

No. 687,729.

Patented Dec. 3, 1901.

W. COOPER.

OSCILLATING DEVICE FOR BRUSH HOLDERS FOR ELECTRICAL MACHINES.

(Application filed Apr. 9, 1900.)

(No Model.)

2 Sheets—Sheet 1.

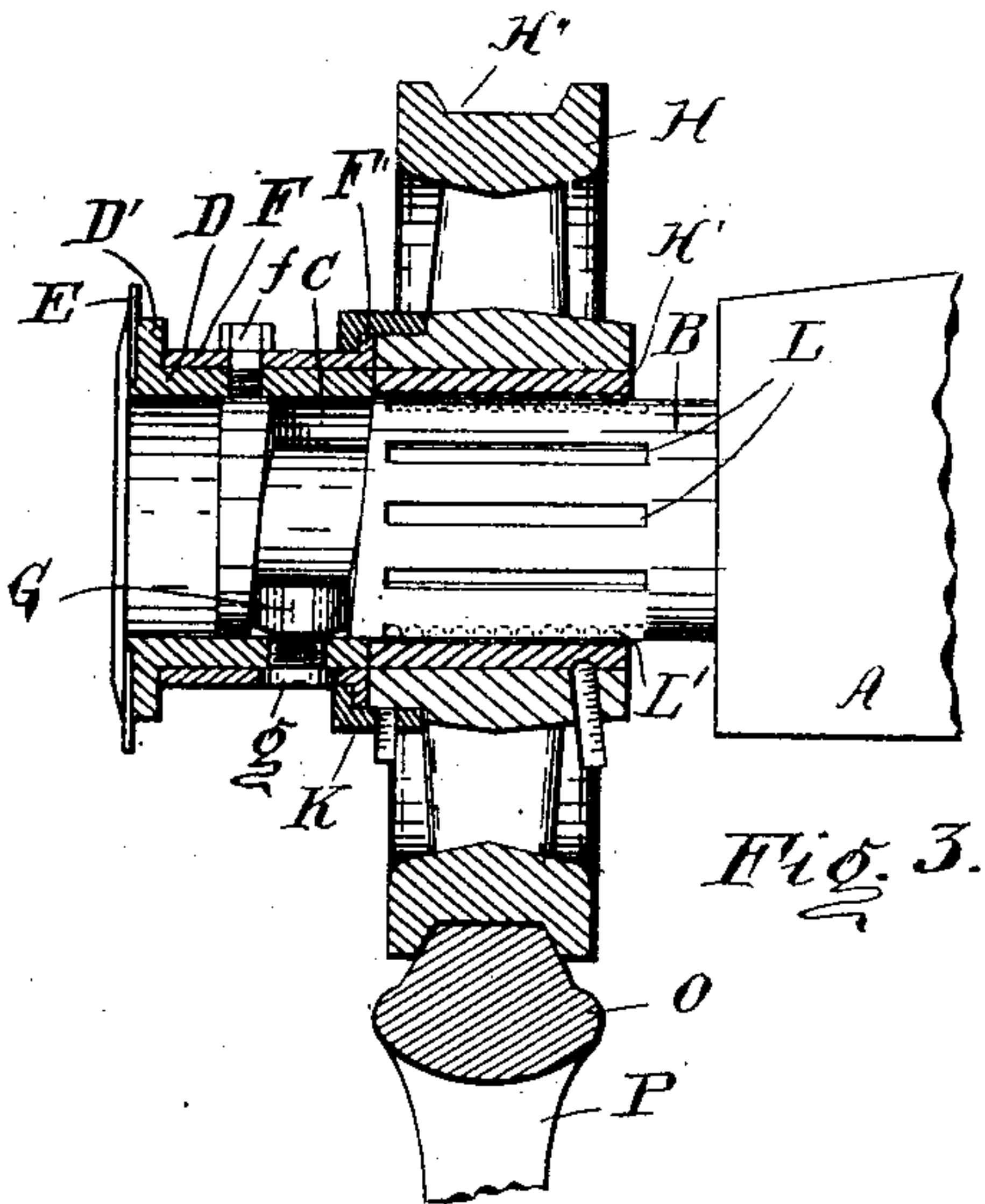


Fig. 3.

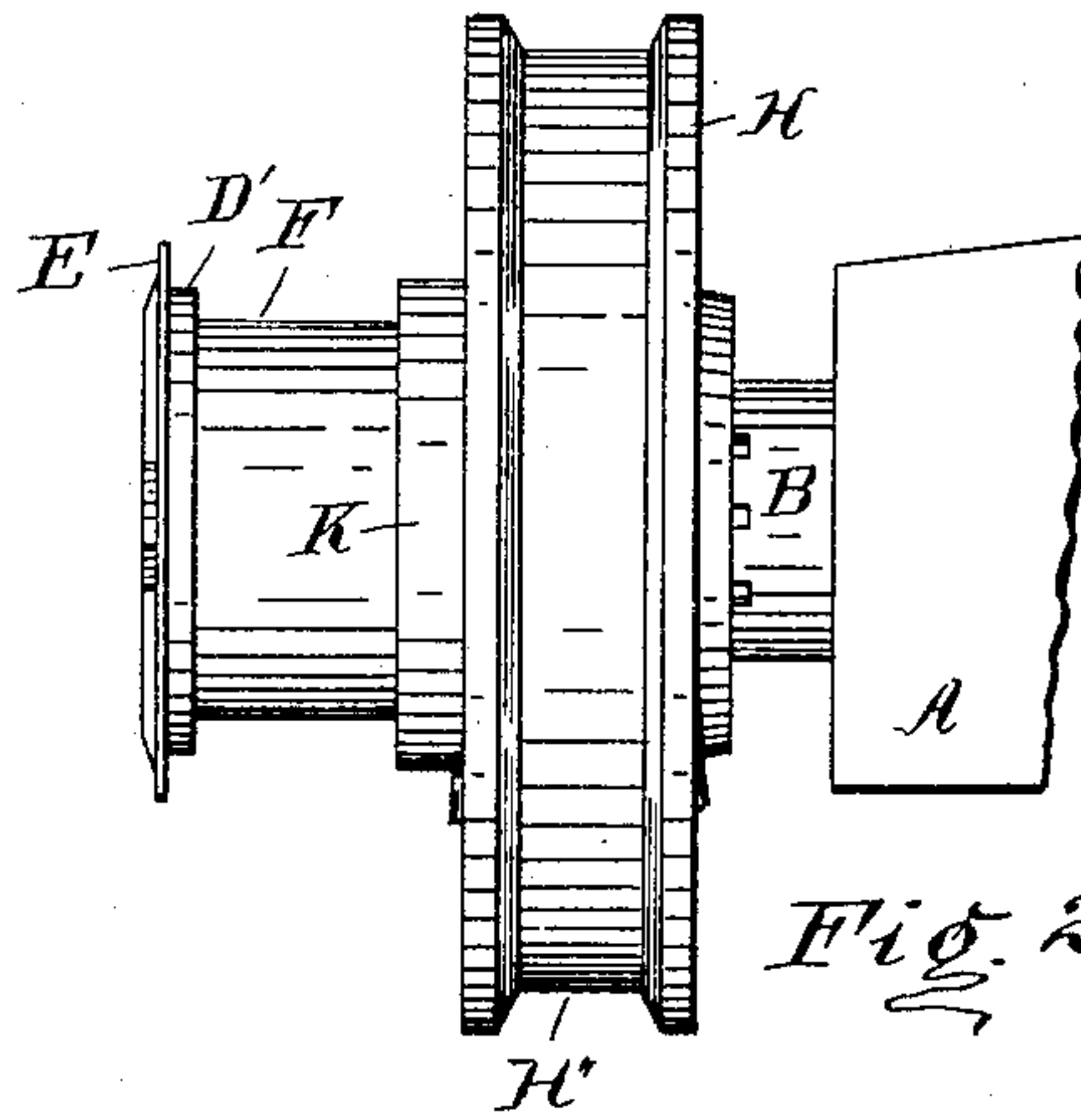


Fig. 2.

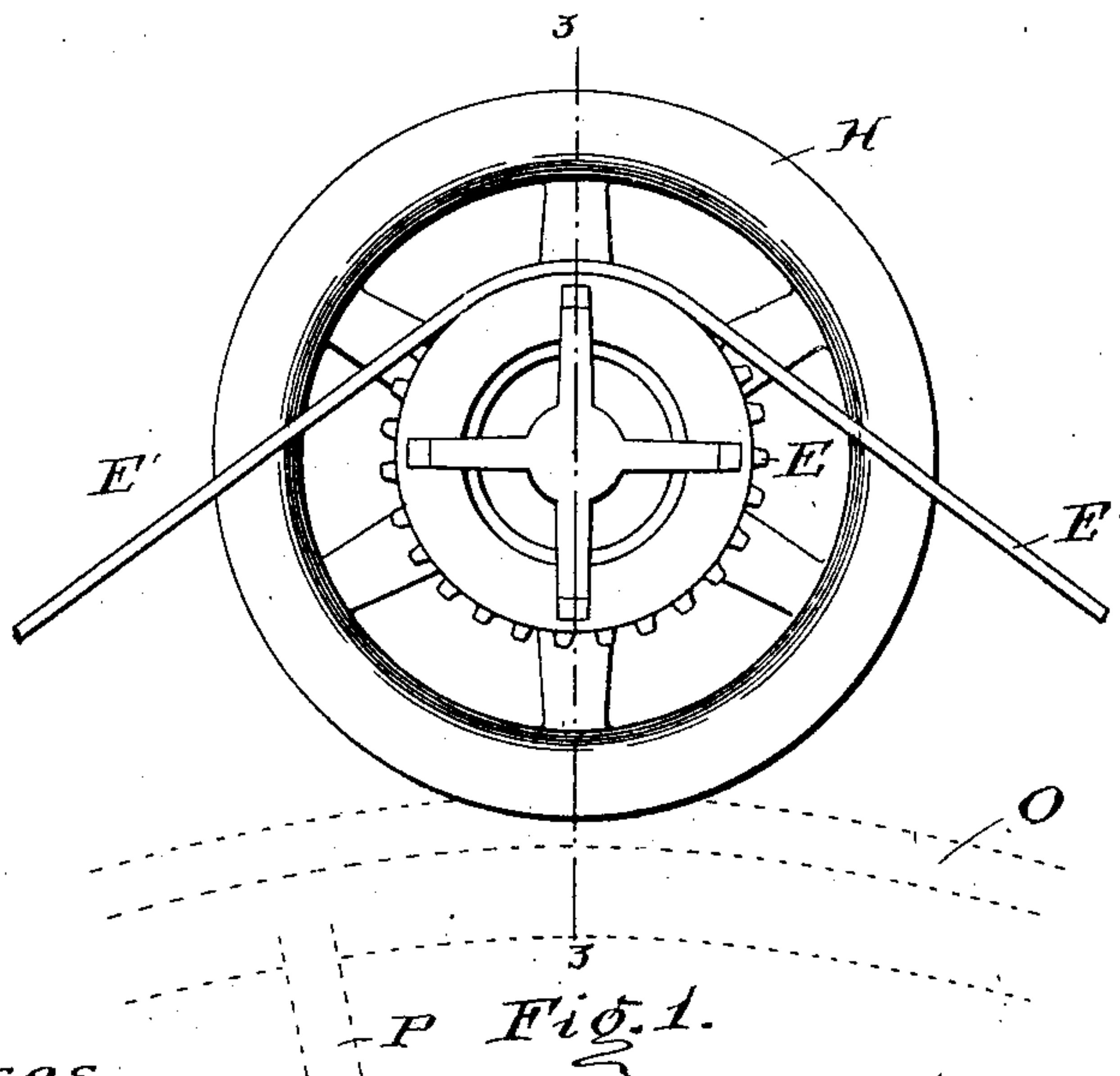


Fig. 1.

Witnesses.

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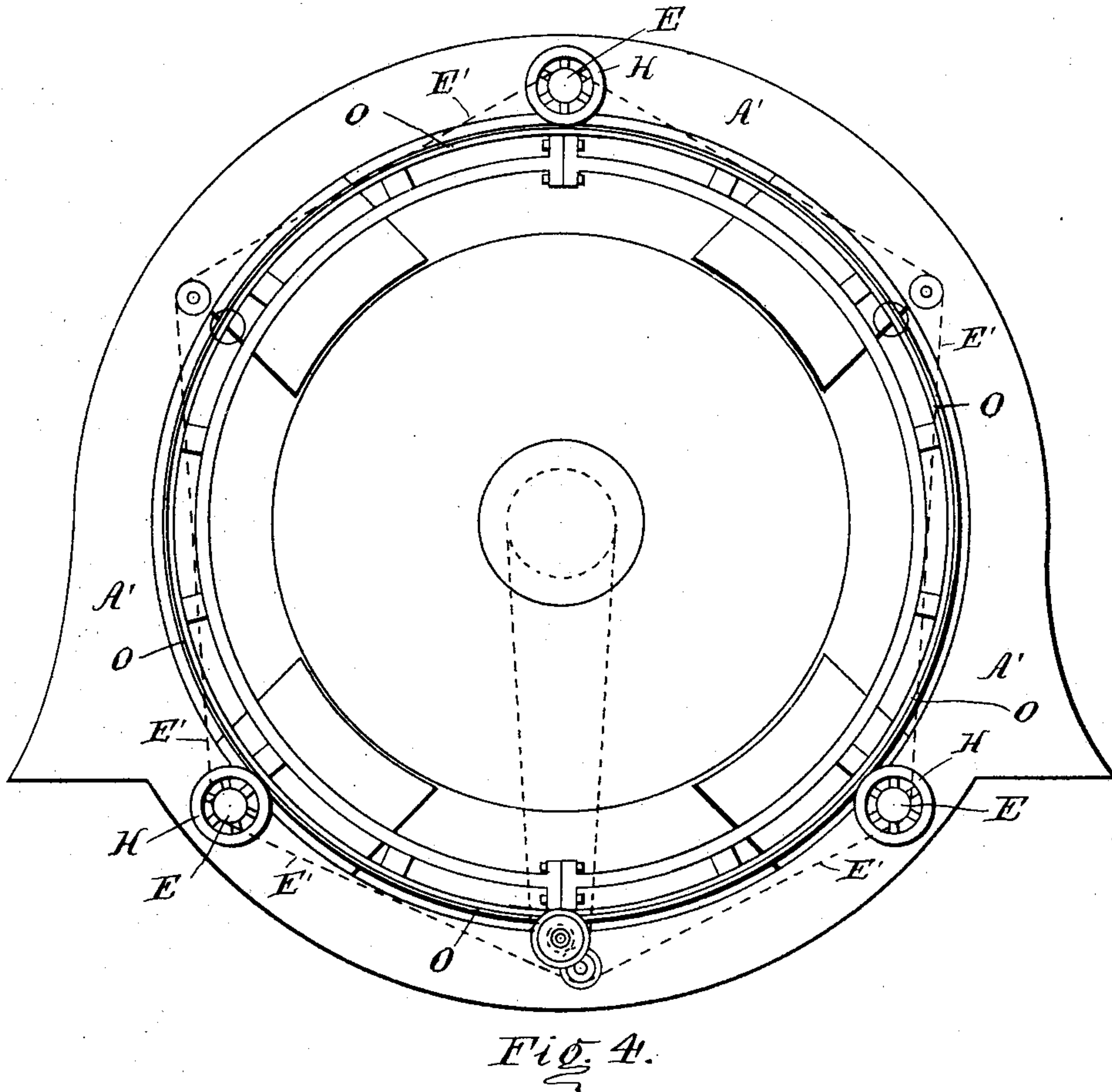
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

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OSCILLATING DEVICE FOR BRUSH-HOLDERS FOR ELECTRICAL MACHINES.

SPECIFICATION forming part of Letters Patent No. 687,729, dated December 3, 1901.

Application filed April 9, 1900. Serial No. 12,220. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM COOPER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton, State of Ohio, have invented a certain new and useful Oscillating Device for Brush-Holders in Electrical Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

Like letters of reference refer to like parts in the drawings.

My invention relates to an oscillating device for brush-holders, and is applicable to any motor or dynamo in which brushes are used as a means of supplying or taking off current from the machine.

The object of my invention is to furnish an attachment by means of which the brushes may be given a slow oscillating movement in the direction of the axis of the commutator, so as to prevent the consequent wear on the brushes and commutator. By the use of my invention these difficulties are obviated. The brushes are caused to travel slowly backward and forward over the surface of the commutator, and brushes and commutator wear evenly in consequence.

In the drawings, Figure 1 is an end elevation of my attachment. Fig. 2 is a side elevation. Fig. 3 is a section of Fig. 1 on the line 3-3. Fig. 4 is a general view of a dynamo with my improvement attached.

The frame A' of the machine is provided with an extending lug or boss A, into which is screwed or otherwise fastened a short shaft B. The shaft B is provided with a groove or recess C in its outer surface. This groove or recess C passes completely around the shaft B, and its axis is at a small angle with the axis of the shaft B, said angle depending upon the amount of play or movement that it is desired to give the brushes. Loosely mounted on the shaft B, so as to extend over the recess or groove C, is a collar D, provided with a flange D', to which is rigidly secured a sprocket-wheel E. A sleeve F, provided with a flange F', is mounted on the collar D and is fastened thereto by means of the screw f. A button or roller G is pinioned on the inside of the collar D by means of a

screw g and is of such a size that it will travel easily in the recess or groove C. It will be readily seen that as the sprocket-wheel E is rotated, and with it the collar D and sleeve F, the roller G, traveling in the groove C, will cause the collar D to oscillate backward and forward on the shaft B.

A wheel H, provided with a bushing H', is loosely mounted on the shaft B and is loosely attached to the sleeve F in any convenient manner, as shown in the drawings, by means of flanged collar K, which fits over the flange on the sleeve F.

The shaft B is provided with a number of slots L, in which travel the balls L', so as to give the wheel H a ball-bearing on the shaft B.

It will be readily understood that as the sprocket-wheel E is rotated the wheel H will be given an oscillatory motion backward and forward on the shaft B. The wheel H does not turn ordinarily, but slides backward and forward on the shaft B.

The wheel H is provided with a groove H'' in its periphery, which is adapted to fit over the circular yoke O, which carries the brush-bearing arms P.

My invention as described is adapted to be applied more particularly to that style of motor or dynamo in which the pole-pieces are carried by a circular frame.

In Fig. 4 is shown a machine provided with three of my oscillating devices mounted on the frame of the motor or dynamo. They serve at once to support the yoke carrying the brushes and to give to the yoke, and with it the brushes, the desired oscillatory motion in the direction of the axis of the commutator.

The wheel H may be replaced by any other form of support for the yoke O; but I have found that a support in the shape of a wheel is most convenient for adjusting the position of the brushes. I do not limit myself, however, to any particular form of machine, as my attachment may be applied to any form of machine.

The sprocket-wheel E is rotated by means of a sprocket-chain E', which is operated by a slow wheel geared in any convenient manner to the shaft of the machine, as shown in Fig. 4.

Having thus described my invention, what



I desire to claim and secure by Letters Patent is—

1. In an electric machine, a shaft, a sleeve mounted thereon, means for rotating said sleeve, and a connection between said sleeve and said shaft whereby the rotation of said sleeve causes an oscillating motion of the same in the direction of the length of the shaft, substantially as and for the purpose described.

2. In an electrical machine, as a means for imparting an oscillatory motion to the brushes, a shaft, a sleeve mounted thereon, a groove in said shaft, having its axis at an angle to the axis of the shaft, a roller pinioned to said sleeve and adapted to travel in said groove, means for turning said sleeve, and a sliding connection with the brush-

holder, substantially as and for the purpose described.

3. In an electrical machine, as a means of imparting an oscillatory motion to the brushes, a shaft, a groove in the surface thereof, having its axis at an angle with the axis of the shaft, a collar loosely mounted on said shaft, a roller pinioned to the inside of said collar, and adapted to travel in said groove, means for turning said collar and means whereby the oscillating motion of said collar is imparted to the brushes, substantially as and for the purpose described.

WILLIAM COOPER.

Witnesses:

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