

(No Model.)

E. B. RAYMOND.  
COLLECTING BRUSH.

No. 573,105.

Patented Dec. 15, 1896.

FIG. 1.

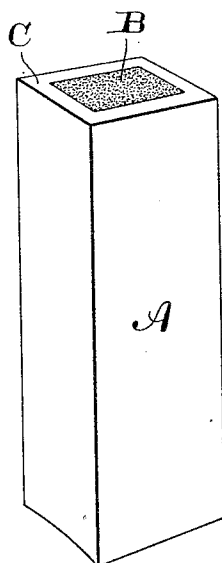


FIG. 3.

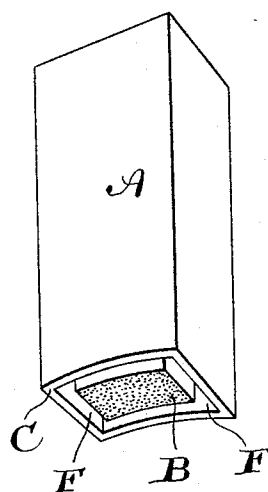
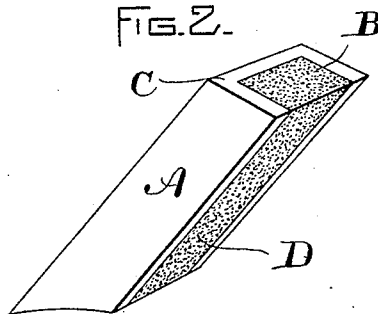


FIG. 2.



WITNESSES

*Asst. Abell.*

*A. MacDonald.*

INVENTOR.

*Edward B. Raymond,*  
*by*  
*Geo. R. Blodgett,*  
*att'y.*

# UNITED STATES PATENT OFFICE.

EDWARD B. RAYMOND, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE  
GENERAL ELECTRIC COMPANY, OF NEW YORK.

## COLLECTING-BRUSH.

SPECIFICATION forming part of Letters Patent No. 573,105, dated December 15, 1896.

Application filed August 5, 1896. Serial No. 601,699. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD B. RAYMOND, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Collecting-Brushes, (Case No. 406,) of which the following is a specification.

My invention relates to collecting-brushes for dynamo-electric machines or motors, and has particular reference to a means which I have devised for preventing sparking when a commutator-segment breaks contact with the brush.

The invention is applicable to brushes of any type and composed of any material, but finds its greatest utility in the common form of carbon brush.

Heretofore such brushes have been coated with copper or other good conducting material, the film being made of such thickness that it wears away readily and coincidentally with the carbon. To attain the objects of my invention, however, I either dispense with this copper film altogether or I add to it a layer of non-conducting material, which may be of any one of the numerous insulating materials now common in the market. I may surround the core with a layer of air held in place by an inclosing shell of insulation, the oxygen being eliminated by sparking. A mixture of nitrogen and carbonic acid or oxid is formed which does not aid combustion.

In the accompanying drawings, Figure 1 is a perspective view of a brush embodying my invention, and Figs. 2 and 3 are modifications.

A is the brush, composed in the case illustrated of a core B of carbon and a layer C of insulating material.

As the air is excluded from the part of the brush which breaks contact the spark is practically entirely suppressed, the life of the

commutator is prolonged, and the wear of the brush materially reduced.

It is of course only important that the non-conducting material, where used in contact with the brush, should be applied to the side of the brush which breaks contact, and this arrangement I aim to include in the claims, whether the brush be surrounded entirely by insulating material or only have the side which breaks contact thus protected. Such a construction is illustrated in Fig. 2, in which the side D of the brush is left unprotected. It is not, however, the preferred form, inasmuch as it requires selection in adjusting the brush in position; but it is possible to so carry out the objects of my invention.

In Fig. 3 I show that form of my invention in which a surrounding layer of air is used. In this figure the air occupies the space F, and the core B is held in position by an enlarged upper portion.

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

1. As a new article of manufacture, a collecting-brush for a dynamo-electric machine, composed of a core of conducting material, and a layer of insulating material upon the outside of the core.

2. As a new article of manufacture, a collecting-brush for a dynamo-electric machine, composed of a core of conducting material surrounded by insulation.

3. As a new article of manufacture, a dynamo-brush having a core of conducting material surrounded by a solid insulator, and an air-space between the insulator and the core.

In witness whereof I have hereunto set my hand this 3d day of August, 1896.

EDWARD B. RAYMOND.

Witnesses:

B. B. HULL,  
A. H. ABELL.