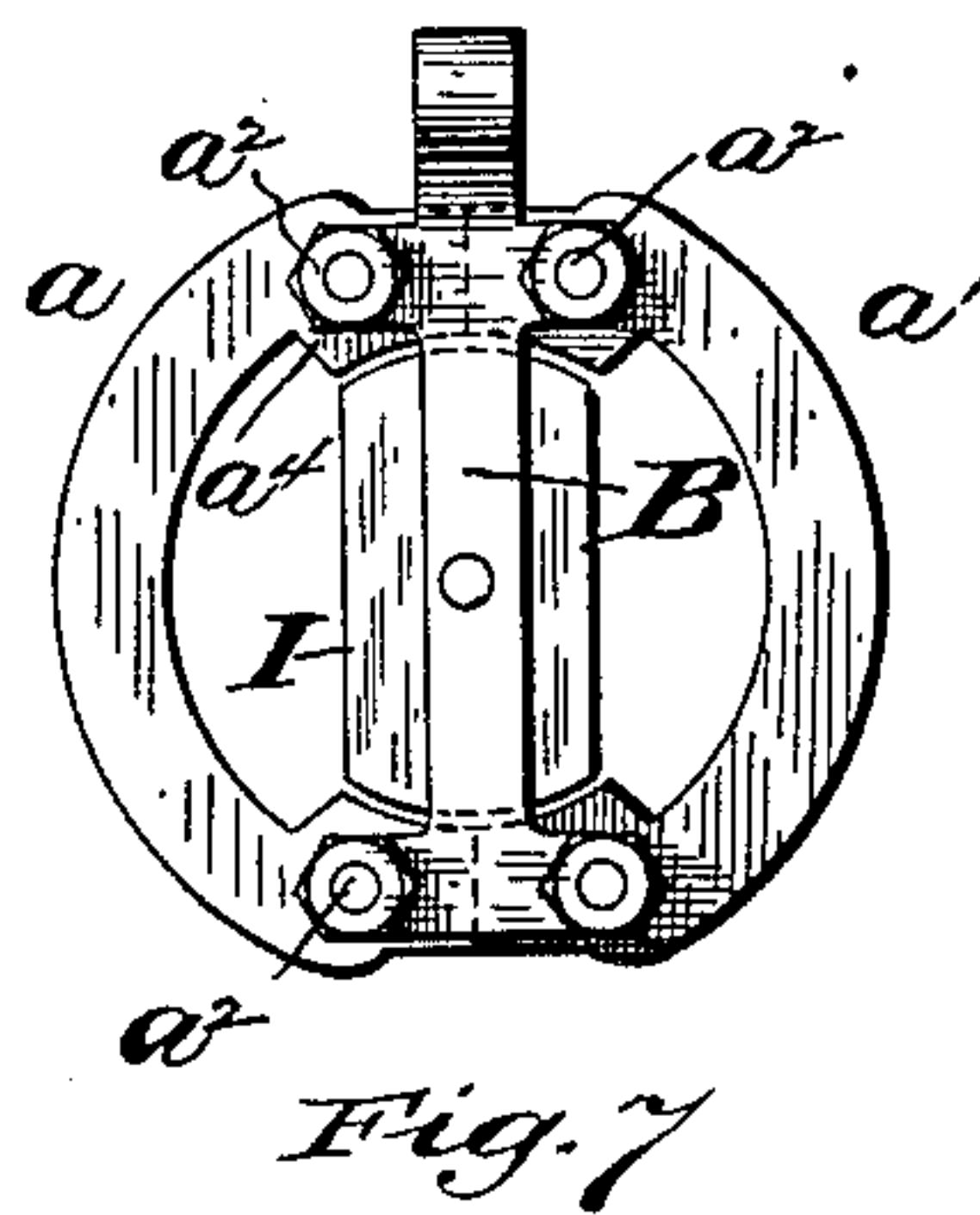
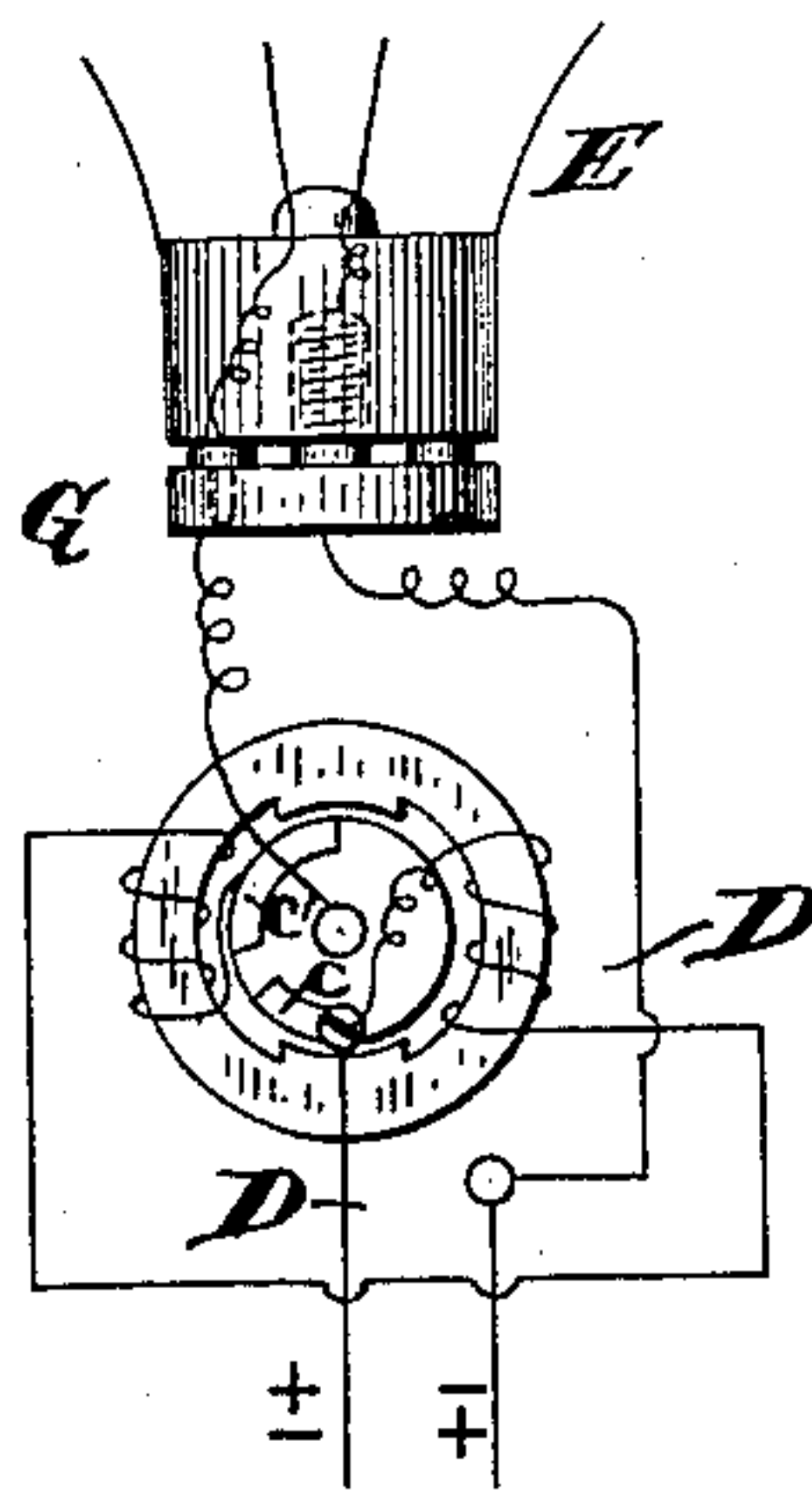
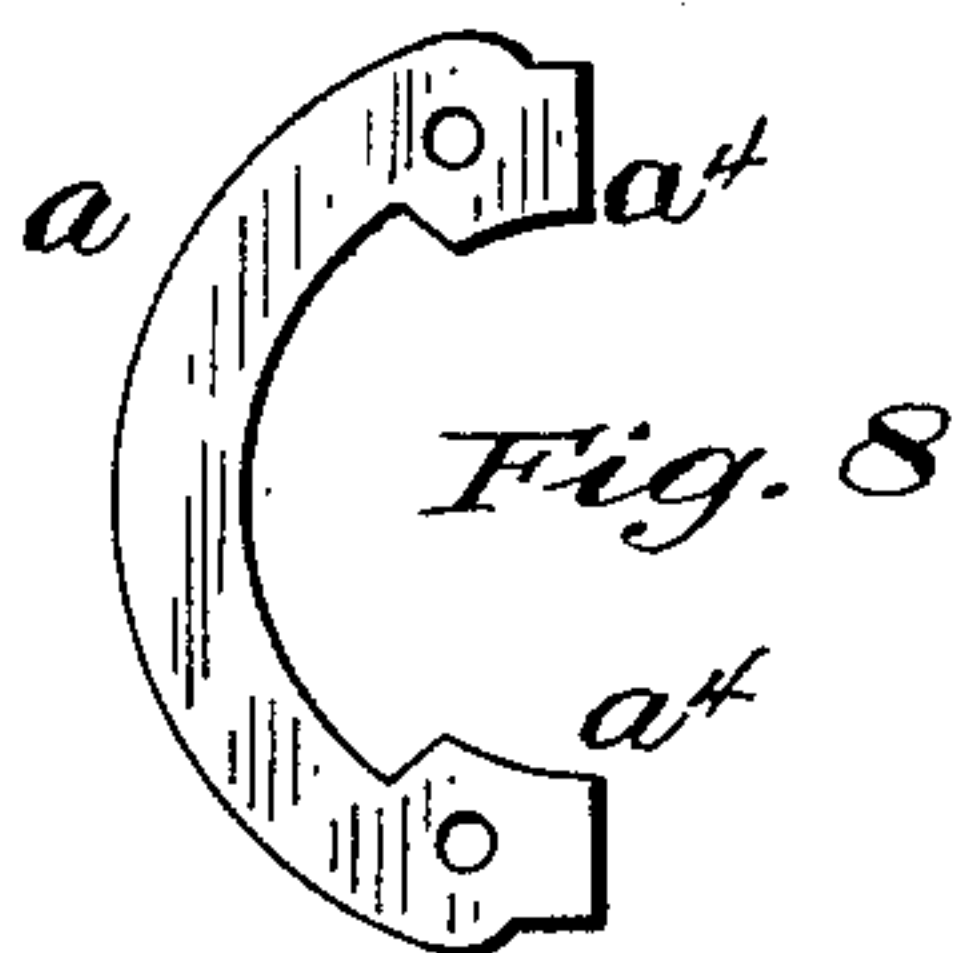
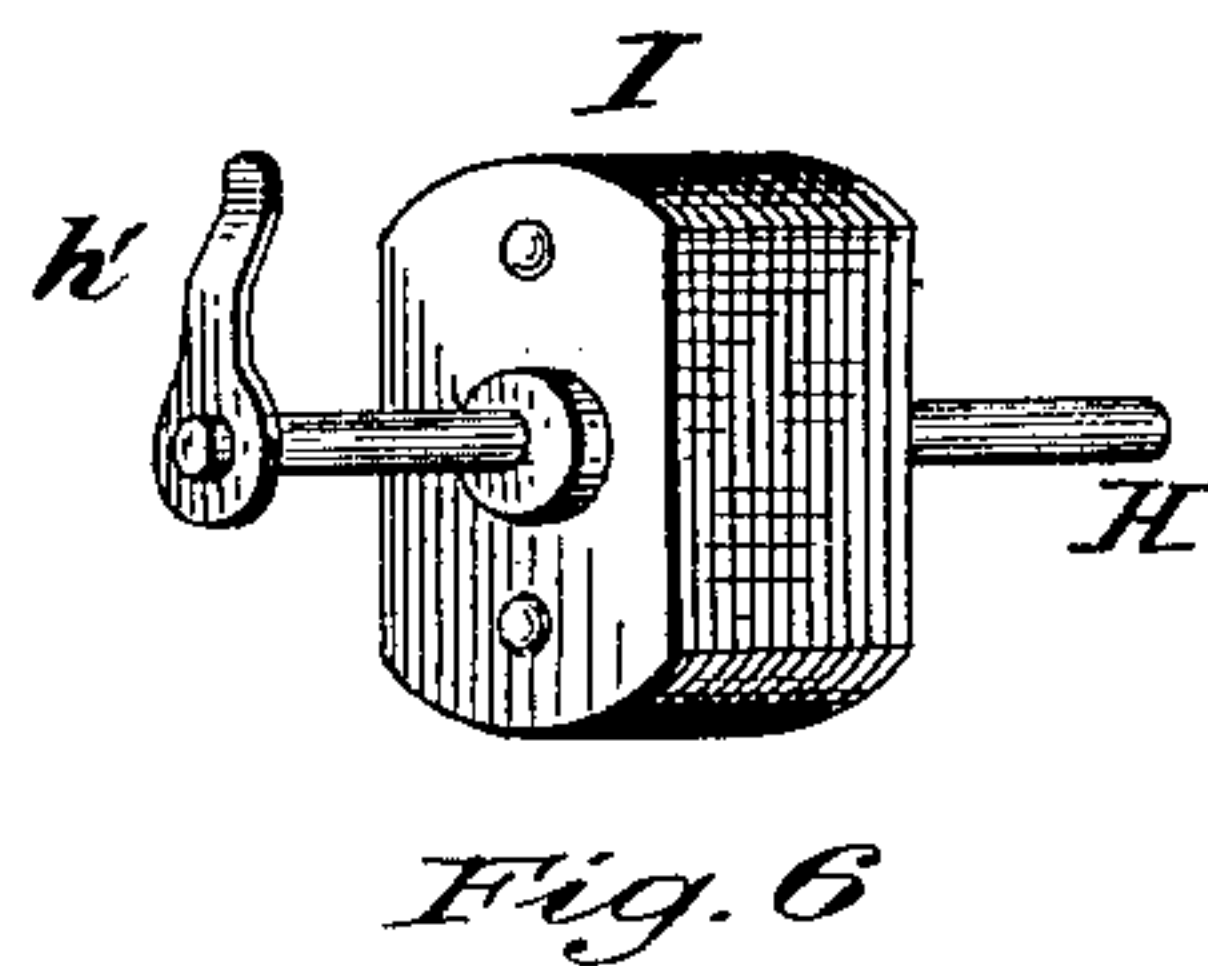
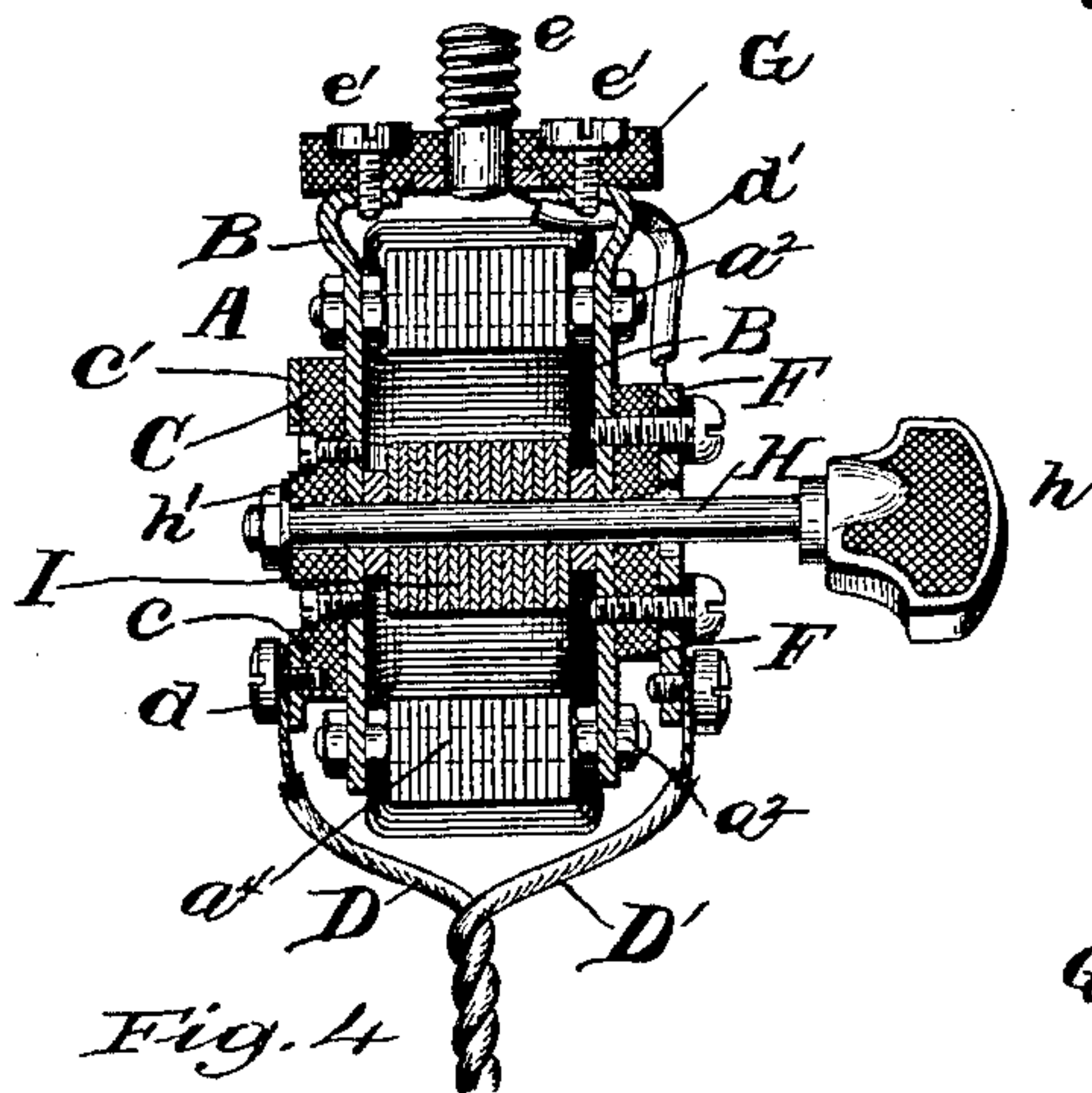
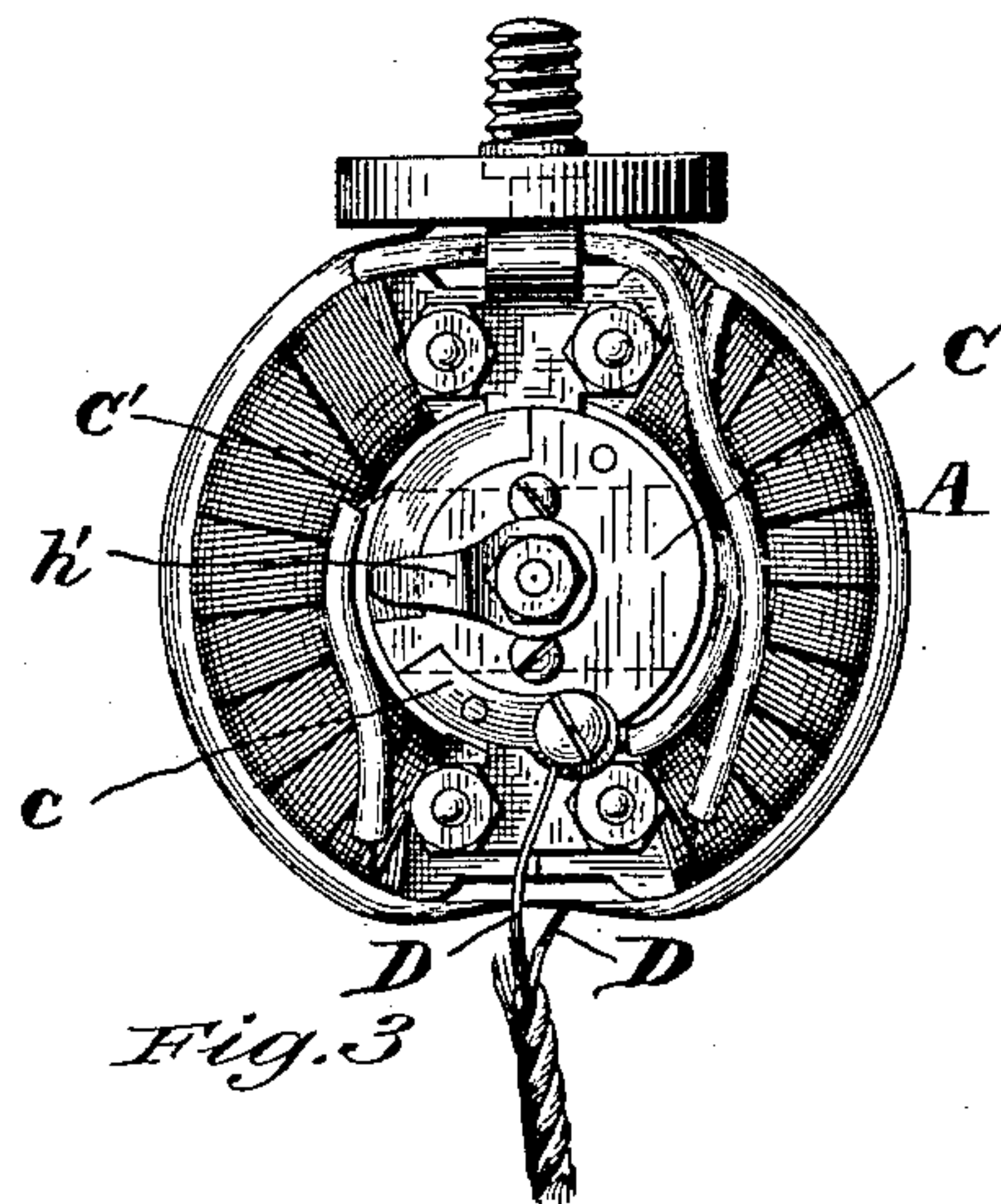
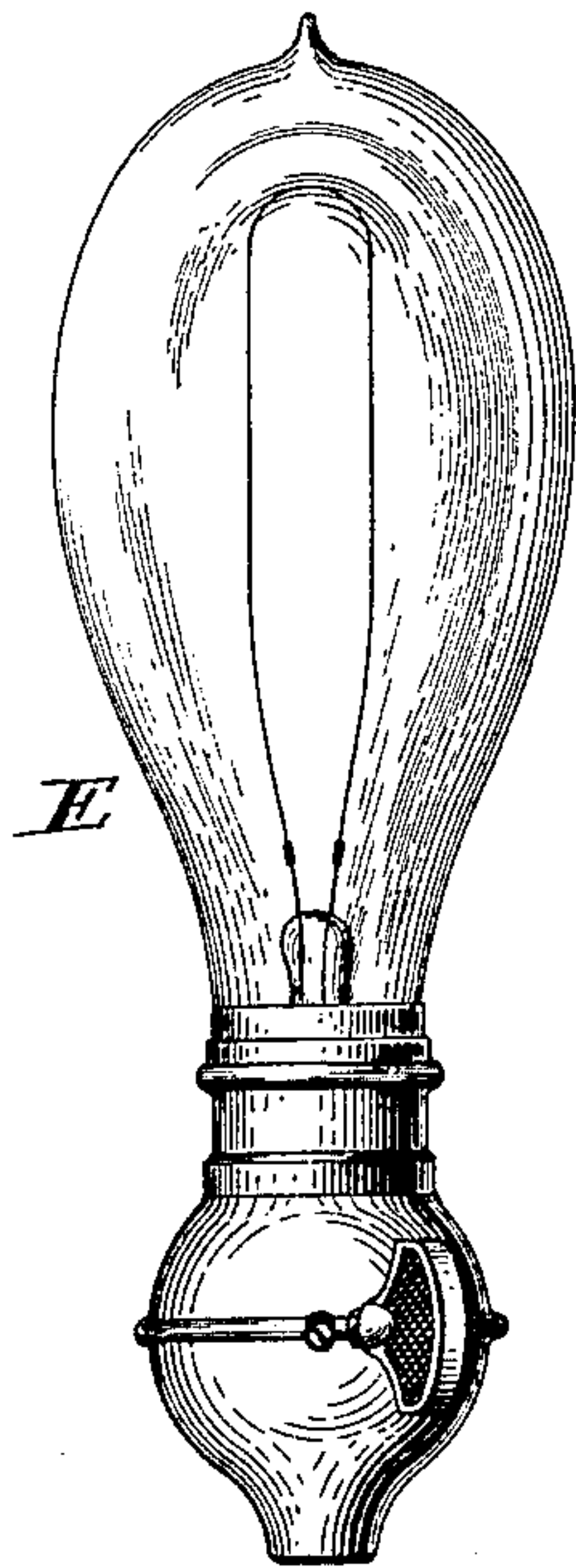
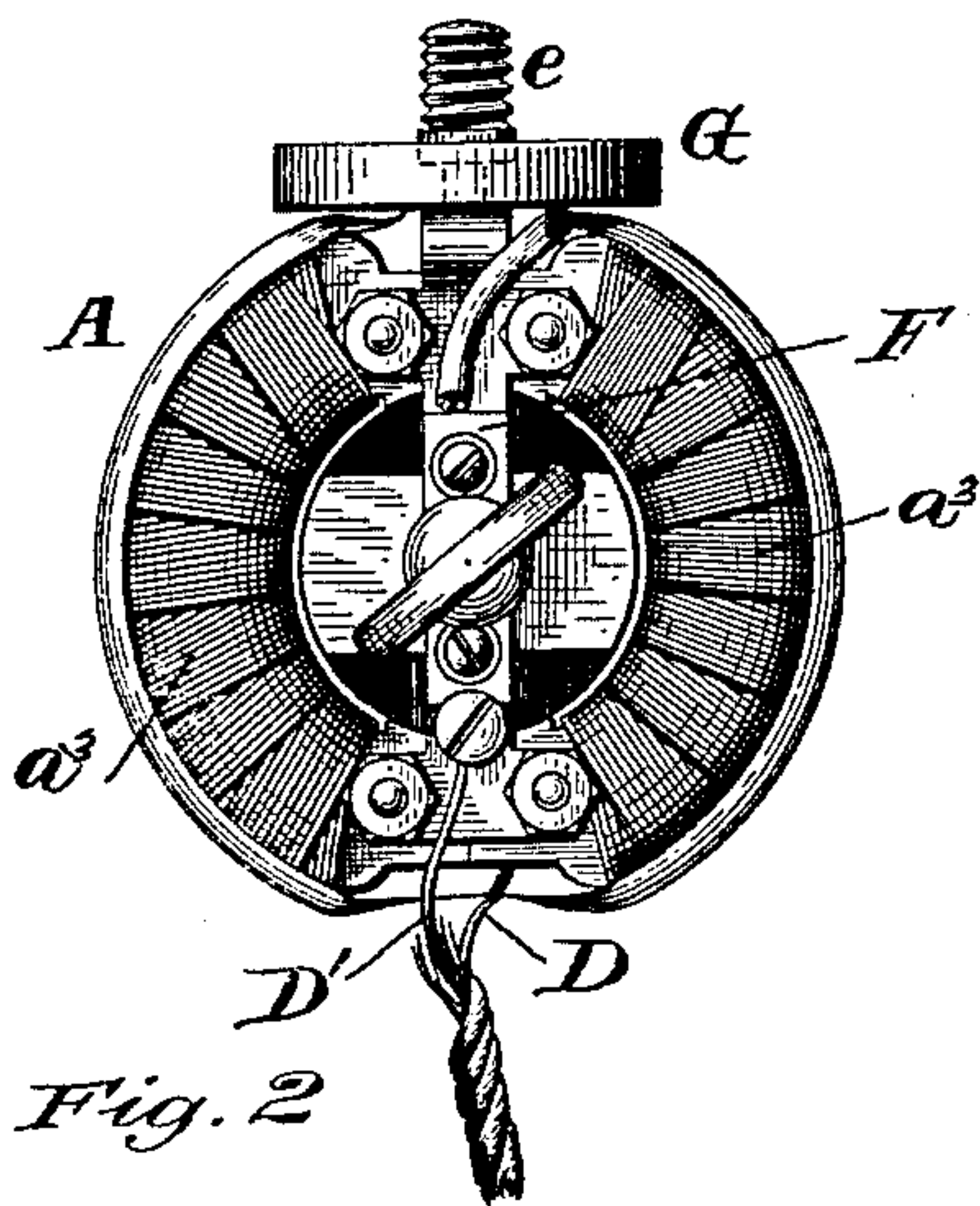


(No Model.)

O. OFFRELL.
ALTERNATING CURRENT REGULATOR.

No. 521,666.

Patented June 19, 1894.



WITNESSES =

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UNITED STATES PATENT OFFICE.

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SCHUYLER ELECTRIC COMPANY, OF CONNECTICUT.

ALTERNATING-CURRENT REGULATOR.

SPECIFICATION forming part of Letters Patent No. 521,666, dated June 19, 1894.

Application filed December 12, 1892. Serial No. 454,900. (No model.)

To all whom it may concern:

Be it known that I, OLOF OFFRELL, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented certain new and useful Improvements in Regulators for Alternating - Current - Translating Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to electrical apparatus using an alternating current, and its object is to regulate or adjust the quantity of current consumed by the apparatus. It is especially applicable to incandescent electric lamps, and I have in the drawings hereunto annexed illustrated such an application of it, though it is adapted to be used with any translating device employing an alternating current. Briefly speaking, I avail myself of the counter-electromotive force, developed in a helix, to oppose the current flowing into the translating device. In the case of an incandescent lamp, this results in a dimming of the light; so that, in such an application of the invention, it affords a means of regulating the light emitted by the lamp.

In the drawings,—Figure 1 is an elevation of an incandescent lamp provided with my regulating device. Figs. 2 and 3 are respectively front and rear views of the helix and switch, which are inclosed in the lamp socket. Fig. 4 is a vertical cross-section of the same. Fig. 5 is a diagram of the circuits. Fig. 6 shows the armature and the spindle. Fig. 7 shows the armature and the core of the helix; and Fig. 8 shows a segment of the helix core.

The regulating helix A is preferably circular in shape for the sake of compactness. Its core is laminated, and is for convenience made of semi-circular segments a, a' , perforated at each end to receive the bolts a^2 by means of which the segments are clamped together and united to two I-shaped frames B, which extend diametrically across the helix. The two segments a, a' are wound with coils a^3 con-

nected in series and having like poles adjacent, the projections a^4 on these segments forming the two pole pieces.

Secured to one of the frames B is a disk C of insulating material, to which are attached two segmental contact plates c, c' . The plate c is connected by the screw d with one of the wires D, supplying current to the lamp E or other translating apparatus, and also with one end of the coils a^3 . The other end of the coils is connected with the plate c' . The other supply main D' is connected directly with the lamp, as by means of the bar F, insulated from the frame B, and the wire d' leading from the upper end of the bar to one of the contacts of the lamp, preferably a central contact e . The outer contacts e' are supported in an insulating plate G, and are connected by means of the frame B with the spindle H of the switch, which is journaled in bearings in the frame B, and has a thumb-piece or handle h at one end. The other end of the spindle carries the radial contact arm h' , adapted to move over the plates c, c' , and thereby close the circuit. Rigidly fastened to the spindle between the frames and within the helix A, is a laminated armature I.

The operation of my device is as follows: When the contact arm h' rests upon the plate c , the current passes directly to the lamp, and the helix is cut out. But when the switch is turned to the position shown in Figs. 2 and 3, the coils a^3 are thrown into circuit, and their self-induction or counter-electromotive force acts in opposition to the current, tending to weaken it. The action of the coils is but slight, however, with the switch in this position, because the armature I now stands transverse to the lines of force passing across from one pole a^4 to the other. By turning the spindle, the contact arm is carried up along the plate c' and the armature is brought more nearly into line with the poles of the helix, decreasing the reluctance of the field, and consequently increasing the counter-electromotive force, and diminishing the strength of the current. The lamp therefore gets dimmer and dimmer, until the armature stands in line with the pole pieces and the helix exerts its greatest opposition to the current. By swinging the contact arm still farther, it passes

off the plate *c'*, and breaks the circuit, extinguishing the lamp completely.

My regulator is compact, simple, and easily made. It can be readily inclosed in the base of a lamp socket, as shown in Fig. 1.

It is evident that the details of construction may be considerably varied without departing from the spirit of my invention.

Having thus described my invention, what I claim is—

1. A regulator for an alternating current translating device, comprising two opposing electro-magnets in circuit therewith, and a core without a coil pivoted between the common pole pieces of said magnets and adapted to be turned more or less transversely to the lines of force joining said poles, substantially as described.

2. A regulator for alternating current translating devices comprising a helix having a laminated core, an armature movable to and from said core, and a switch moving with the armature and adapted to shunt the helix when moved in one direction and to break the circuit when moved in the other direction, substantially as described.

3. A regulator for alternating current translating devices, comprising a circular helix in circuit with said translating device having two diametrically opposite poles and a revoluble armature without a coil mounted concentrically within said helix, substantially as described.

4. The combination with a helix, of a spin-

dle, an armature mounted thereon in proximity to the poles of the helix, a stationary disk carrying contact plates connected with the coils of the helix, and a contact arm on the spindle adapted to bear against said plates, substantially as described.

5. The combination with a helix having two opposite poles, of an armature mounted to turn into line with or transverse to said poles, a spindle carrying the armature, a contact arm on the spindle, and two contact plates connected with the ends of the helix, one of which contacts with the arm as the armature passes from a position transverse to the poles to a position in line therewith, substantially as described.

6. The combination with the I-shaped frames B, of the segmental core *a, a'*; wound with coils, and having polar projections *a⁴* secured to the ends of the frames, the plates *c, c'* insulated from the frames, and connected with the ends of the coils, the spindle H journaled in the frames B and carrying the armature I and contact arm *h'*, and connected with one terminal of a translating device, and a line wire D connected with the plate *c*, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

OLOF OFFRELL.

Witnesses:

ERNST CUMDZREN,
W. J. MORGAN.