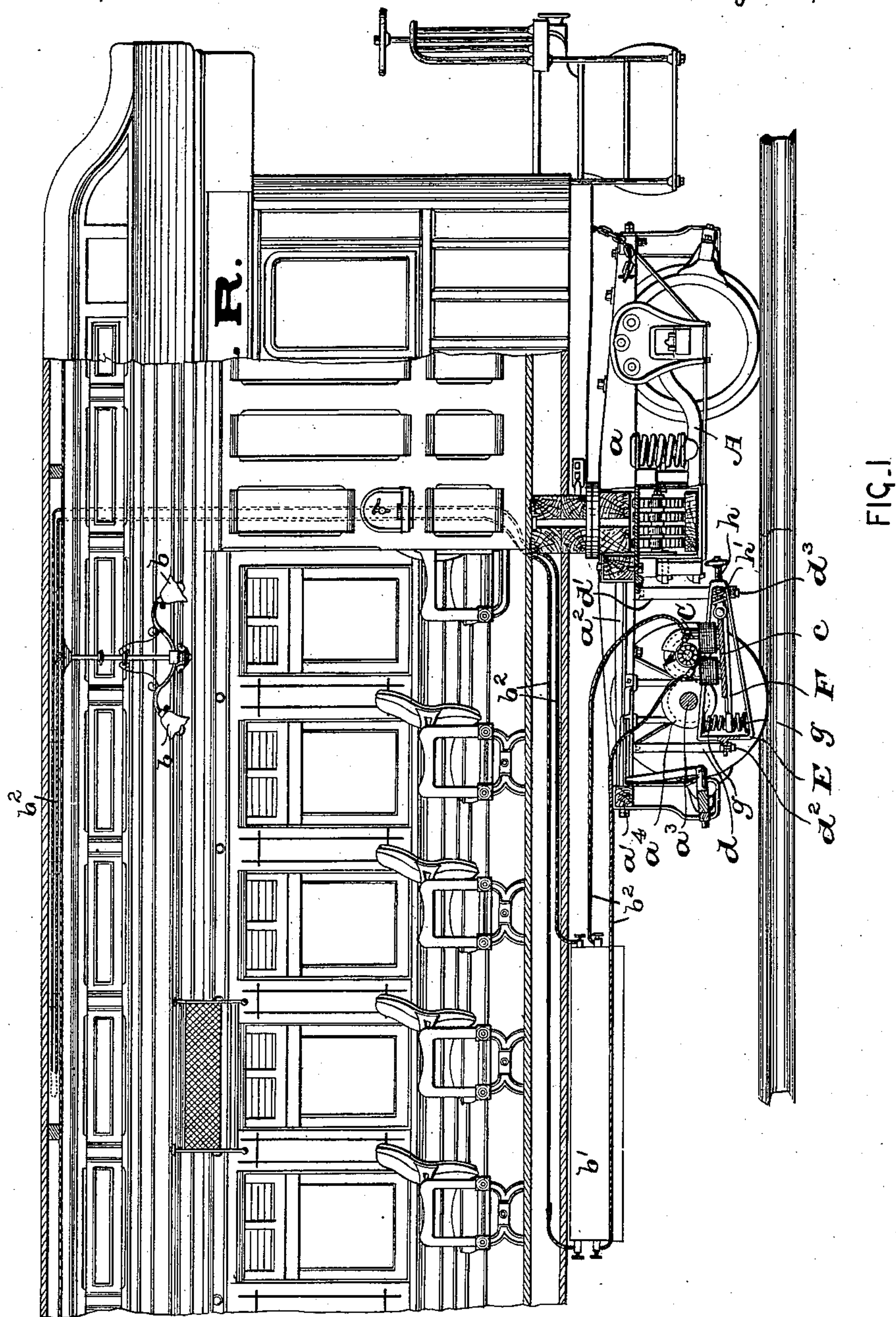


(No Model.)

2 Sheets—Sheet 1.

M. MOSKOWITZ.
MEANS FOR GENERATING ELECTRICITY FROM CAR WHEEL AXLES.
No. 564,333. Patented July 21, 1896.



WITNESSES:

Wm. H. Campfield, Jr.
B. Mortimer Tinsley.

INVENTOR:

MORRIS MOSKOWITZ.

BY

Fred C. Fraentzel,
ATTORNEY

(No Model.)

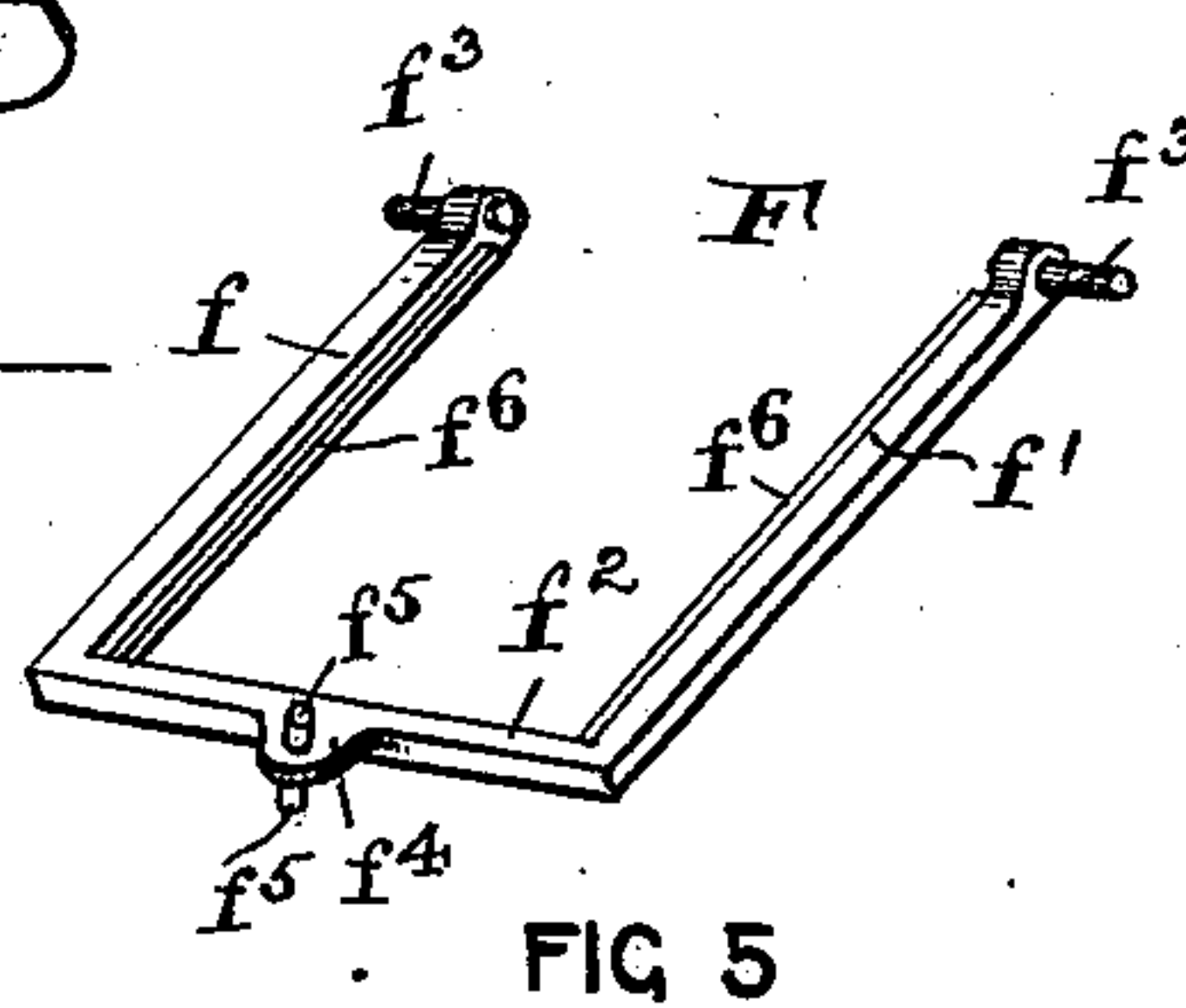
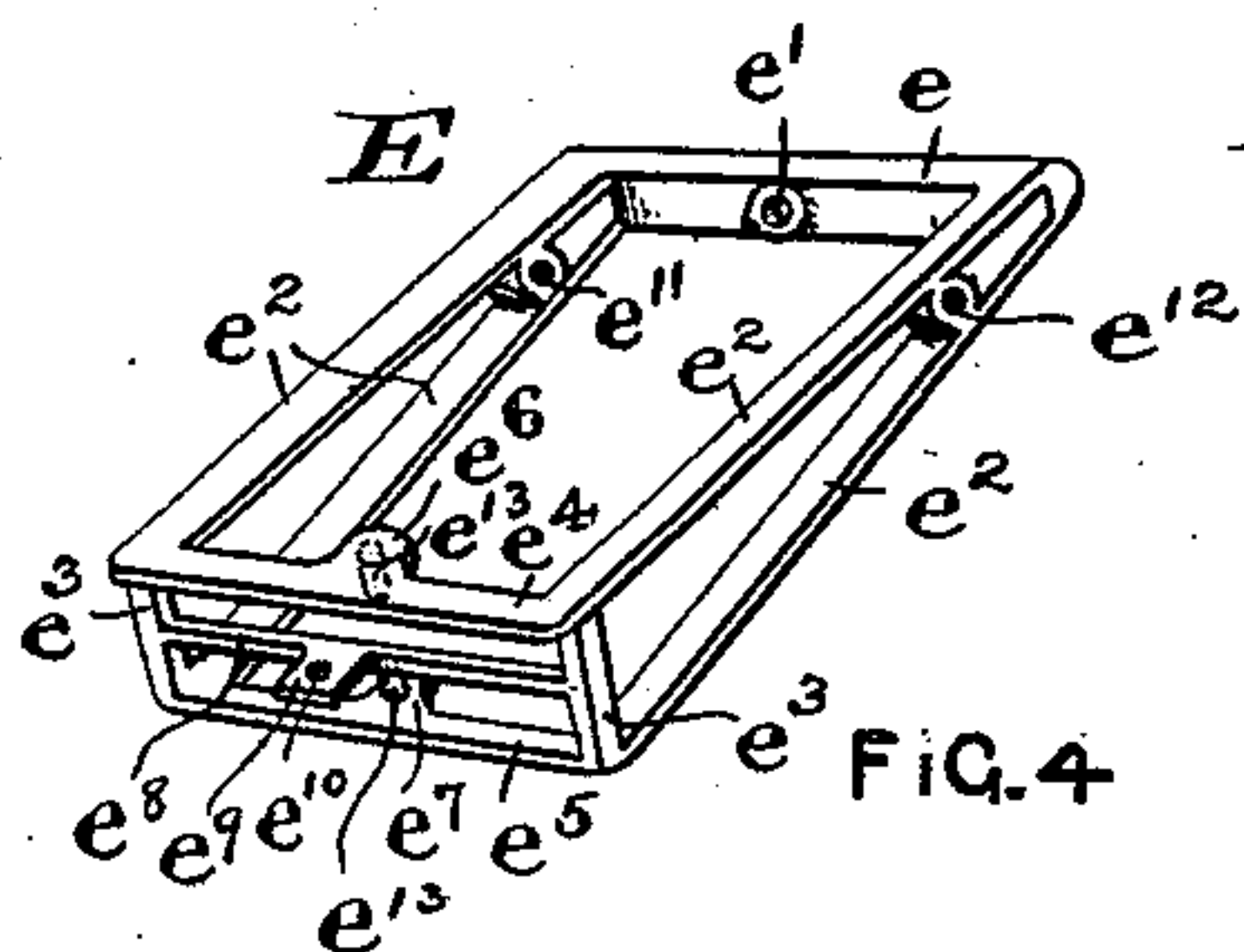
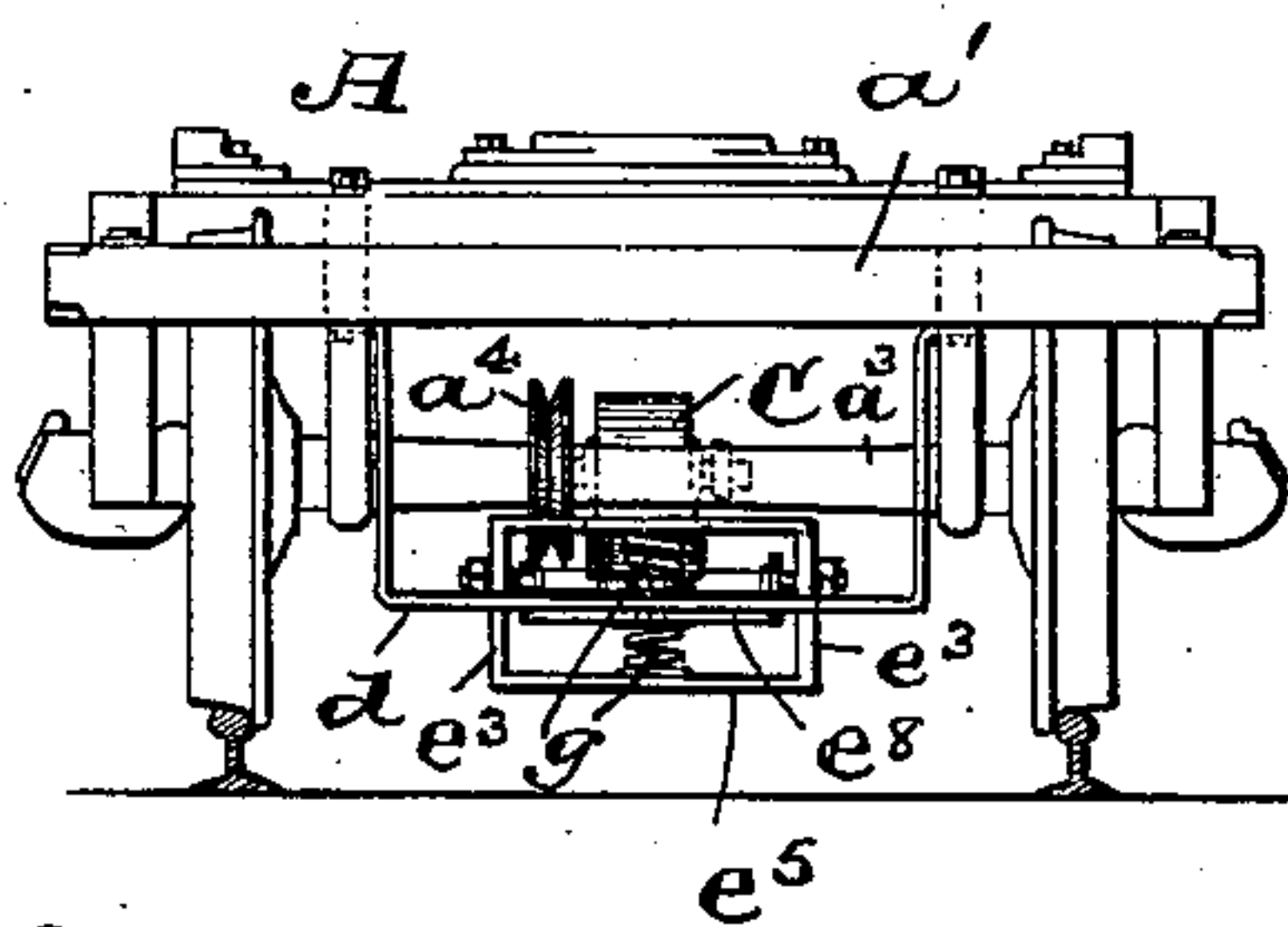
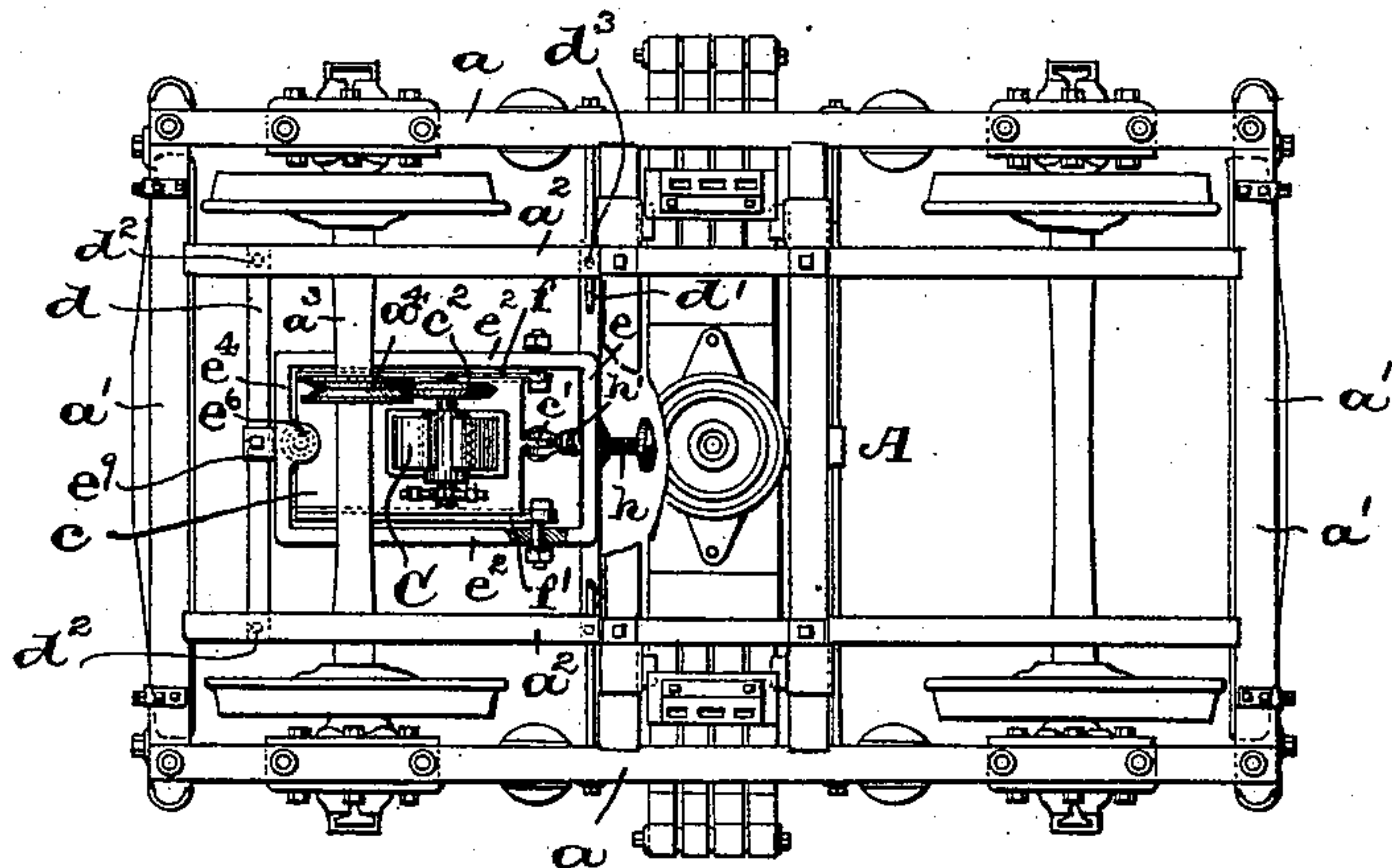
2 Sheets—Sheet 2.

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ATTORNEY

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. 564,333, dated July 21, 1896.

Application filed November 1, 1895. Serial No. 567,577. (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.

This invention has reference to improvements in electrical apparatus for generating electricity from a dynamo mounted on the truck of a railway-car and operatively connected with the car-wheel axle to drive the dynamo; and the invention has for its object to provide a means for securing the dynamo to the framework of the truck and having it operated by friction from a friction-wheel on the car-wheel axle, the dynamo being automatic in adjusting itself to the varying positions of the friction-wheels, (one on the car-wheel axle and the other on the armature-shaft of the dynamo,) the positions of which are constantly changed, due to the varying weights in the body of the railway-car and the variations in the road-bed.

The invention therefore consists, broadly, in the arrangement of a dynamo on the car-truck, operated from the car-wheel axle by suitable friction-gearing, and means for maintaining the constant operative contact of the friction-gears, irrespective of the varying heights between the car-wheel axle and the body of the car, and the vibratory and swinging motion of the car-wheel trucks of a fast-moving train.

The invention consists, furthermore, in such details of construction and combinations of parts as will be hereinafter more fully described, and finally embodied in the clauses of the claim.

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

Figure 1 is a sectional view of part of a railway-car and its truck, the same being partly represented in section, illustrating also in side elevation one form of dynamo supported on the framework of the truck and in frictional engagement or gearing with a friction-wheel arranged on the car-wheel axle. 55

Fig. 2 is a plan of the car-truck and dynamo, and Fig. 3 is an end view of all of the said parts. Figs. 4 and 5 are perspective views of certain portions of a frame for operatively supporting the dynamo on the car-truck. 60

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

In said views, A indicates the car-truck, *a a* the equalizing-bars, *a'* the cross-beams at the ends of the truck. Connecting the bars *a a* and *a'* are longitudinal beams or frame-pieces. 65

C is the dynamo which supplies electrical energy for operating the lamps *b* or other electrical translating devices in the car and also charging the battery *b'*. 70

Secured to the two beams *a'* of the car-truck, as clearly shown in Figs. 1, 2, and 3 of the drawings, are the two yokes or iron frame-pieces *d* and *d'*, to which are secured by means of the bolts *d'* and *d'* (see more particularly Fig. 1) the two end portions of a suitably-constructed dynamo-supporting frame E. Said frame consists, essentially, of a back piece *e*, having a hole *e'*. Extending from said piece *e* are two pairs of diverging arms *e'*, which are connected by the posts *e'* and the cross-pieces *e'* and *e'*, as will be clearly seen from Fig. 4. The said cross-pieces *e'* and *e'* are respectively provided with suitable lips or projections *e'* and *e'*, the purposes of which will be more fully described hereinafter. 75

Between the two posts *e'* is a connecting bar or rod *e'*, provided with a projection *e'* and a hole *e'* for the reception of the bolt *d'*, hereinabove mentioned, to firmly support the end of the frame E to the yoke *d*. The other yoke, *d'*, is secured by bolts *d'*, which are screwed into the bottom of the back piece *e*, as will be evident. 80

Between the diverging arms *e'* of the frame E, I have arranged suitable bearings *e'* and *e'* for pivotally supporting a frame F between the said arms of said frame E. Said frame F consists, essentially, of the two arms *f* and *f'*, connected by a cross-bar *f'* and provided at their free ends with suitable journal-pins *f'*, which are pivotally arranged in the bearings *e'* and *e'* of the frame E, the cross-bar *f'* being suspended between the ears or pro- 85

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jections e^6 and e^7 of the frame E by stout coiled springs g , which rest against said projections e^6 and e^7 on the frame E and a projection f^4 on the cross-bar f^2 of the frame F, substantially as shown in Figs. 1 and 3. The projections e^6 and e^7 may be provided with studs or posts e^{13} and the projection f^4 with studs or posts f^5 , which are encircled by the end coils of the said springs g to prevent their displacement.

Each arm f and f' of the frame F is provided with an inwardly-extending rib or guide-bar f^6 , (see more particularly Fig. 5,) on which is movably placed the base c of the dynamo C. As will be seen from Figs. 1 and 2, said base is provided with a perforated ear or lug c' , with which is pivotally connected a rod h , having a reciprocal movement in the hole e' in the back piece e of the frame E. A spring h' , which encircles said rod h , as shown, is employed to move said base c , and hence the dynamo C, forwardly on the guides f^6 of the frame F, with this result, that a certain friction-wheel c^2 on the armature-shaft of the dynamo will always be in constant frictional engagement with a friction-wheel a^4 on the car-wheel axle a^3 , as will be clearly evident from an inspection of Fig. 2.

From the above description it will be seen that no matter what the change or variation of distance is between the frame-pieces of the truck and the longitudinal axis of the car-wheel axle, owing to the difference in weight in the car-body at different times, the stout spring h' will allow of sufficient sliding movement of the dynamo C on the frame F to cause a constant frictional contact between the friction-gear a^4 on the axle a^3 and the gear c^2 on the armature-shaft, and the dynamo will therefore be in constant operation to deliver electricity by the wires b^2 to the battery b' and the lamps b while the car is in transit. At the same time the springs g compensate for the vibratory movements of the car-truck when passing over switches, curves, or cross-overs, and the result will be that the frame F, and hence the dynamo C thereon, will at all times be retained in its practically horizontal working position.

The armature-wires of the dynamo are arranged in any well-known manner and any suitable construction of dynamo can be used; but by the use of the friction-gears I have obtained this great advantage, that there is no danger of the breaking of gear-teeth, and a noiseless gearing has been obtained for driving a dynamo from a rotating car-wheel axle.

Of course it will be 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 travel of the car.

Having thus described my invention, what I claim is—

1. The combination, with a dynamo mounted on a frame which is pivoted on a horizontal axis to a car-wheel truck of a railway-car, of a friction-gear on the armature-shaft of the dynamo, a friction-gear on the car-wheel axle, and means connected with said dynamo for causing a sliding movement of the same, and maintaining the constant frictional engagement of said friction-gears, substantially as and for the purposes set forth.

2. The combination, with a car-wheel axle, and a friction-wheel thereon, of a frame E secured to the car-truck, a dynamo mounted on a frame which is pivoted on a horizontal axis to said frame E, a friction-gear connected with said dynamo, and means connected with said dynamo for causing a sliding movement of the same and maintaining the constant frictional contact of said friction-gears, substantially as and for the purposes set forth.

3. The combination, with a car-wheel axle, and a friction-wheel thereon, of a frame E secured to the car-truck, a frame F pivotally arranged in said frame E, a dynamo on said frame F, a friction-gear connected with said dynamo, and means connected with said dynamo for causing a sliding movement of the same, and maintaining the constant frictional contact of said friction-gears, substantially as and for the purposes set forth.

4. The combination, with a car-wheel axle and a friction-gear thereon, of a frame E having bearings e^{11} and e^{12} , a frame F having journals pivotally arranged in said bearings in the frame E and provided with ribs or guides f^6 , a dynamo movably arranged on said guides, a friction-gear connected with said dynamo, a rod h pivotally connected with said dynamo and movable in a hole in said frame E, and a spring h' encircling said rod h , for causing the sliding movement of the dynamo and maintaining the constant frictional contact of said friction-gears, substantially as and for the purposes set forth.

5. The combination, with a car-wheel axle and a friction-gear thereon, of a frame E having bearings e^{11} and e^{12} , a frame F having journals pivotally arranged in said bearings in the frame E and provided with ribs or guides f^6 , and springs, as g , between said frames F and E, a dynamo movably arranged on said guides, a friction-gear connected with said dynamo, a rod h pivotally connected with said dynamo and movable in a hole in said frame E, and a spring h' encircling said rod h , for causing the sliding movement of the dynamo and maintaining the constant frictional contact of said friction-gears, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 22d day of August, 1895.

MORRIS MOSKOWITZ.

Witnesses:

FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.