the bearings C and C' with the axle a^2 , a bar or rod g , which is connected with said bearings, is employed. Said rod is provided with an elongated hole g' for loosely fitting said rod g on a bar g^2 , which in turn is firmly attached at its ends to the respective beams a' and a^3 of the car-truck.

To compensate for the vibratory movements of the car-truck, when passing over switches, curves, cross-overs, &c., I have arranged on said rod g^2 the two coiled springs g^3 and g^4 , the action of which will be readily understood from an inspection of Fig. 1.

From the above description and an inspection of the several figures of the drawings, it will be seen that as soon as the car moves in either direction then the wheel h will operate the pinion or friction wheel e^3 , and in consequence thereof operates the shaft e and its pulley-wheel e' , which, by means of the belts d^5 and d and the intermediately-arranged pulley-wheel d^4 , will drive the dynamo B in the car.

Of course it will be clearly evident that any other suitable means may be employed for driving the dynamo from the shaft e , the essential feature of my present invention being the arrangement of a large friction-wheel arranged on the car-wheel axle and driven therefrom, and a pinion or wheel in frictional contact with the inner peripheral surface of said wheel to drive a shaft, as e , and any suitable means connected with said shaft for communicating the motion thereof to the armature-shaft of a dynamo within the car or on the car-wheel truck.

The armature-wires of the dynamo may be arranged in any well-known manner and any suitable construction of dynamo can be used; and it will be further understood that I may use in connection with the dynamo and its circuits any of the well-known forms of pole-changers, acting automatically or otherwise, whereby the current can be made to travel in either direction, according to the direction of the travel of the car.

Having thus described my invention, what I claim is—

1. In a means for generating electricity from a car-wheel axle, the combination, with the car-wheel axle, of a wheel, as h , secured thereon, a pair of bearings C and C' arranged

on said axle, means connected with said bearings to prevent them from turning with the axle, a shaft e in bearings in arms connected with said bearings C and C' , a pinion on said shaft e in frictional contact with the inner peripheral surface of said wheel h , and a dynamo connected with said shaft e and operated therefrom, substantially as and for the purposes set forth.

2. In a means for generating electricity from a car-wheel axle, the combination, with the car-wheel axle, of a wheel, as h , secured thereon, a pair of bearings C and C' arranged on said axle, said bearings consisting essentially, of half-sections c^2 and c^3 , and means for securing them in position on the car-axle, arms connected with said sections c^3 , having bearings c^{10} , a shaft e in said bearings, a pinion on said shaft e in frictional contact with the inner peripheral surface of said wheel h , and a dynamo connected with said shaft e and operated therefrom, substantially as and for the purposes set forth.

3. In a means for generating electricity from a car-wheel axle, the combination, with the car-wheel axle, of a wheel, as h , secured thereon, a pair of bearings C and C' , arranged on said axle, said bearings consisting essentially, of half-sections c^2 and c^3 , and means for securing them in position on the car-axle, arms c^6 on said sections c^3 , pins or bolts in said arms, spring-actuated arms c^9 pivotally arranged on said pins or bolts, bearings in said arms c^9 , a shaft e in said bearings, a pinion on said shaft e in frictional contact with the inner peripheral surface of said wheel h , and a dynamo connected with said shaft e and operated therefrom, substantially as and for the purposes set forth.

4. In a means for generating electricity from a car-wheel axle, the combination, with the car-wheel axle, of a wheel h secured thereon, having an annular groove h' on its inner peripheral surface, said groove being \cap -shaped in cross-section, a pair of bearings C and C' arranged in said axle, means connected with said bearings to prevent them from turning with the axle, a shaft e in bearings in arms connected with said bearings C and C' , a pinion on said shaft e having conical sides in frictional engagement with said groove h' , and a dynamo connected with said shaft e and operated therefrom, substantially as and for the purposes set forth.

5. In a means for generating electricity from a car-wheel axle, the combination, with a car-wheel axle, of a wheel h secured thereon, having an annular groove h' on its inner peripheral surface, said groove being \cap -shaped in cross-section, a pair of bearings C and C' arranged on said axle, said bearings consisting, essentially, of half-sections c^2 and c^3 , and means for securing them in position on the car-axle, arms c^6 on said section c^3 , pins or bolts in said arms, spring-actuated arms c^9 pivotally arranged on said pins or

bolts, bearings in said arms c^9 , a shaft e in
said bearings, a pinion on said shaft e having
conical sides in frictional engagement with
said groove h' , and a dynamo connected with
5 said shaft e and operated therefrom, substan-
tially as and for the purposes set forth.

In testimony that I claim the invention set

forth above I have hereunto set my hand this
9th day of March, 1896.

MORRIS MOSKOWITZ.

Witnesses:

FREDK. C. FRAENTZEL,

WM. H. CAMFIELD, Jr.