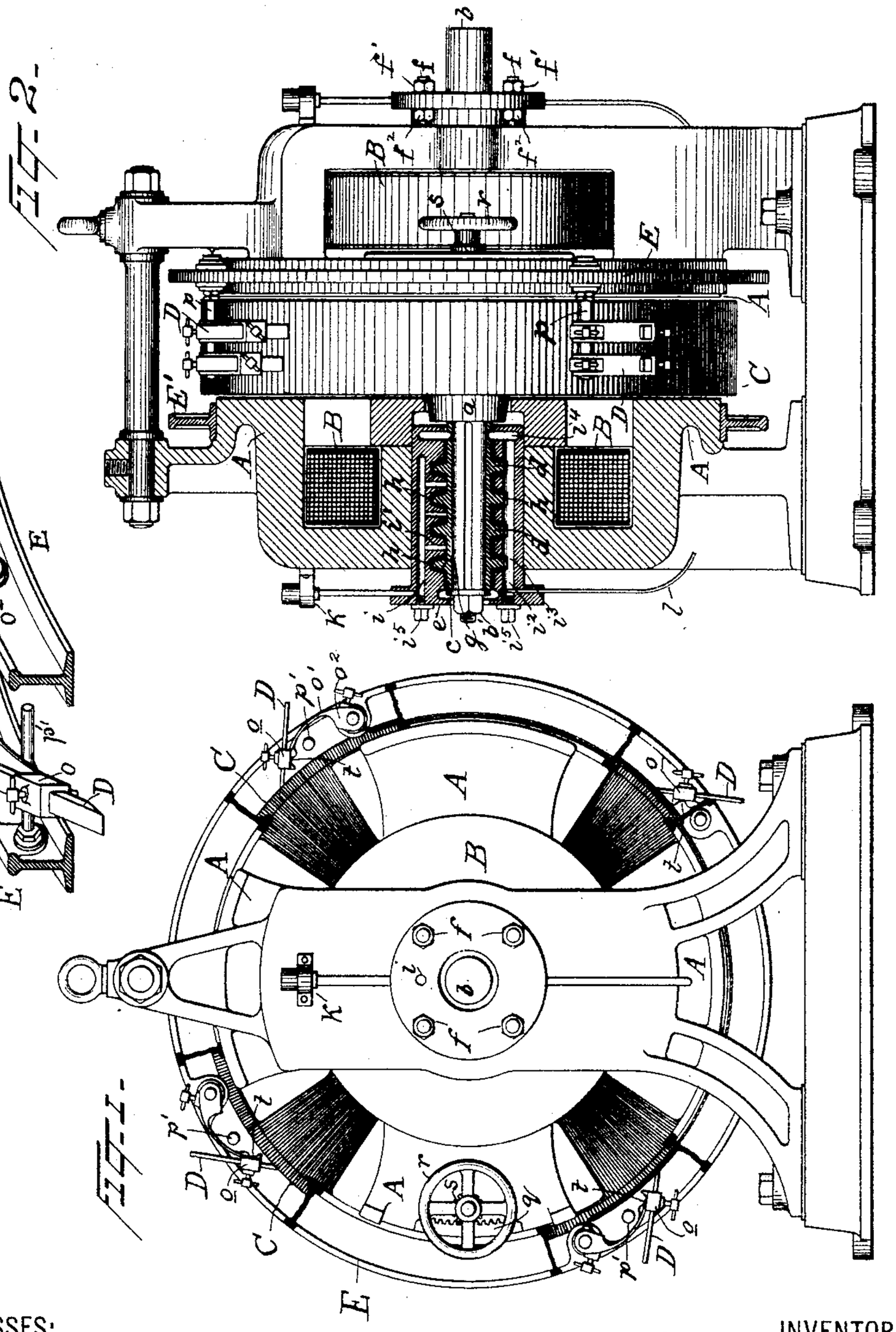
(No Model.) 2 Sheets—Sheet 1.

R. LUNDELL.

COMMUTATOR BRUSH AND MEANS FOR ADJUSTING SAME.

No. 538,617. Patented Apr. 30, 1895.



WITNESSES:

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(No Model.) 2 Sheets—Sheet 2.

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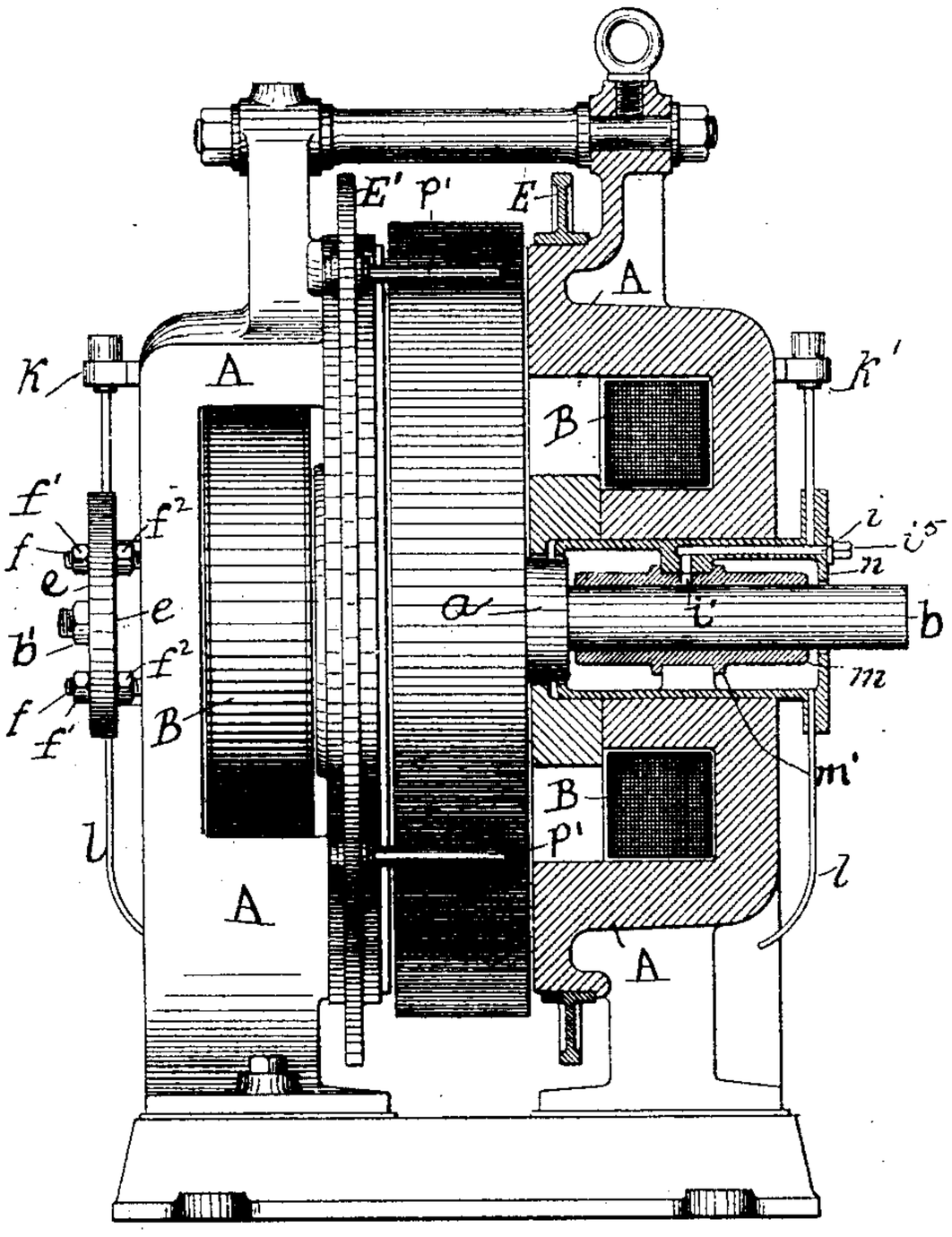
Fig. 3.



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UNITED STATES PATENT OFFICE.

ROBERT LUNDELL, OF BROOKLYN, ASSIGNOR OF TWO-THIRDS TO EDWARD H. JOHNSON, OF NEW YORK, N. Y.

COMMUTATOR-BRUSH AND MEANS FOR ADJUSTING SAME.

SPECIFICATION forming part of Letters Patent No. 538,617, dated April 30, 1895.

Application filed July 20, 1893. Serial No. 481,010. (No model.)

To all whom it may concern:

Be it known that I, ROBERT LUNDELL, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Electromagnetic Machines, of which the following is a specification.

My invention relates to the commutator brushes of electric generators and motors and to the means for adjusting same, and consists in the novel devices and combinations of devices hereinafter set forth and pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a dynamo-electric machine having a double field-magnet and with my invention applied thereto, portions of the support for the commutator-brushes being broken away to show the brushes. Figs. 2 and 3 are views, partly in elevation and partly in section, looking from the left of Fig. 1; and Fig. 4, a perspective view of a commutator-brush and its holder and a section of the supporter and adjusting device therefor.

A, A, are the pole-pieces of the double field-magnet of the machine; B, B, the field-magnet coils; C, the armature, and D the commutator brushes.

The commutator-brushes D are clamped in holders *o* and these are secured to or are formed in one piece with a spring-arm *o'*, which arm has an enlarged shoulder o^2.

E is a ring fitted around the outer surface of the pole-pieces, and secured to this ring are pins *p*, which pins pass through holes in shoulders o^2, and screws o^3 bind them together.

E' is a ring similar to E, and carries pins *p'*. These rings are provided with short rack-bars *q;* the one on ring E' only being shown. These rack-bars engage with pinions *s* mounted upon the spindles of hand-wheels *r*. By turning wheel *r* in either direction, ring E and the commutator-brushes carried thereby will be shifted correspondingly to adjust the position of the brushes upon the surface of the commutator. The object of wheel E' is to enable the commutator-brushes to be raised simultaneously from the commutator, which is accomplished by rotating the hand wheel so that pins *p'* will move under holders *o* toward the contact points of the brushes and rest in notches *t* in the under side of the brush holders. When the brushes are to be placed in contact again with the commutator, the ring E' is rotated in the opposite direction until pins *p'* are clear of the holders thus allowing the brushes to descend upon the commutator, and spring-arms *o'* will maintain them in good contact therewith.

I do not claim herein the construction of bearings for the armature shaft shown in the drawings, since that feature forms the subject-matter of a divisional application filed by me August 31, 1894, Serial No. 521,818.

What I claim is—

1. In an electro-magnetic machine, the combination of an annular body carrying the commutator brushes, means for rotating said annular body to shift the brushes, and projections in the path of movement of said brushes, whereby when said brushes are brought into engagement with said projections the brushes are raised from the commutator, substantially as set forth.

2. In an electric generator or motor, the combination of an annular body having pins extending therefrom and upon which the holders for the commutator brushes are mounted, an annular body having pins or projections, said pins or projections being in the path of movement of the brushes and adapted to raise said brushes from the commutator, and means for rotating both said annular bodies, substantially as set forth.

3. In an electric generator or motor, the combination of an annular body having pins extending therefrom and upon which the holders for the commutator brushes are mounted, an annular body having pins or projections, said pins or projections being in the path of movement of the brushes and adapted to raise said brushes from the commutator, rack-bars on both said annular bodies, and hand-wheels having pinions meshing with said rack-bars, for rotating said annular bodies, substantially as set forth.

4. In an electro-magnetic machine, the combination of a ring supported by the pole-pieces, commutator brushes carried by said ring,

means for shifting said ring to shift the brushes, another ring supported by the pole-pieces having projections adapted to engage with the commutator brushes, and means for shifting said last-named ring to bring its projection into or out of engagement with the commutator brushes, substantially as set forth.

5. A commutator brush holder having a socket *o* for the brush, spring-arm *o'* and shoulder o^2, in combination with an annular body having pins *p'* adapted to raise the brushes when moved forward, and maintained in that position by pins *p'* resting in notches *t* on the sockets, and allowed to again make contact with the commutator when pins *p'* are moved backward, substantially as set forth.

This specification signed and witnessed this 13th day of July, 1893.

ROBERT LUNDELL.

Witnesses:
W. PELZER,
G. B. CROUK.