

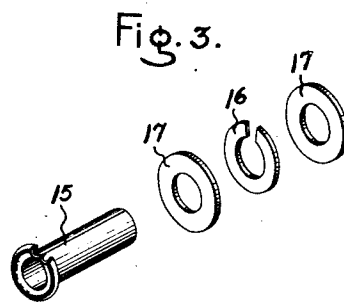
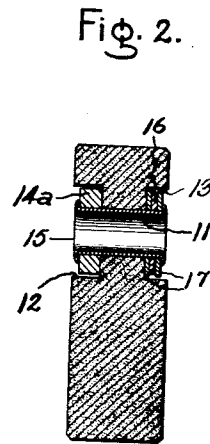
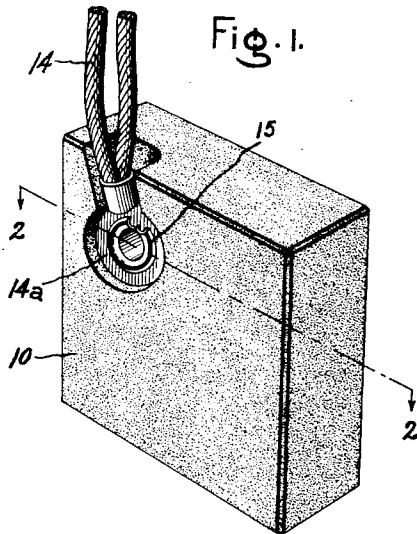
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W. H. HARDMAN

1,808,549

BRUSH FOR DYNAMO ELECTRIC MACHINES

Filed Oct. 15, 1927



Inventor:
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UNITED STATES PATENT OFFICE

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BRUSH FOR DYNAMO-ELECTRIC MACHINES

Application filed October 15, 1927. Serial No. 226,473.

My invention relates to brushes for dynamo-electric machines.

Brushes as heretofore made have been provided with a flexible connector rigidly attached to the brush by rivets or screws for connecting the brush to the brush holder. These brushes have been subjected to vibration or repeated heating and cooling during the operation of the machines in which they were used so that the screws or rivets securing the flexible connectors to the brushes have been loosened which impaired the electrical connection between the connectors and the brushes and caused destructive arcing between them.

The object of my invention is to provide an improved fastening means for securing the flexible connector to the brush so that it will not be loosened by vibration or repeated heating and cooling and so that destructive arcing between the brush and connector will be avoided. I do this by securing the flexible connector to the brush by means including a spring arranged to yieldably urge the connector against the brush.

My invention will be more fully set forth in the following description referring to the accompanying drawings and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

In the drawings, Fig. 1 is a perspective view of a brush embodying my invention; Fig. 2 is a transverse section on the line 2-2 of Fig. 1, and Fig. 3 is a view of the hollow rivet employed showing the relation of the parts for securing the flexible connector to the brush.

Referring to the drawings, the brush illustrated is formed with an opening therethrough and recesses 12 and 13 around the opening on opposite sides thereof, the recess 12 extending to the top of the brush so that the flexible connector 14 will not prevent the brush passing into the brush holder.

In accordance with my invention the connector is secured to the brush by means including a spring member retained under

compression which will maintain a good electrical connection with the brush if the securing means should become loosened. In the construction illustrated by way of example, the connector is provided with a terminal portion 14a which is secured in the recess 12 by a rivet 15 or any other suitable securing means extending through the terminal portion and the brush. In order to prevent the terminal portion of the connector being loosened by vibration or heating and cooling of the brush and resultant destructive arcing between the connector and the brush, I arrange a spring member such as a spring washer 16 on the rivet 15 and in the recess 13 between two flat washers 17 and upset the rivet at each end to compress the spring washer 16 and retain the terminal portion of the connector against the brush under the action of the spring washer. By the arrangement if the rivet should be loosened by vibration or heating and cooling of the brush the spring washer 16 will firmly retain the terminal portion 14a of the connector against the brush and maintains a good electrical connection therewith.

Although I have shown my invention applied to a carbon brush having a rivet for securing the flexible connector to the brush other securing means may be used. I do not, therefore, desire my invention to be limited except as defined in the appended claims.

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

1. In combination, a brush having an opening therein, a flexible conductor, and means extending through said opening for securing said conductor to said brush including a tubular rivet and a spring on said rivet.

2. In combination, a brush having an opening therein and a recess at each end of the opening, a flexible conductor having a terminal portion arranged in one recess and a spring member arranged in the other recess, and means extending through said opening engaging said spring member and

said terminal portion for yieldingly retaining the latter in said recess.

3. In combination, a brush having an opening therein and a recess at each end of the opening, a flexible conductor having a terminal portion arranged in one recess and a spring member comprising two washers having a spring washer therebetween arranged in the other recess, and means engaging said terminal portion and extending through said spring member to compress the spring and yieldably retain the terminal portion in said recess.

4. In combination, a brush having an opening therein and a recess at each end of the opening, a flexible conductor having a terminal portion arranged in one recess and a spring member arranged in the other recess, and a tubular rivet extending through said opening, said rivet being upset at both ends to retain said spring member under compression and said terminal portion in its recess under the action of said spring member.

In witness whereof, I have hereunto set my hand this 14th day of October, 1927.

WILLIAM H. HARDMAN.

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