

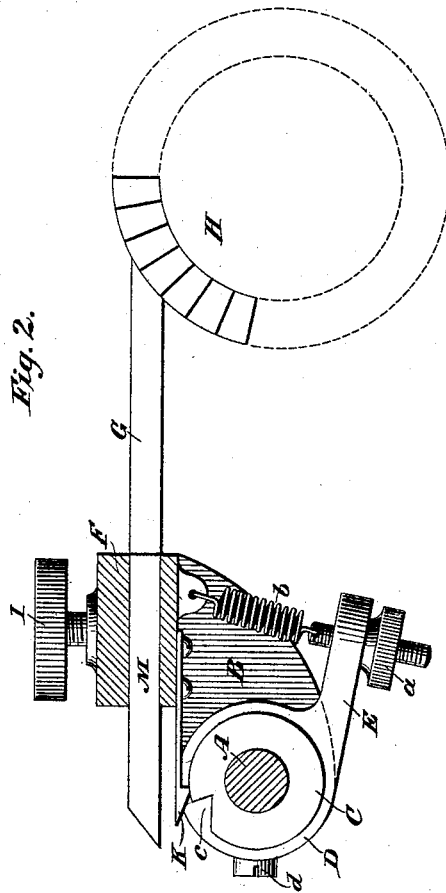
(No Model.)

O. P. LOOMIS.

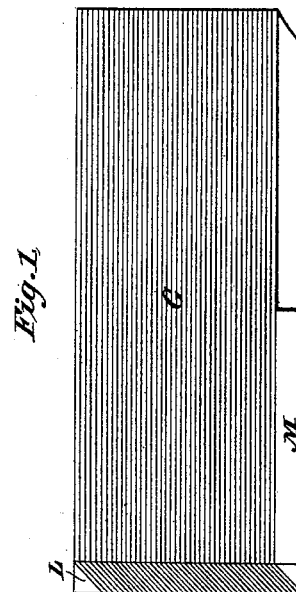
# COMMUTATOR BRUSH FOR ELECTRIC GENERATORS.

No. 381,394.

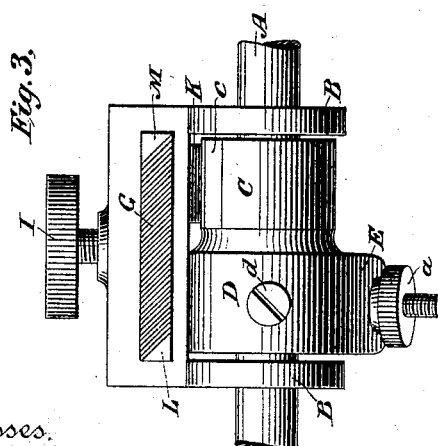
Patented Apr. 17, 1888.



*Fig. 2.*



*Fig. 1.*



*Fig. 3.*

Witnesses.

Geo. W. Breech.  
Carrie E. Ashley.

Inventor,

Osborn P. Loomis  
Fowler & Fowler

By his Attorneys

# UNITED STATES PATENT OFFICE.

OSBORN P. LOOMIS, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO THE  
LOOMIS ELECTRIC MANUFACTURING COMPANY, OF NEW YORK, N. Y.

## COMMUTATOR-BRUSH FOR ELECTRIC GENERATORS.

SPECIFICATION forming part of Letters Patent No. 381,394, dated April 17, 1888.

Application filed December 15, 1886. Serial No. 221,649. (No model.)

*To all whom it may concern:*

Be it known that I, OSBORN P. LOOMIS, a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Commutator-Brushes for Magnetic Electric Machines, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to secure as great convenience as possible in the manipulation and manufacture of the collecting-brushes for dynamos or other magneto-electric machines.

The invention consists in a collecting-brush composed of sheet-metal strips, which has metal pieces at one end, to which the strips are soldered, and bearing at its other end upon the commutator, the strips being arranged diagonally to the plane of the brush.

Figure 1 represents a plan view of my new collecting-brush; Fig. 2, a side elevation, partly sectioned, of my brush and a holder; and Fig. 3, an end view of the devices illustrated in Fig. 2.

The same letters of reference indicate the same parts throughout the three figures of the drawings.

The commutator-brush I make of sheet-copper strips G, which are held at one end between triangular shaped brass pieces L and M, to which the strips are soldered. The strips are diagonally arranged, as shown in Figs. 1 and 3, so that the plane of the strips, when the brush is held in a horizontal position, makes an angle of from forty degrees to sixty degrees with the horizon—that is to say, I lay them edgewise, but not vertically or horizontally, so that an increased bearing is secured upon the commutator, the said bearing being the resultant of the end, a portion of the length, and the diagonal arrangement. This not only gives me an increase of bearing or contact over the strips when vertically arranged, but it also, by reason of the diagonal arrangement, makes the brush as flexible as the old form, wherein the strips are superimposed upon one another hori-

zontally, which latter arrangement is objectionable, for the reason that the strips, when so arranged, are not subjected to the same wear, the lower one being first to wear away and fall away from the commutator or upon a strip of the commutator remote from the one upon which the brush bears, thus causing sparking and a short-circuiting of the current. In the arrangement I have just described the flexibility of the brush is not interfered with, and it has all the advantages of the costly wire brush so much used, and is far superior to manufacture and to manipulate. A vertical arrangement might sometimes be found advantageous in certain cases; but I prefer the diagonal arrangement spoken of.

Of course I do not wish to limit myself to any angle at which the same may be arranged, and only mention the above angles as defining a limit to the angle; but of course this may be varied below or above this limit without departing from my invention.

The clamp F of the brush-holder is carried forward from a stud, A, projecting from the machine toward the commutator H. This clamp is provided with a rectangular opening for receiving the brush L G M, and is adapted to be clamped in place by an adjusting-screw, I. It is provided with downward extensions B B, which pivotally secure it to the stud A. The lower side of the clamp has a hook, K, extending therefrom, which is adapted to take into a notch, c, upon a portion, C, of the drum D C, which is secured by means of a screw, b, to the stud A, and by it rigidly affixed to said stud. The extensions B B straddle the drum D C, making a very compact arrangement of parts. From the portion D of the drum D C is an extension, E, which is provided with a tension-adjusting screw, a, to the end of which is attached a spiral spring, b, whose other end is secured to the clamp F, or an extension thereof. When it is desired to withdraw the brush from the commutator, it is only necessary to draw the clamp F back and put the hook K into the notch c, the tension of the spring b serving to hold the hook in said notch, so that the clamp and brush will remain retracted until the hook K is raised, when the tension of the spring b will immediately throw it into operative position against the commutator H.

Having now fully set forth my invention and stated its operation, what I desire to claim and secure by Letters Patent of the United States is—

- 5 1. A commutator-brush for a dynamo or other magneto-electric machine, composed of strips G, diagonally arranged to the plane of said brush, soldered together at one end, and bearing at the other end upon the commutator, 10 whereby an increased edgewise and lengthwise bearing of said brush upon the commutator is secured, so that each strip is subjected to the same amount of wear, and falling away of the lowermost strip, causing sparking and 15 short-circuiting of the current, is obviated.

2. A commutator-brush composed of a multiplicity of sheet-metal strips diagonally arranged to the plane of said brush, and means for securing said strips together at the end remote from the commutator. 20

3. A commutator-brush composed of a multiplicity of sheet-metal strips, as G, diagonally arranged to the plane of said brush, and metal pieces, as L M, embracing said strips at one 25 end, all of which are soldered together at said end.

4. A commutator-brush consisting of a multiplicity of thin metal strips diagonally arranged to the plane of said brush, soldered or otherwise fastened together at one end, and 30 having a bearing upon the commutator at the free and flexible end, the said bearing being the resultant of an end, lengthwise, and diagonal bearing.

5. A commutator-brush composed of metal 35 strips diagonally arranged to the plane of said brush, substantially as described.

6. A commutator-brush composed of strips diagonally arranged to the plane of said brush, and having the axis of the brush arranged 40 substantially at right angles to the axis of the commutator.

In testimony whereof I have hereunto set my hand and seal, this 13th day of December, 1886, in the presence of two subscribing witnesses.

OSBORN P. LOOMIS. [L. S.]

Witnesses:

HOWARD L. GALLUPE,  
ELISA J. CHILSON.