



# UNITED STATES PATENT OFFICE.

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## DRIVING CONNECTION FOR MOTORS.

SPECIFICATION forming part of Letters Patent No. 683,968, dated October 8, 1901.

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*To all whom it may concern:*

Be it known that I, MORRIS MOSKOWITZ, of Newkirk avenue and Twenty-second street, in the borough of Brooklyn, in the city and State of New York, have invented certain new and useful Improvements in Yielding Driving Connections for Generators and Motors, of which the following is a description, referring to the accompanying drawings, which form part of this specification.

The invention is applicable to many uses. It is designed, primarily, for the driving connection between electric motors or electric generators mounted upon or under car-bodies and the car-wheel or wheel-axle. The car-wheel necessarily has a limited movement in respect to the car-body both by reason of the vertical movement due to the springs and of the horizontal swinging movement of the wheel in passing around curves. I am of course aware that various devices have been employed for allowing the movement of the motor or generator upon its means of support, and among such devices may be mentioned the use of springs and also the use of the weight of the motor itself for exerting tension on the driving connection.

The object of the present invention is to maintain a substantially uniform force, whether of tension or compression, upon the driving connection. This object is accomplished in the manner set forth in the following description, wherein the invention is illustrated as applied to a belt-driving connection between a car-wheel and an electric generator driven therefrom for generating current to illuminate the car or for other purposes.

In the drawings, Figure 1 is a side elevation, partly in section, showing a part of the car-body with the motor and its attachments supported beneath it and a car wheel and axle, to which the machine is connected by a belt. Fig. 2 is a sectional detail view on the plane 2 2 of Fig. 1 looking toward the right hand.

Throughout the drawings like letters of reference indicate the same or similar parts.

Let *a* represent the car body, frame, or other support by which the generator or electric machine *c* is carried.

Let *e* represent the car-wheel, and *g* the wheel-shaft, which is connected with the shaft

of the generator or machine *c* by a belt *m* and pulleys *f* and *r*. The machine *c* is not rigidly connected to the support *a*, but, on the contrary, is free to slide or travel horizontally, and for this purpose it is provided with friction-reducing wheels *k* and *l*, which run upon suitable horizontal guides or channel-bars *b*, secured to the support *a*. This method of mounting allows the generator *c* to move to and fro to adapt itself to the relative movement of the car-wheel or wheel-shaft *g* while maintaining uniform tension upon the belt *m*. In order to produce such tension, I provide a weight *d* and a rope, cable, or chain *j*, extending from the weight over one or more of the pulleys *i* *h* and connected to the frame of the generator. This device would exert a uniform tension at all positions of the generator if the car-body were not subject to more or less vertical joggling movement, which affects to some extent the tension in the rope *j*. Therefore I prefer also to provide a fluid-pressure device, which may be in the form of a cylinder *o* and piston, connected by a piston-rod *n* to the generator, the cylinder in turn communicating by the vertical pipe *t* with a reservoir *s*, by which a hydrostatic pressure may be exerted on the piston. To further increase such hydrostatic pressure, I may employ a plunger *s'*, carrying weights *s''*. This fluid-pressure device not only tends to force the generator to the right and so exert tension upon the belt *m*, but it also acts as a dash-pot, which prevents the sudden movement of the generator in either direction, with a consequent uneven tension upon the belt *m*. Preferably, therefore, I employ both the means for producing the tension by fluid-pressure and the means for producing it by the weight *d*, though in special instances one or the other may be omitted—as, for example, when there is little or no vibratory or joggling motion.

I am of course aware that inclined guides upon which the motor has been mounted to roll or slide have been employed to utilize the weight of the motor itself in producing tension upon the belt, and I am also aware that motors have been counterweighted, so as to exert a direct pull upon a belt; but in such cases the weight of the motor is either

the direct cause or a direct factor in determining the tension to be exerted, whereas under my present invention the tension may be regulated independently of the weight of the motor.

- Having now fully described my invention in one of its preferred forms, I claim, and desire to secure by these Letters Patent, the following characteristic features:
- 10 The combination of an electrical machine, and the support by which it is carried and a shaft which has a limited movement relatively to the said support, a driving-belt connecting the said shaft with the said machine, sliding connections allowing the machine to travel on the said support, a piston connected to the said machine, a cylinder connected to the said support, in which the piston travels, and means, consisting of

a reservoir and weighted piston connected to the said cylinder, for giving substantially uniform pressure upon said cylinder and piston to maintain a substantially uniform tension in the said belt, a weight connected by a chain connection with the said machine, said chain being connected to said machine at the side of said machine opposite to where said piston is connected, said weight being connected to said machine for exerting tension upon the belt independently of the weight of said machine, substantially as set forth.

Signed this 23d day of October, 1900, at New York, N. Y.

MORRIS MOSKOWITZ.

Witnesses:

HENRY SAMUEL MORTON,  
HAROLD BINNEY.