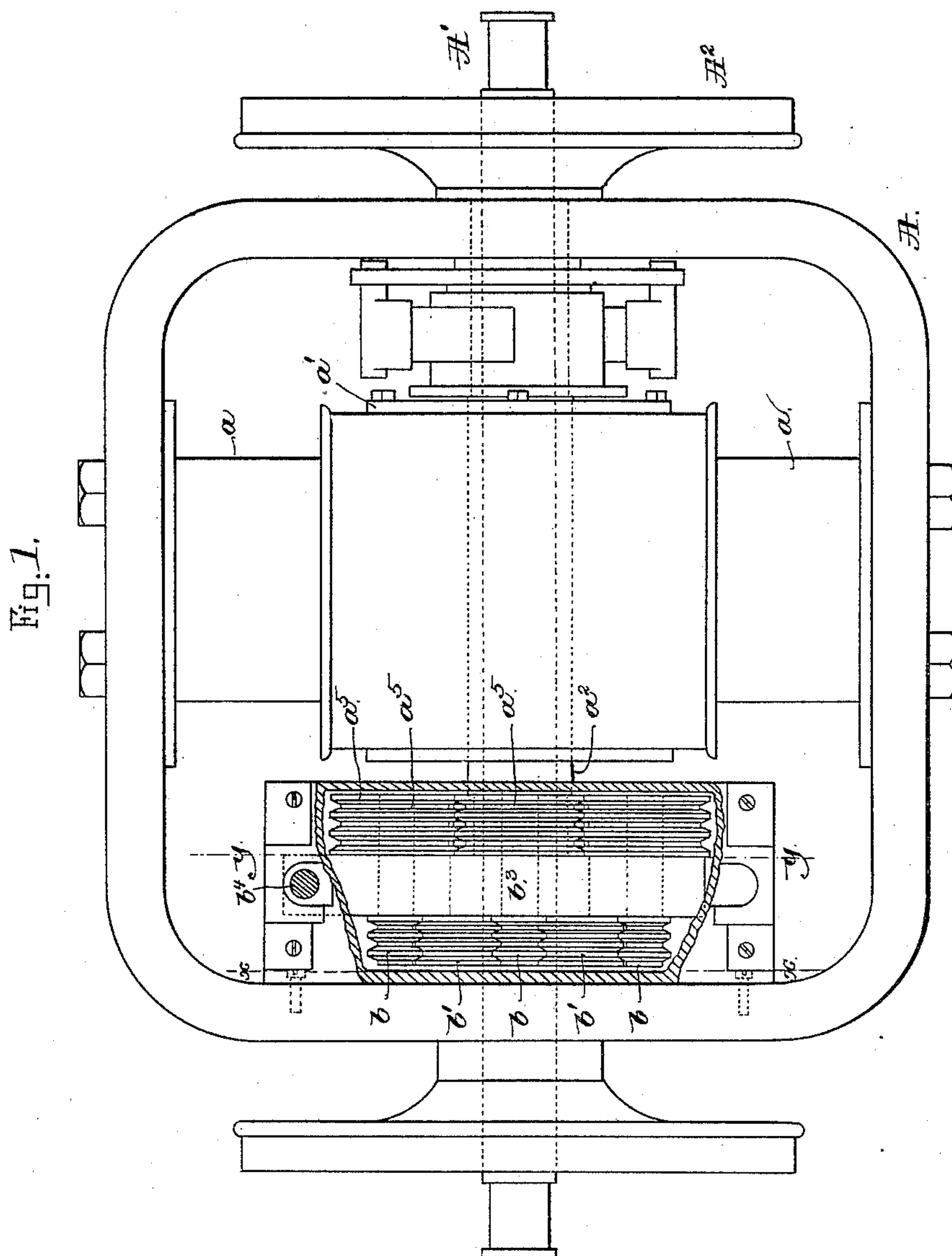


2 Sheets—Sheet 1.

No. 440,718.

Patented Nov. 18, 1890.



Witnesses.

Fred. S. Greenleaf
Maurice L. Emery -

Inventor:

Samuel E. Mower,
by Crosby Gregory
Attys.

(No Model.)

2 Sheets—Sheet 2.

S. E. MOWER.
ELECTRIC MOTOR MECHANISM.

No. 440,718.

Patented Nov. 18, 1890.

Fig. 2.

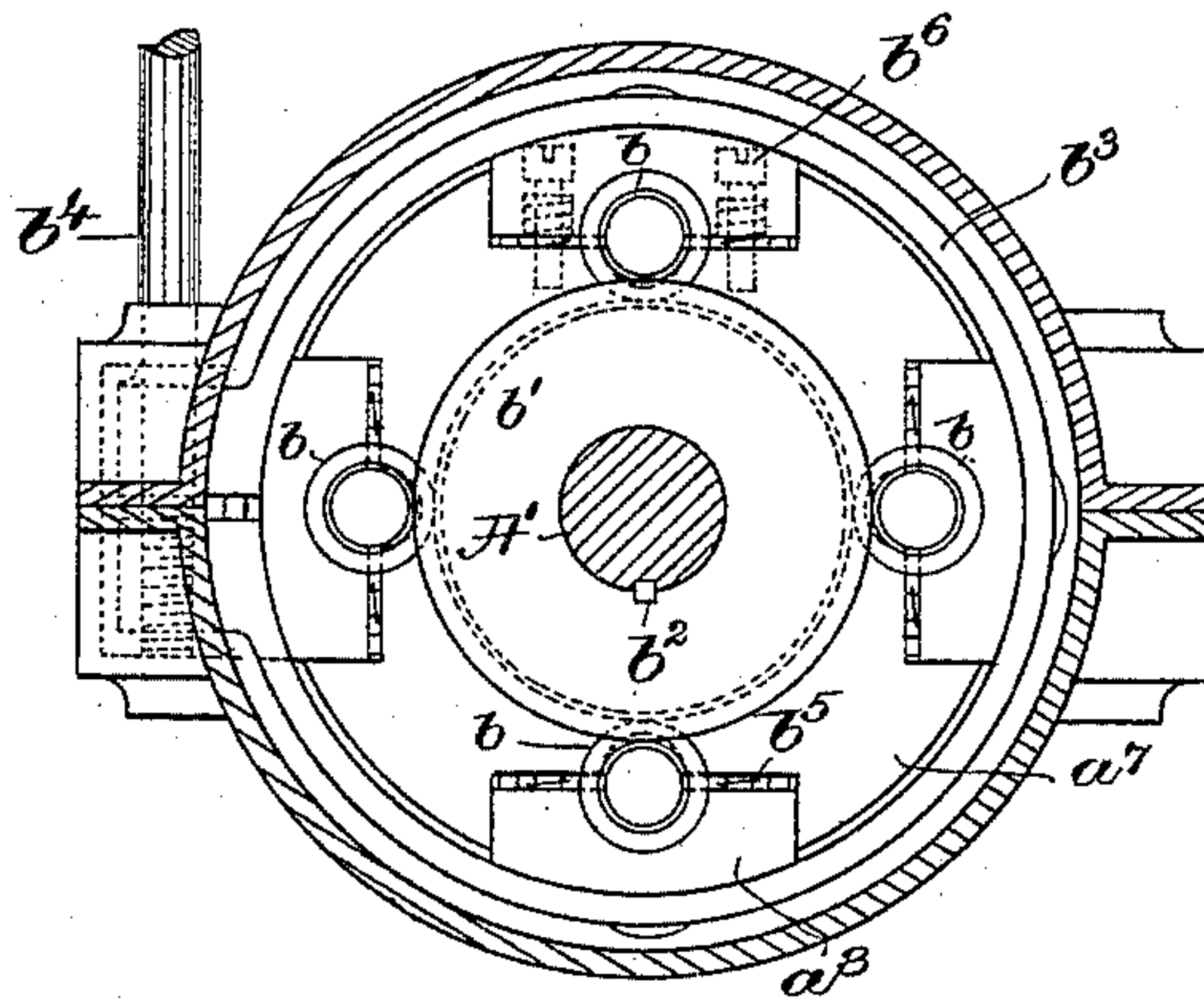
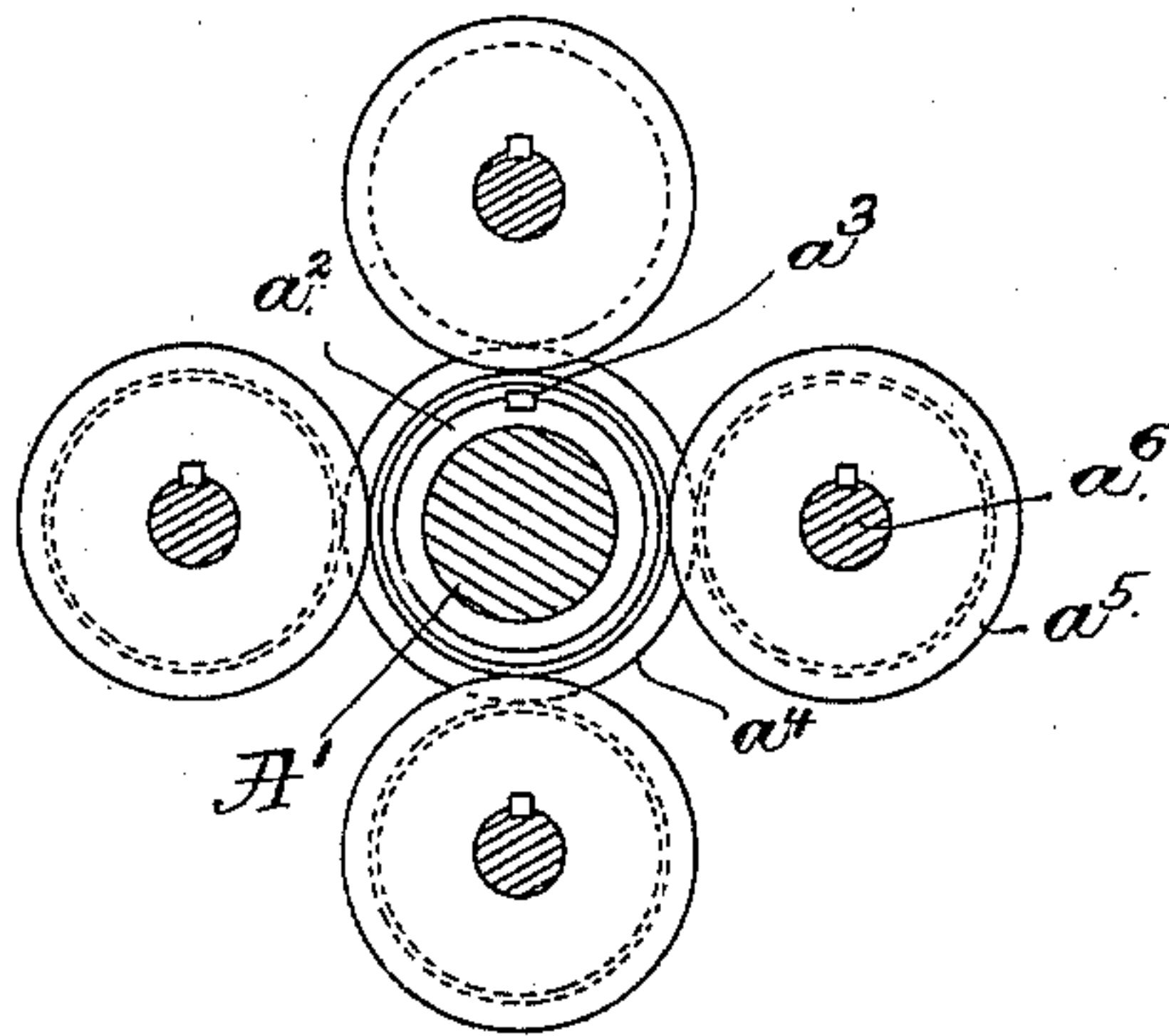


Fig. 3.



Witnesses.

Fred S. Greenleaf
Maurice L. Emery

Inventor.

Samuel E. Mower,
by Crosby Gregory
Attys.

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. 440,718, dated November 18, 1890.

Application filed May 10, 1890. Serial No. 351,242. (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.

10 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.

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

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

25 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 of the motor mechanism shown in Fig. 1 on line $x x$; and Fig. 3, a sectional detail, to be referred to, on line $y y$, Fig. 1.

30 The yoke or arm A, supported on the car-axle A', provided with wheels A², the field-magnets a , secured to the said yoke, 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^2 has secured to it, as by a key a^3 , (see Fig. 3,) a gear a^4 , provided, as herein shown, with circumferential teeth to form a friction-gear. 40 The friction-gear a^4 has co-operating with it, as herein shown, preferably four like friction-gears a^5 , keyed upon shafts a^6 , having bearings in a disk a^7 , provided with boxes a^8 , loosely fitted into recesses in the periphery of the said disk. The friction-gears a^5 are preferably loosely keyed to the shafts a^6 to allow a slight lateral motion, and thus relieve the gears from side-thrust of the motor. The disk a^7 may be made fast on the axle A' by a 50 suitable key, or it may be loose thereon.

Each shaft a^6 has mounted upon it on the side of the disk opposite to that on which the friction-gears a^5 are located a pinion b , provided with circumferential teeth to form friction-pinions, which are adapted to be brought into 55 engagement, as will be described, with a friction-gear b' , secured to the axle A', as by a key b^2 . The loose boxes a^8 and the disk a^7 are encircled by a friction-strap b^3 , having its ends secured in suitable manner to a rod b^4 , 60 by turning which the said friction-strap may be made to move the loose boxes a^8 radially toward the axle and clamp the shafts a^6 , the said boxes when the friction-strap is unloosened being normally held away from the disk 65 a^7 by a cushion, herein shown as spiral springs b^5 , encircling screws or rods b^6 , extended through the boxes a^8 .

In operation the gear a^4 is revolved continuously, and when the friction-strap is un- 70 loosened the friction-gears a^5 are not revolved and the car-axle remains stationary; but if the driver or operator on the car turns the rod b^4 to tighten or bind the friction-strap b^3 and force the movable boxes a^8 in toward the 75 axle the friction-gears a^5 are brought into engagement with the gear a^4 , and the shafts a^6 will be revolved, thus producing revolution of the car-axle through the friction-pinions b and gear b' . 80

The speed at which the car-axle is revolved may be controlled by regulating the pressure of the friction-strap b^3 upon the movable boxes.

I have herein shown the friction-gear a^4 as 85 engaged by four friction-gears a^5 ; but I do not desire to limit myself to any particular number of the gears a^5 , as one or more may be used; but I prefer to employ the number herein shown. 90

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 95 consisting of a gear fast on the armature-sleeve, a disk a^7 , mounted on the axle and provided with a recess in its periphery, a shaft a^6 , carried by said disk, a movable box for said shaft, a gear a^5 on the shaft to co- 100

operate with the gear on the said shaft, and a gear fast on the axle, and a friction-strap encircling the movable box and disk, and means to engage said strap with the said disk, 5 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 10 consisting of a friction-gear fast on the armature-sleeve, a disk a^7 , mounted on the axle and provided with recesses in its periphery, shafts a^6 , carried by said disk, movable boxes for said shafts, friction-gears a^5 on the said 15 shafts to engage the friction-gear on the arma-

ture-sleeve, friction-pinions on the shafts a^6 , a friction-gear fast on the axle adapted to be engaged by the friction-pinions, a cushion interposed between the movable boxes and disk, a friction-strap encircling the movable boxes 20 and disk, and means to engage said strap with the said disk, 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.