

No. 731,740.

PATENTED JUNE 23, 1903.

N. C. BASSETT.
COMMUTATOR BRUSH.
APPLICATION FILED MAR. 24, 1902.

NO MODEL.

FIG. 1.

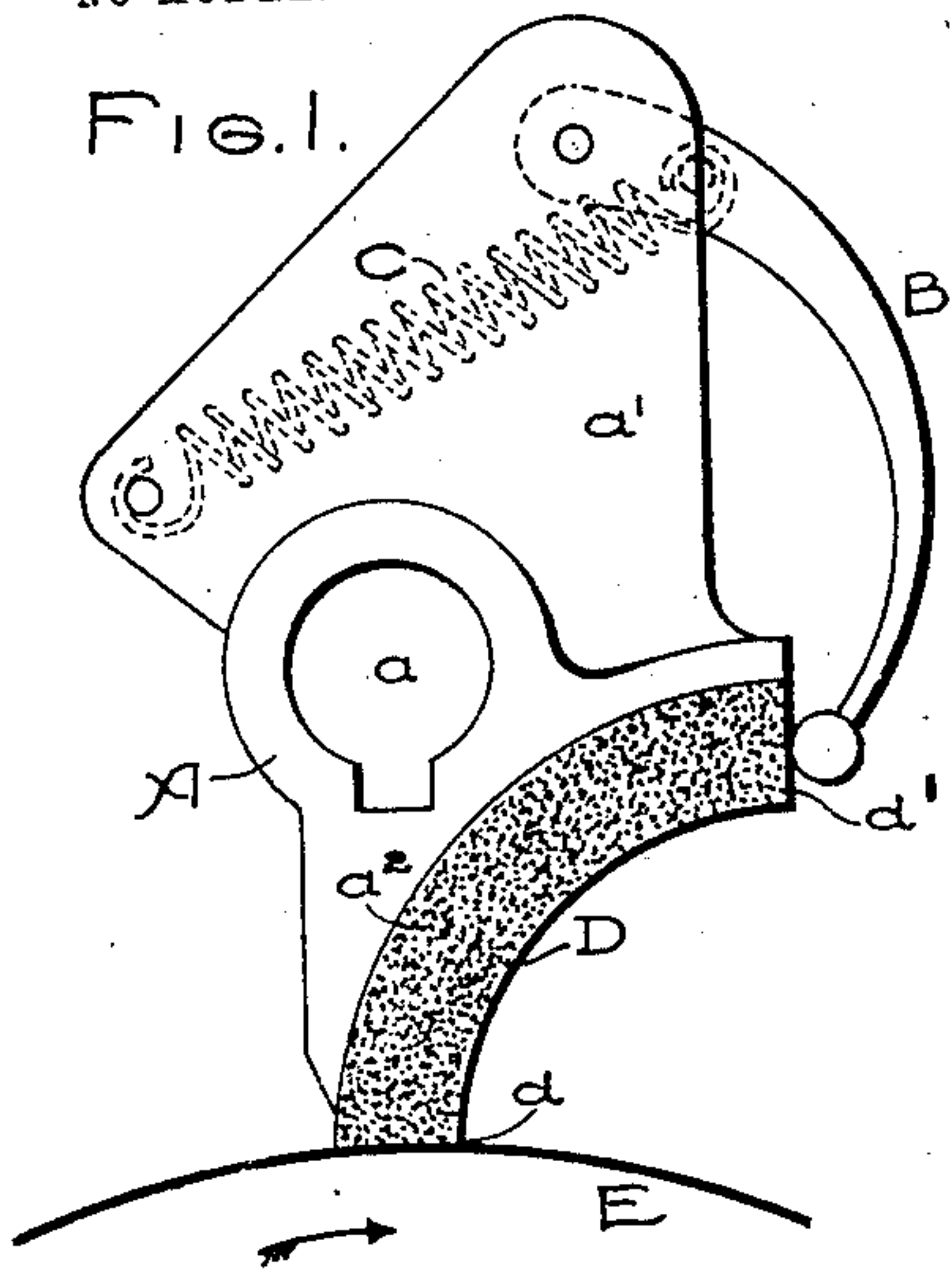


FIG. 2.

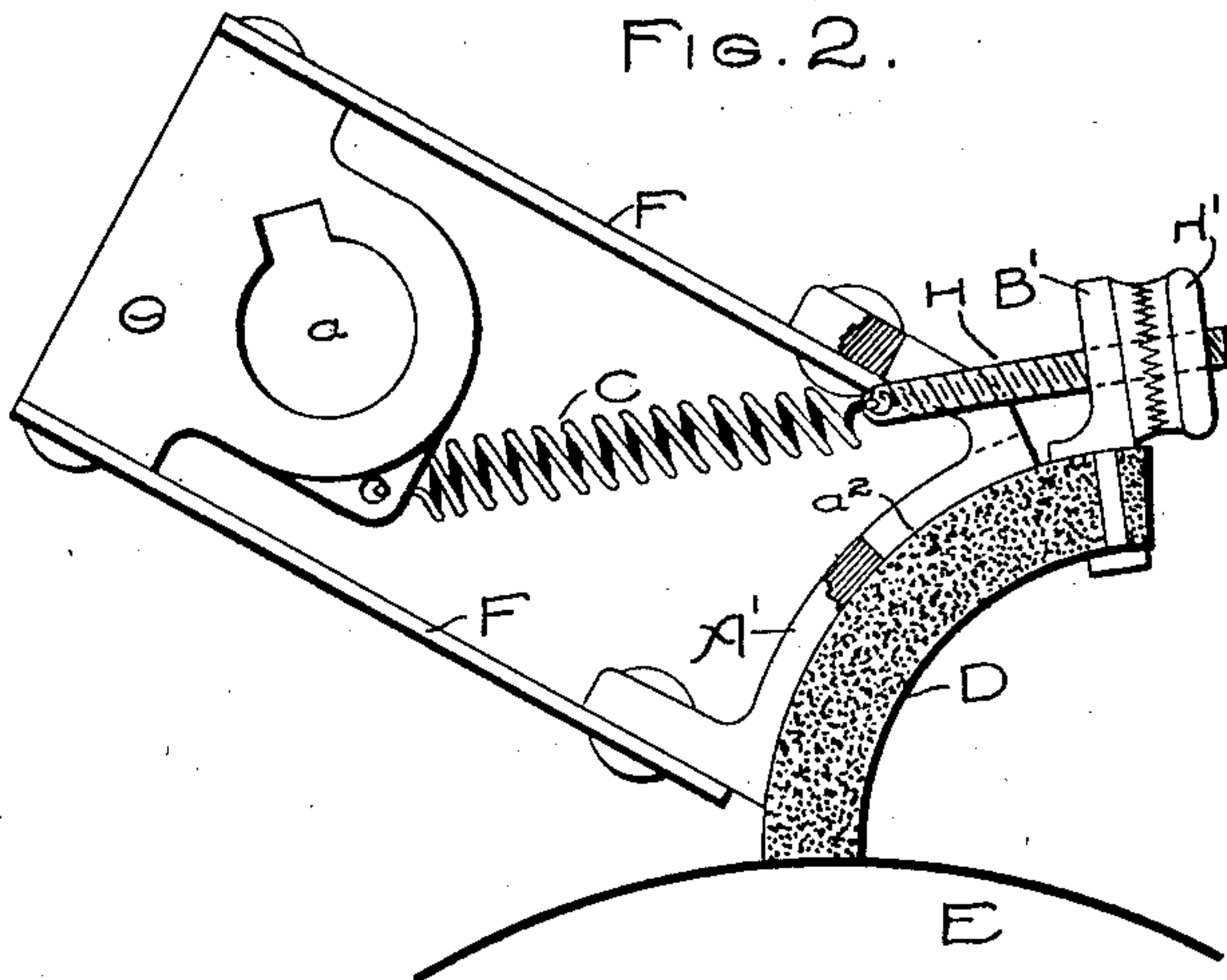


FIG. 3.

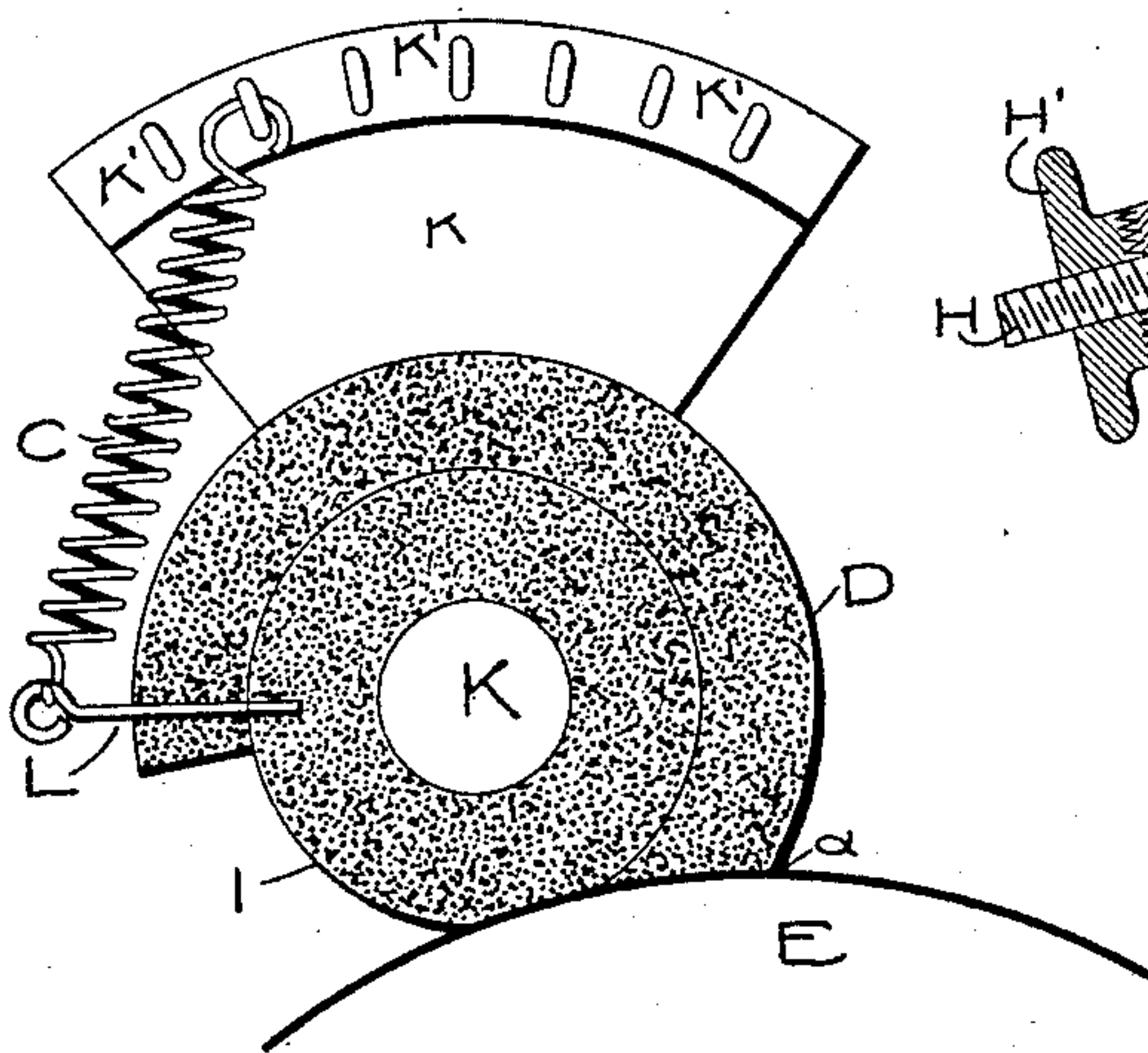
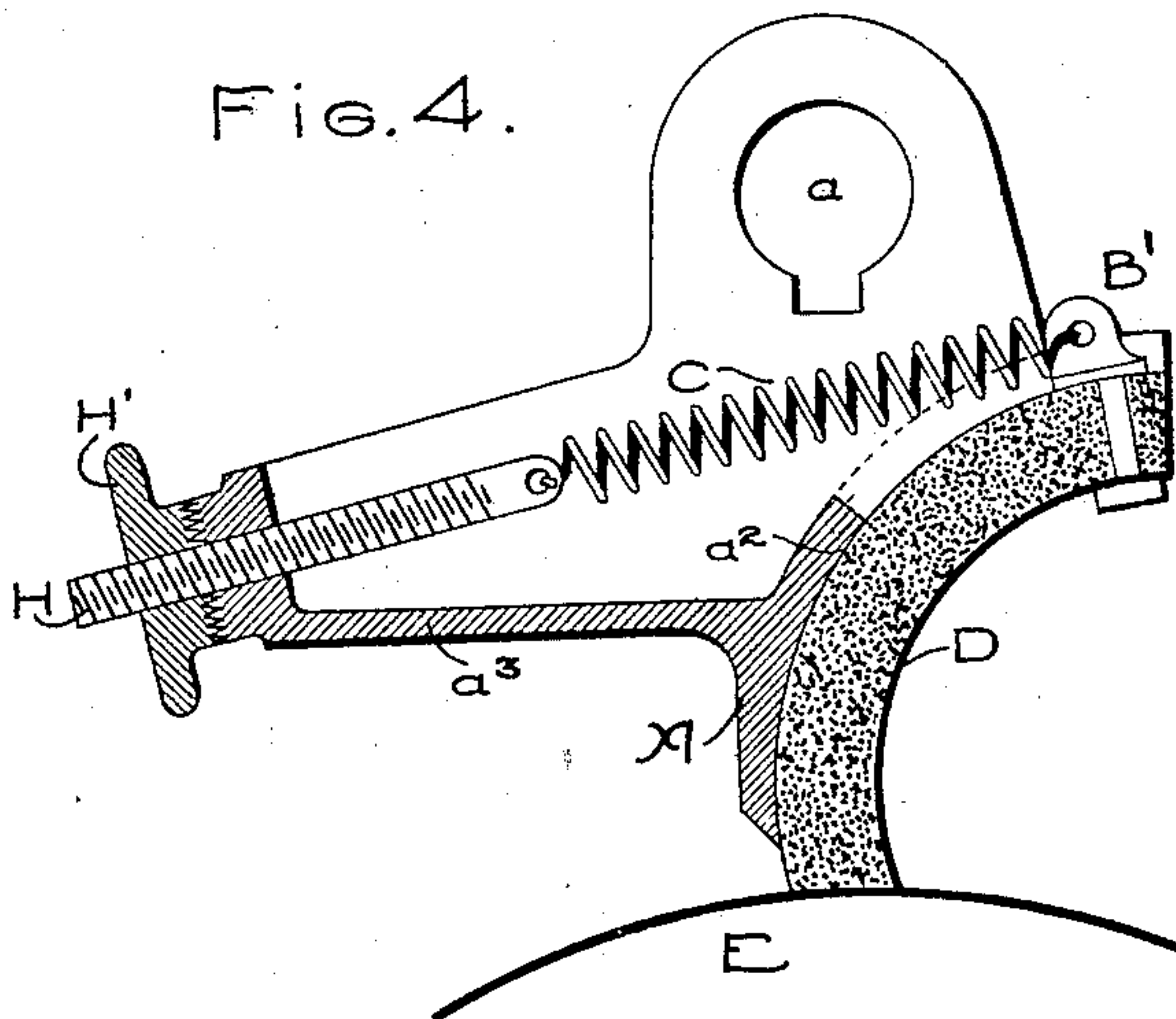


FIG. 4.



WITNESSES:

Harry A. Tilden
Benjamin B. Hull

INVENTOR:

Norman C. Bassett,
by *Albert B. Davis*
Att'y.

UNITED STATES PATENT OFFICE.

NORMAN C. BASSETT, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

COMMUTATOR-BRUSH.

SPECIFICATION forming part of Letters Patent No. 731,740, dated June 23, 1903.

Application filed March 24, 1902. Serial No. 99,625. (No model.)

To all whom it may concern:

Be it known that I, NORMAN C. BASSETT, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have
 5 invented certain new and useful Improvements in Commutator-Brushes, of which the following is a specification.

This invention relates to brushes for dynamo-electric machines; and its object is to provide a brush which will run smoothly and without chattering and is less liable to jam in the holder. When a brush is mounted in a holder so as to bear obliquely on the commutator, the drag of the commutator on the
 10 end of the brush tends to wedge it tightly against the lower end of the holder. This makes it difficult to feed the brush evenly and also causes an increased pressure on the commutator, which augments the heating
 20 effect and the losses due thereto.

My invention aims to provide a brush which is laid loosely against a supporting-surface of the holder and is held against it not only by the reaction of the commutator, but also by
 25 the spring-follower, which does the feeding. The brush stands radially, or nearly so, at its commutator end; but at its upper end it receives the pressure of the follower in a line oblique to the radius. To accomplish this,
 30 the brush is curved, preferably on the arc of a circle, and the supporting-face of the holder is also curved to fit it.

In the accompanying drawings, Figure 1 is an end elevation of one of my improved
 35 brushes and its holder. Figs. 2, 3, and 4 show modified forms of holders.

In Fig. 1 the holder A has the usual transverse hole a for attaching it to a supporting-stud and a web or bracket a' , affording a
 40 pivotal support for the follower B. A spring C is connected to the bracket and the follower. The holder has a cylindrically-curved face a^2 , against which rests the curved block D of carbon or the like which forms the
 45 brush. The block is a segment of a cylindrical tube, its ends d d' being cut preferably on radii of the cylinder. One end, as d , rests on the commutator E and the other end is engaged by the free end of the follower B.
 50 The reaction of the commutator keeps the brush pressed tightly against the holder at

its lower end, while the pressure of the follower keeps the brush in good contact at the upper end and prevents it from chattering. As the contact end portion of the brush is
 55 substantially radial to the commutator, the brush is not wedged between the holder and the commutator, although the overcurving upper end of the holder prevents that end of the brush from lifting, and thus tends to hold
 60 its lower end in good contact with the commutator.

Fig. 2 shows a somewhat different holder, the brush-carrier A' being mounted on the ends of the resilient bars F, attached to a
 65 stationary block. The follower B' is bolted to the carbon brush and is connected with the spring C by means of a screw H and lock-nut H' to enable the tension of the spring to be adjusted. The same curved brush D is
 70 used with its end radial to the commutator.

In Fig. 3 the brush is more nearly a tube and is rotatable on a holder comprising a cylindrical block I of graphite or other lubricating material, mounted rotatably on a stud K.
 75 A stationary bracket k on said stud carries means for adjusting the tension of the spring C, such as a series of eyes k' , into which one end of the spring can be successively hooked. The other end of said spring engages with a
 80 pin L, inserted into the brush D and the block I, so that the spring tends to rotate them around the stud K. The block bears on the commutator behind the brush and not only
 85 lubricates the commutator-segments, but prevents sparks from being drawn out from the brush.

In Fig. 4 the brush-holder has a rearwardly-extending arm a^3 to support a lock-nut, screw, and spring, like those shown in Fig. 2, for
 90 producing an adjustable pressure on the brush. In this figure the brush does not bear radially on the commutator, but obliquely to the radius, so that the effort of the commutator to dislodge the brush when rotating to
 95 the right will equal its effort to force it against the holder when rotating to the left. This equalizes the pressure of the brush on the commutator in both directions of rotation, which is a matter of practical importance,
 100 since if the brush is so placed as to be wedged into the holder when the motor runs one way

and lifted out of it when the motor is reversed there is a perceptible difference in heating, and consequently an objectionable inequality in the watts lost from this cause.

5 What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination, a commutator-brush consisting of a block of electric conducting material curved on the arc of a circle, and a
10 brush-holder having a surface along which said brush is fed.

2. In combination, a rotating commutator and a current-collecting device therefor having a portion of its commutator-engaging surface formed of carbon and another portion of
15 said surface formed of graphite, said surface portions being separated by a line substantially parallel to the axis of rotation of the commutator.

20 3. The combination with a curved commu-

tator-brush, of a brush-holder having a curved face along which said brush is fed.

4. The combination with a curved commutator-brush, of a brush-holder having a curved face along which said brush is fed, the end of said brush standing oblique to a radius of the commutator in order to equalize the reaction of the commutator thereon when running in opposite directions.

5. A current-collecting device having its commutator-engaging portion in layers, one of said layers being formed of carbon and another of said layers being formed of graphite.

In witness whereof I have hereunto set my hand this 20th day of March, 1902.

NORMAN C. BASSETT.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.