(No Model.)

L. PAGET.

COMMUTATOR OR CONTACT BRUSH.

No. 457,327. Patented Aug. 4, 1891.

Fig. 1.

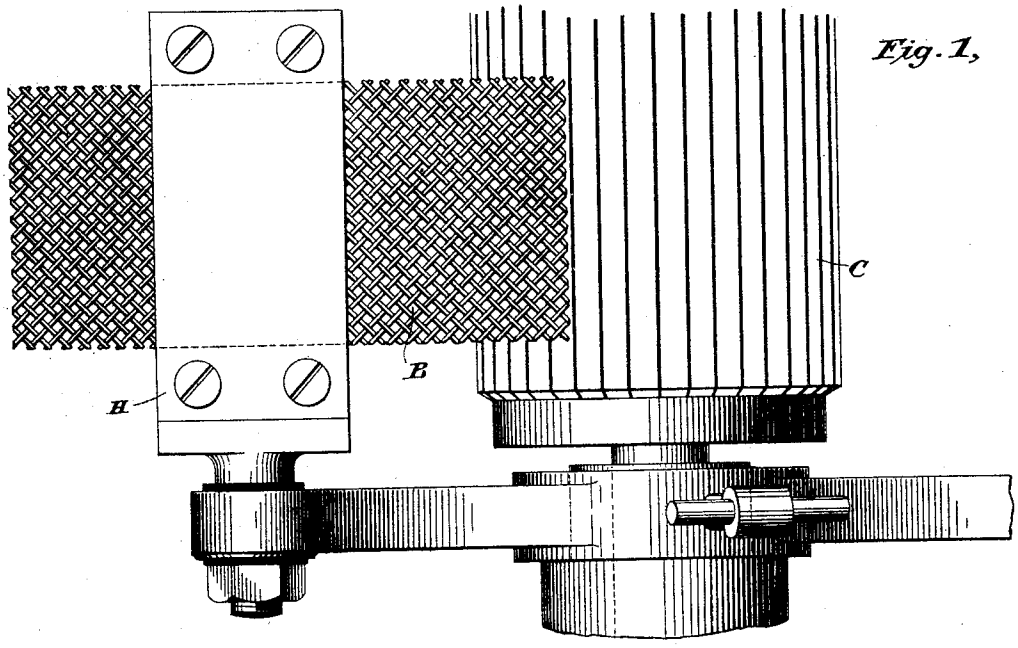


Fig. 2.

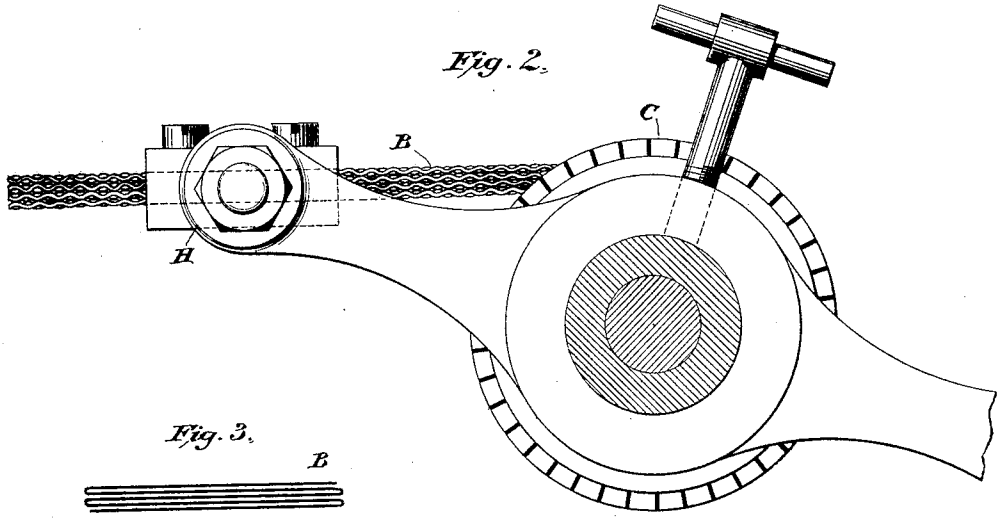
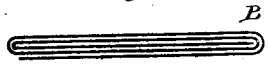


Fig. 3.

Fig. 4.



Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LEONARD PAGET, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES J. KINTNER, OF SAME PLACE.

COMMUTATOR OR CONTACT BRUSH.

SPECIFICATION forming part of Letters Patent No. 457,327, dated August 4, 1891.

Application filed September 25, 1889. Serial No. 325,030. (No model.)

To all whom it may concern:

Be it known that I, LEONARD PAGET, a citizen of the United States, residing at New York, in the county of New York and State of New York, have made a new and useful invention in Commutator or Contact Brushes for Use with Dynamo-Electric Machines or Motors or in Analogous Places, of which the following is a specification.

My invention relates particularly to commutator or contact brushes made of wire; and its objects are, first, to construct a commutator or contact brush which shall produce a minimum amount of sparking, and, second, shall bear evenly upon the face of the commutator or contact surface, and shall wear the face of the commutator or contact surface evenly, always presenting a bearing or contact surface of equal resistance to the electrical current. I accomplish these objects by the construction of the commutator or contact brush hereinafter described, but particularly pointed out in the claims which follow this specification.

To make my improved commutator or contact brush, I take woven-wire sheet, preferably copper wire, and cut it into strips of the proper length and width for the brush or contact-strip, the angular relation of the wires composing the woven strips being such that all the individual wires of the entire fabric will bear with their ends upon the commutator-strips or contact surface as the brush wears away.

My invention will be better understood by referring to the accompanying drawings, in which—

Figure 1 represents a plan view of the commutator of a dynamo-machine with the brush-holder carrying a commutator-brush of my construction. Fig. 2 represents a side elevation of Fig. 1, as seen looking from the bottom of the drawings toward the top. Figs. 3 and 4 are cross-sectional views of modified forms of the brush.

Referring to the drawings in detail, C represents the commutator, B the commutator-brush of my improved form, and H the brush-holder held in well-known manner. I prefer to use several layers of the wire fabric or gauze B, as clearly shown in Fig. 2, and to arrange them so that the ends of the wire of said fabric bear directly upon the commutator-strips, as clearly shown in Fig. 2.

It is a well-known fact that with metallic cummutator-brushes made of sheet metal there is often more or less sparking at the brush-bearing by reason of the fact that it is a mechanical impossibility to so arrange a solid metallic brush that the wearing-surface between it and the commutator shall be one of constant contact for all wear. This is due to the fact that the brush either becomes warped or shifts sidewise, or cuts unevenly upon the face of the commutator.

Prior to my invention wire commutator or contact brushes were old; but such brushes were constructed of a bundle of individual wires held together at their rear ends by solder, the individual wires having an end bearing upon the commutator or contact surface. With such brushes, however, the individual wires are liable to cut individual grooves in the face of the commutator, to wear it unevenly, and to fuse, often causing serious sparking, as well as wear, of the commutator itself. With my improved form of brush it will be noted that this cannot occur, the wire fabric being of such nature that the individual wires are held firmly in place and bear at equal angles upon the face of the commutator, and as they wear away constantly change or shift their position thereon. I fasten the edges of the individual pieces of fabric in any preferred way, so that as the brush wears down the small portions of wire at the corners will not drop out. Two modified forms of my improved brush so arranged are disclosed in Figs. 3 and 4, in the first of which the wire fabric is folded back and forth upon itself in the direction of the edges of the brush, while in Fig. 4 the fabric is folded round and round, both of these figures representing cross-sections of the brush on lines parallel to the edge of the brush-holder H.

I am aware that it is old in the art to construct rolling commutator or contact brushes of circular wire-gauze disks held together upon an axle in the end of the commutator-holder and having a rolling bearing, the edges

of the disks resting or rolling upon the commutator-strips of a dynamo-electric machine. I do not, therefore, claim, broadly, a commutator or contact device made of wire-gauze.

I do not, however, limit myself to the specific constructions of wire-fabric commutator or contact brushes herein shown, for the reason that I believe myself, broadly, entitled to claim a sliding or frictional commutator or contact brush made of wire fabric, whether constructed of one or more layers. Nor do I limit myself to the use of such a brush as a commutator, it being obvious that it may have many other uses in the electric art—as, for instance, a contact-brush on electric railways, or in any position where it is desired to transfer a current of electricity from a moving to a stationary conductor, or between two moving conductors.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A commutator-brush composed of one or more layers of wire gauze or fabric having the individual wires located in lines diagonal to the axis of the commutator, substantially as described.

2. A commutator-brush made of two or more layers of wire gauze or fabric fastened together at their edges, substantially as described.

3. A commutator-brush composed of one or more layers of wire-gauze, in which the individual wires of the gauze have a diagonal bearing upon the commutator, substantially as described.

4. A commutator-brush composed of two or more layers of wire-gauze fastened together and held in place by a sliding sleeve or brush-holder, substantially as described.

5. A contact-brush for conducting an electrical current between a moving and a fixed conductor, composed of one or more sheets or strips of wire-gauze having frictional end bearing against one of said conductors, substantially as described.

6. A contact-brush for carrying an electrical current between a moving and a fixed conductor, composed of one or more layers of wire-gauze, the individual wires of which are located in diagonal lines with relation to the surface upon which they bear, substantially as described.

7. A commutator-brush for a dynamo-electric machine or motor, composed of one or more layers of wire-gauze having frictional end bearing against the commutator, substantially as described.

8. An electrical commutator or contact brush composed of one or more layers of wire-gauze secured or held by a brush-holder and having sliding or frictional bearing on the commutator or contact surface, substantially as described.

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Witnesses:
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