

V. G. APPLE.
COMMUTATOR BRUSH.
APPLICATION FILED JULY 7, 1906.

936,692.

Patented Oct. 12, 1909.

Fig. 1

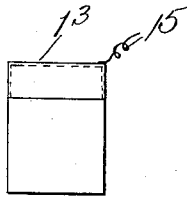


Fig. 2

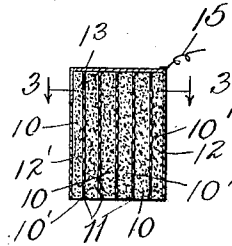


Fig. 3

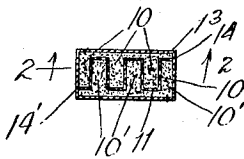


Fig. 4

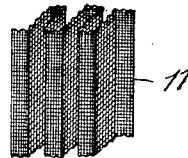
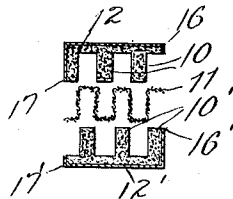


Fig. 5



Witnesses:

Ray White.

Harry R. L. White.

Inventor:

Vincent G. Apple.

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E. G.

UNITED STATES PATENT OFFICE.

VINCENT G. APPLE, OF DAYTON, OHIO.

COMMUTATOR-BRUSH.

936,692.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed July 7, 1906. Serial No. 325,054.

To all whom it may concern:

Be it known that I, VINCENT G. APPLE, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Commutator-Brushes, of which the following is a specification.

My invention relates to improvements in commutator brushes for dynamo-electric machines.

The object of my invention is to provide a brush for dynamo-electric machines, composed of a conglomerate, electrically conductive material, such as carbon, graphite or the like, molded in shape and inclosing a more highly conducting attenuate or thin metal sheet, or fabric, such as copper gauze, or the like, uniformly distributed across the wearing internal surface of the brush, thereby decreasing the electrical resistance of the brush as a result of the presence of the attenuate sheet metal conducting part, and producing a structure that will wear evenly and without cutting grooves in the commutator.

Another object of my invention is to improve the mode of construction of such brushes, by casting the carbon parts in suitable lengths and subsequently putting them together by proper means, at the same time inclosing the metal member contorted into the proper configuration to correspond with the internal surfaces of the carbon pieces.

Another object of my invention is to provide an inclosing metallic cap, placed over the end of the composite brush, for the purpose of more securely holding the parts thereof in secure position, and as a means by which electrical connection may be made to the structure.

These and other objects will become apparent to those persons skilled in the art from the description hereinafter.

In the drawings: Figure 1 is a side elevation of my brush. Fig. 2 is a vertical section taken on line 2—2 of Fig. 3. Fig. 3 is a cross section taken on line 3—3 of Fig. 2. Fig. 4 shows one form which the metallic fabric takes when inclosed between the surfaces of the two carbon blocks, forming the composite brush. Fig. 5 shows the relative position of the parts before being put together.

In all the views the same characters of reference indicate similar parts.

Fig. 1 shows the complete structure after it has been finished, in the manner hereafter described. Two pieces of carbon, graphite, or like material, 10, and 10' are cast in shape, in cross section, similar to that shown in Fig. 5. They are preferably duplicates of each other, or parts of the same casting, so that they may be placed in the relation, with reference to each other, as shown in Fig. 3.

A piece of sheet metal, or fabric, 11, preferably copper wire cloth, composed of fine copper or other suitable wire, is contorted into the shape shown in Figs. 4 and 5. It is preferably staggered across and back of the interior of the brush, to make electrical contact with maximum carbon surface, and so as to distribute the metal in thin lamina or sheets throughout the interior of the structure.

The exterior surfaces of the carbon plates 10, 10', are preferably copper-plated, as shown exaggeratedly at 12, 12' respectively.

A metal inclosing cap 13, extends part-way down over the surface of the brush, and is connected by soldering or brazing to the gauze member 11, at points 14, 14'.

The thickness of the metal plating 12, 12', is shown exaggerated in the drawing; in practice it is extremely thin, but is sufficient to substantially complete electrical contact with all of the exterior surface of the said carbon parts.

15 is a "pig-tail" connected to the cap 13, the other terminal of which may be appropriately connected to the metallic brush holder, thereby completing and maintaining the electric circuit between the said brush holder and brush.

After the carbon pieces have been molded, in substantially the form shown in Fig. 5, or in a form which will accomplish substantially the same results, the metal sheet or fabric 11, is contorted into a configuration which will correspond to the interior corrugated, or otherwise extended surfaces of the carbon members. The elements 10, and 10' and 11 are then put closely together, in intimate contact, as shown in Fig. 3, and may be secured in this relation by any suitable means. I have found, however, that the metal corners, 16, 16' and 17, 17', respectively, and the longitudinal edges of the sheet 11, may be soldered or brazed together, to hold all of the parts in united position. The cap 13 is then placed over the end of the structure to be farthest removed from

the commutator, and is soldered to the outside coating 12, 12' and also to the interior member 11.

It is evident that the members 10, 10' and 5 11, composing the structure, may be made in suitable lengths, then put together in the manner heretofore described, and subsequently sawed into suitable sections or 10 lengths, for the purpose for which they are to be used.

Any convenient means, such as cement, solder, brazing or the like may be employed for holding the component parts of the 15 brush in their proper relation as a completed structure.

While I have shown and described a single embodiment of my invention, it is apparent that considerable variation may be made 20 from the disclosure without departing from the spirit and scope of the claim.

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

In a commutator brush, the combination 25 of two, duplicate, carbon blocks, forming opposite sides of a composite structure, and having projections arranged to interfit with each other to form a joint of crenelated outline extending transversely across the composite structure, in end presentation, and a 30 continuous piece of thin metal of similar crenelated contour arranged between the carbon pieces in intimate contact therewith, substantially as and for the purpose described.

In testimony whereof I hereunto set my 35 hand in the presence of two witnesses.

VINCENT G. APPLE.

In the presence of—

ELMER E. ULLRICH,
HARRIET B. BATES.