

(No Model.)

C. E. CHINNOCK.

GEARING FOR ELECTRO MAGNETIC MOTORS.

No. 462,348.

Patented Nov. 3, 1891.

Fig. 1

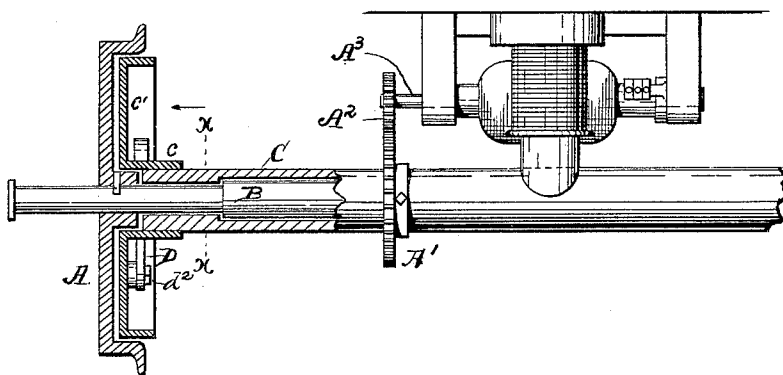
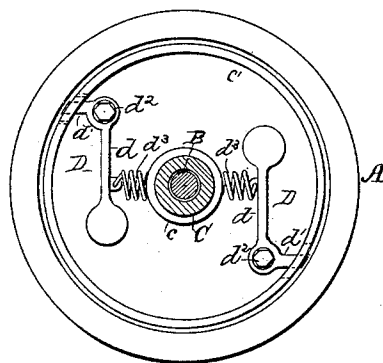


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES E. CHINNOCK, OF BROOKLYN, NEW YORK.

GEARING FOR ELECTRO-MAGNETIC MOTORS.

SPECIFICATION forming part of Letters Patent No. 462,348, dated November 3, 1891.

Application filed August 26, 1890. Serial No. 363,098. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. CHINNOCK, of Brooklyn, Kings county, and State of New York, have invented a certain new and useful Improvement in Gearing for Electro-Magnetic Motors and Mechanism Driven Thereby, of which the following is a specification.

My improvement is especially designed for the driving of cars by electro-magnetic motors.

According to the ordinary method of employing electro-magnetic motors for driving cars serious mishaps have been liable to occur.

The object of my improvement is to guard against these mishaps by so connecting the motor with the car or analogous article that the motor will never meet with a resistance greater than it is adapted to overcome, and hence will not be brought to a standstill so as to be liable to short-circuiting and the attendant evil results.

My object also has in view the accomplishment of this in order that the motor may be reversed to aid in braking the car.

My improvement consists in so connecting the electro-magnetic motor with the part which is to be driven that when the said part offers an abnormal resistance to movement there may be a slip between the motor and said part and the motor may continue to operate even though the said part comes to rest.

In the accompanying drawings, Figure 1 represents a vertical section of one of the wheels of a car, an axle to which said wheel is fastened, a tubular shaft fitting said axle, and an electro-magnetic motor employed to drive said tubular shaft. Fig. 2 is a vertical section at the line *x x*, Fig. 1, and looking in the direction indicated by the arrow which is marked at one end of said line.

Similar letters of reference designate corresponding parts in both figures.

A designates a car-wheel of ordinary or any suitable form. B designates an axle upon which it is mounted. This may be of ordinary construction and fastened to the car-wheel in the usual manner. I desire to remark that the axle and car-wheel, broadly considered, simply represent a part to be driven.

C designates a tubular shaft surrounding the axle B and adapted to rotate about the same. At one end it has fastened to it a

head or disk *c*, which terminates in a lateral flange *c'*. This flange is of such size as to fit snugly within the flange or tread of the car-wheel; but it is not intended to touch the same. At the other end the shaft C is provided with a gear-wheel *A'*, meshing with a gear-wheel *A²* on the shaft *A³* of a motor.

D designates levers, of which there may be any suitable number, made in the form of elbow-levers and having long arms *d*, which are weighted at the extremities, and short arms *d'*, which extend through slots in the flange *c'* and are adapted to bite upon or engage with the inner surface of the flange of the car-wheel. These levers are fulcrumed by pins or screws *d²* at the intersection of their two arms. Springs *d³* are connected to the levers and to the tubular shaft C and normally hold the levers out of engagement with the car-wheel. The springs, however, are very light springs. Consequently when the tubular shaft rotates to any considerable speed the centrifugal action will cause the long arms of the levers to swing outward, and then the shorter arms of the levers will be caused to engage with the car-wheel.

The engagement of the tubular shaft with the car-wheel in the manner described is not a positive engagement, but a yielding or slipping engagement. Hence when the resistance which the car-wheel offers to being moved is too great to be overcome by the engagement established through the levers the tubular shaft can go on rotating because the levers will slip along the car-wheel.

Of course all the parts are to be so proportioned that the engagement will be serviceable for the maximum force which the motor is adapted to exert upon the part to be driven. By my improvement it will be impossible to offer to the motor a resistance to movement which it cannot overcome. Owing to this, short-circuiting of the motor will be obviated and it will be possible to reverse the motor so as to aid in braking a car-wheel or other moving part.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with a motor, a rotary part, and an axle upon which it is mounted, of a tubular shaft mounted on said axle and

having a driving engagement with the motor,
a flanged disk secured to said tubular shaft
and fitted within a flange of the rotary part,
and levers pivoted to the disk and weighted
5 at one end and the other end extending through
a slot in the disk-flange to engage with the
rotary part, substantially as specified.

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

CHARLES E. CHINNOCK.

Witnesses:

S. O. EDMONDS,

THOMAS LITTLEJOHN.