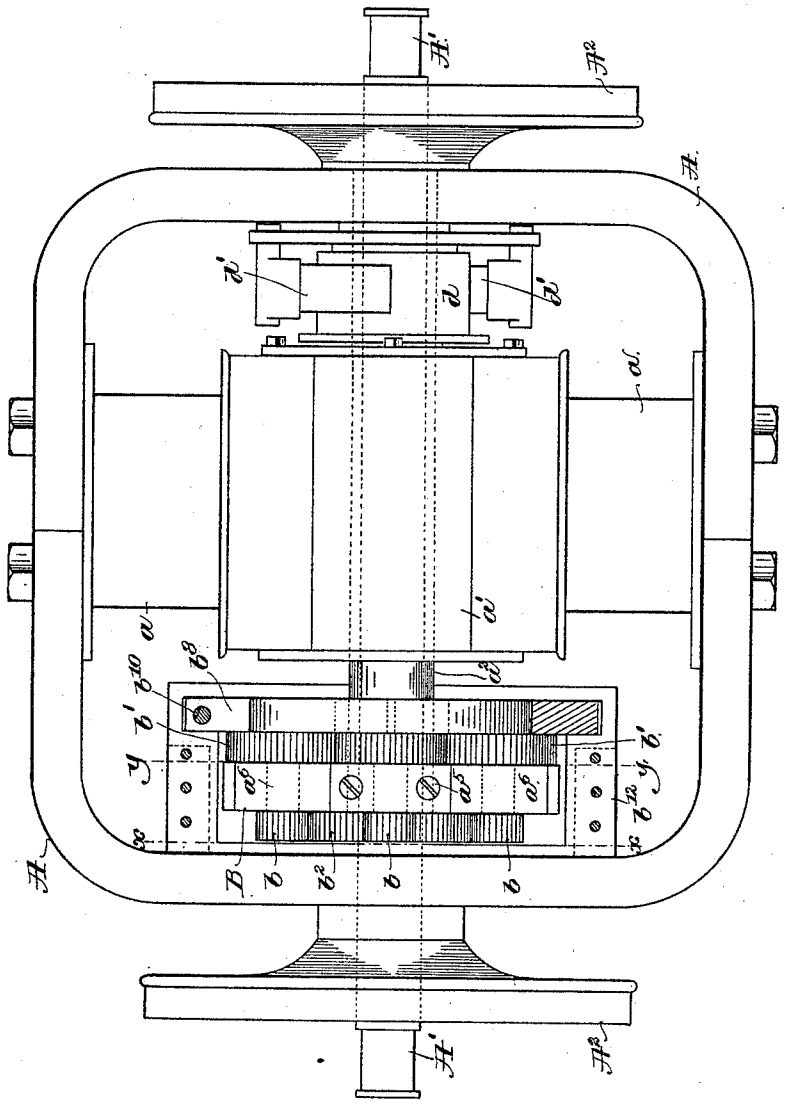
(No Model.) 2 Sheets—Sheet 1.

S. E. MOWER.

ELECTRIC MOTOR MECHANISM.

No. 440,717. Patented Nov. 18, 1890.

Fig. 1.



Witnessee.

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Fig. 3.

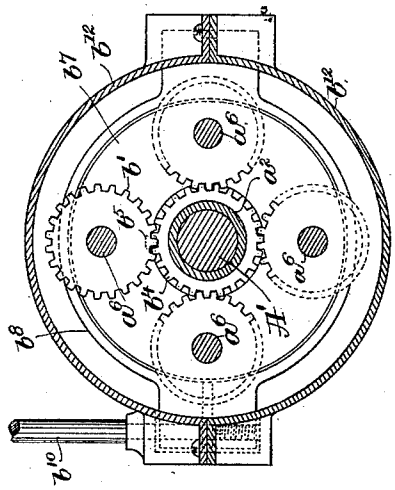
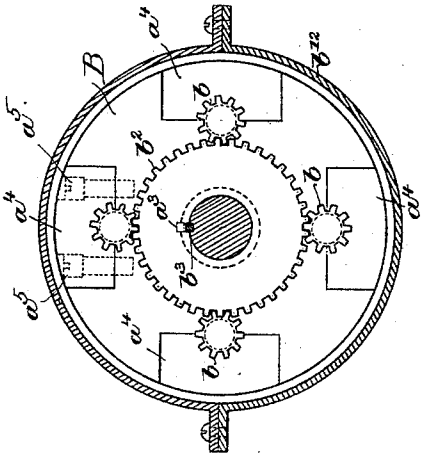


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

SAMUEL E. MOWER, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO HENRY G. THOMPSON & SONS, OF SAME PLACE.

ELECTRIC-MOTOR MECHANISM.

SPECIFICATION forming part of Letters Patent No. 440,717, dated November 18, 1890.

Application filed May 8, 1890. Serial No. 351,072. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL E. MOWER, of New Haven, county of New Haven, State of Connecticut, have invented an Improvement in Electric-Motor Mechanism, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to electric-motor mechanism especially adapted to be used on street-railway cars, and is an improvement upon the motor mechanism shown and described in another application, Serial No. 329,760, filed by me November 9, 1889.

My present invention relates more particularly to the speed-reducing mechanism, and has for its object to improve the construction of the same.

The particular features in which my invention consists will be pointed out in the claims at the end of this specification.

Figure 1 is a top or plan view of a car-axle having mounted upon it an electric-motor mechanism embodying my invention; Fig. 2, a sectional view on the line x x, Fig. 1, and Fig. 3 a sectional view on the line y y, Fig. 1.

The yoke or frame A, supported on the car-axle A′, provided with wheels A^2, the field-magnets a, secured to said yoke, and the armature a', secured to or forming part of the sleeve a^2, mounted upon the axle A′, may be substantially such as shown and described in my application referred to.

The sleeve a^3 has secured to it, as by a key a^3, (see dotted lines, Figs. 1 and 2,) a disk B, provided on its periphery, preferably, with four recesses, into which are fitted boxes a^4, which may be secured to the disk B by screws a^5, only two of which are shown in Fig. 2.

The boxes a^4 form loose bearings for shafts a^6, upon one end of each of which is mounted a small gear or pinion b, and on the other end of which, at the opposite side of the disk B, is secured a large gear b'. The pinions b mesh with a large gear b^2, made fast on the car-axle, as by a key b^8, and the gears b' mesh with a gear b^4, which is smaller than the gear b^2. The gear b^4 is loose on the armature-sleeve, and the said gear is secured by a key b^5 (see dotted lines, Fig. 3) to a friction drum or disk b^7, loose on the said sleeve, the said friction-disk being encircled by a friction-strap b^8, which may be tightened and loosened upon the said friction-disk by a rod b^{10}, which in practice may be effected from the platform of the car.

The speed-reducing mechanism above described is inclosed in an oil and dust tight drum or case b^{12}, secured to and supported by the yoke A, the said drum in practice containing a quantity of oil sufficient to lubricate the gears.

The motor is provided with the usual commutator d and brushes d'.

In operation the armature-sleeve and disk B fast thereon are revolved continuously, and if the friction-strap b^8 is not engaged with the friction-disk b^7 the gear b^4 and the friction-disk b^7 will be revolved, and the pinions b will travel around the gear b^2 without rotating the latter and the car-axle will remain stationary. If it is desired to start the car, the friction-strap is tightened upon the friction-disk b^7, and the motion of the said disk and of the gear b^4 will be retarded, and in proportion as the motion of the friction-disk and the gear b^4 are retarded the gear b^2, fast on the car-axle, will be rotated, and when the friction-disk is held stationary the gear b^2 is rotated at the maximum speed, thereby moving the car at a maximum speed. It will thus be seen that the speed or travel of the car may be controlled by regulating the pressure or bind of the friction strap upon the friction-disk.

I have herein shown the gear b^2 as engaged by four pinions, and while I prefer to employ this number of pinions I do not desire to limit myself in this respect, as I may employ any desired number of said pinions.

I claim—

1. In an electric-motor mechanism, the combination, with an axle and a motor having its armature secured to a sleeve loosely mounted on said axle, of a speed-reducing mechanism consisting of a disk fast on said sleeve, a gear fast on said axle, a gear loose on the armature-sleeve, a shaft having bearings in the said disk and provided with a pinion in mesh with the gear on the axle and with a gear in

mesh with the gear loose on the armature-sleeve, a friction disk or drum loose on the armature-sleeve and secured to the gear on the armature-sleeve, a friction-strap to engage said friction-disk, and means to engage said strap with the said friction-disk, substantially as described.

2. In an electric-motor mechanism, the combination, with an axle and a motor having its armature secured to a sleeve loosely mounted on said axle, of a speed-reducing mechanism consisting of a disk fast on said sleeve and provided with removable boxes, a gear fast on said axle, a gear loose on the armature-sleeve, a plurality of shafts having bearings in said disk and removable boxes, a pinion on each of said shafts in mesh with the gear on the axle and a gear on each of said shafts in mesh with the gear loose on the armature-sleeve, a friction disk or drum loose on the armature-sleeve and secured to the gear loose on the said armature-sleeve, and a friction-strap to be engaged with and disengaged from said friction-disk, substantially as described.

3. In an electric-motor mechanism, the combination, with an axle and a motor having its armature secured to a sleeve loosely mounted on said axle, of a speed-reducing mechanism consisting of a disk fast on said sleeve and provided with removable boxes, a gear fast on said axle, a gear loose on the armature-sleeve, a plurality of shafts having bearings in said disk and removable boxes, a pinion on each of said shafts in mesh with the gear on the axle and a gear on each of said shafts in mesh with the gear loose on the armature-sleeve, a friction disk or drum loose on the armature-sleeve and secured to the gear loose on the said armature-sleeve, a friction-strap to be engaged with and disengaged from said friction-disk, and a drum or case b^{12} inclosing said speed-reducing mechanism oil and dust tight, substantially as described.

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

SAMUEL E. MOWER.

Witnesses:
HENRY G. THOMPSON,
L. H. DAYTON.