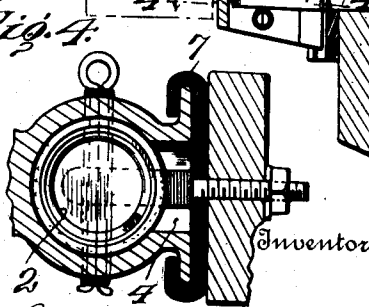
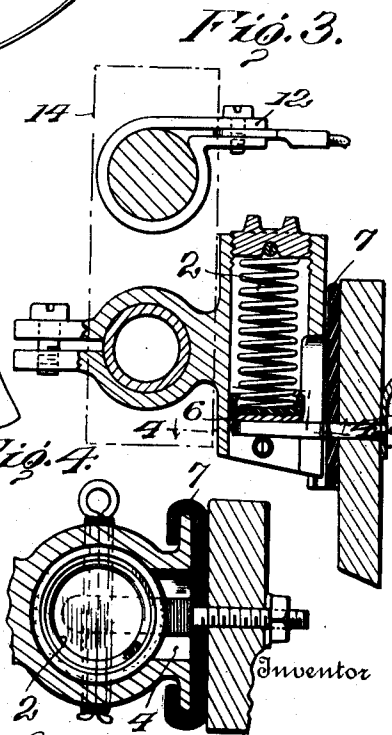
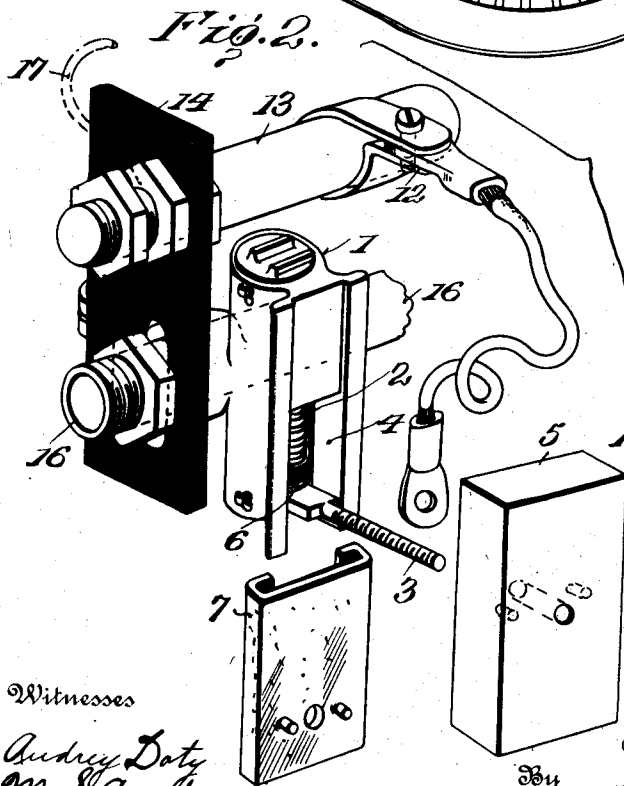
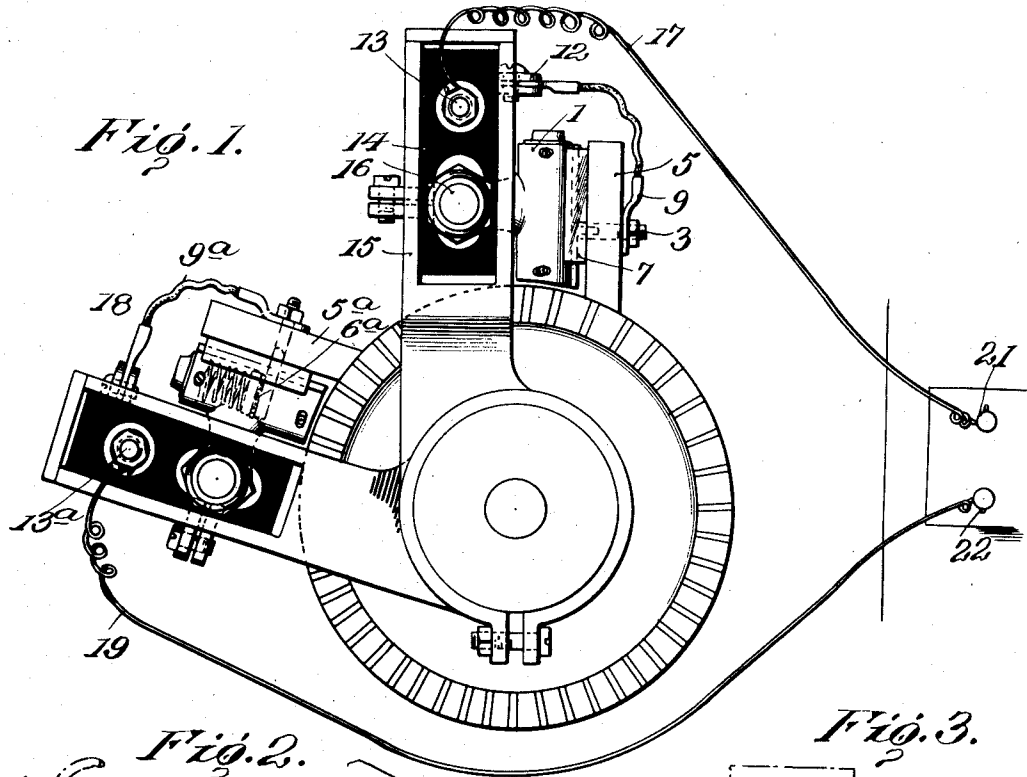


L. H. SPARKS.
BRUSH HOLDER.
APPLICATION FILED FEB. 5, 1910.

985,951.

Patented Mar. 7, 1911.



Witnesses

Andrew Doty
M. S. Andrews

By

Lorenzo H. Sparks
George W. Upton

Attorney

UNITED STATES PATENT OFFICE.

LORENZO H. SPARKS, OF WARREN, OHIO.

BRUSH-HOLDER.

985,951.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed February 5, 1910. Serial No. 542,267.

To all whom it may concern:

Be it known that I, LORENZO H. SPARKS, a citizen of the United States, residing at Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Brush-Holders, of which the following is a specification.

The object of this invention is to prevent the heating or burning of brush holders of dynamo-electric machines, and to prolong the life and maintain the efficiency of the springs of the brush holders. This I accomplish by preventing the electric current from passing through the brush-holders, the current connections being made directly with the brushes themselves. In other words, the brushes are insulated from their holders, and the current is passed through shunt wires connected to the brushes.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is an end elevation. Fig. 2 is a detached perspective view of one of the brush holders. Fig. 3 is a vertical sectional view. Fig. 4 is a section on line 4—4, Fig. 3.

In carrying out my invention, the brush holders may be of any preferred form of construction. I have shown brush-holders similar to the type disclosed by Letters Patent No. 930,427, issued to me August 10, 1909, but this is merely as an illustration. Each holder has a housing 1 wherein is located a spring 2 which acts on a bolt 3 which projects through a slot 4 in the flat face of the housing and supports a brush 5. This bolt does not engage the housing, and is separated from the spring by a disk 6 of insulating material. Between the brush and the housing, and capable of moving with the former, is a plate 7 of insulating material, so that the brush and its connecting bolt are perfectly insulated from the brush holder.

9 is a shunt wire which is held at one end on the projecting portion of bolt 3, and its terminal plate is secured against the face of the brush preferably by a nut on the bolt.

The other end of this wire is shown as connected by a clamp 12 to a stud 13 which is supported at one end by a plate 14 of insulating material, which plate is mounted on the brush-holder support carrier indicated at 15. In this plate 14 is an oblong opening to accommodate a second stud 16 to which

the brush-holder is secured in the usual manner, said stud constituting the support for the brush holder. Thus the brush holder and its support are insulated from the carrier for the support. The stud 13 is connected by a shunt wire 17 to one of the field terminals 21 of the dynamo. By this means an electric connection is formed between the field terminal of the dynamo and the brush, while the brush-holder and the spring thereof are entirely insulated so that no portion of the current can pass through either the spring or the brush-holder.

At 18 I have indicated a second brush-holder and brush 5^a, and have shown the latter as connected by shunt wire 9 to stud 13 and the latter by wire 19 to the field terminal 22. In this brush-holder, the brush-supporting bolt is likewise insulated from the spring of the holder by disk 6, before described, and in consequence no portion of the current will pass through the brush-holder or its spring.

In operation the current from the generator passes from the field terminal, 21, through wire 17 to stud 13 and thence along the shunt wire 9 to the brush 5; thence from the brush into the commutator, but it can not affect the metal holder 1 because of the insulation 14, nor can it affect the spring 2 because of the insulation 6, nor the carrier 15 nor brush holder support 16 because of the insulating plate 14. Thus the life of spring 2 is as long as it would be were no current used.

The current passes from the commutator through the second brush 5, shunt wire 9 and wire 19 to the terminal 22 of the field, and, thence back to the generator, without electrifying or passing through or into the metal or spring of holder 18.

As many pairs of brushes may be used as are found expedient.

The advantages of my invention will be apparent to those skilled in the art. By means thereof all danger of burning the brush-holders or impairing the efficiency of the springs, by which the brushes are held in engagement with the commutator, is avoided, since no portion of the current passes into or through the brush-holders or their springs.

I wish it understood that I do not confine my invention to the means shown and described, since the same result may be obtained in different ways. For instance,

each brush-holder may in itself be made wholly of insulating material, but for all practical purposes I prefer to use metallic brush-holders and to insulate the brushes and their supports from the holders and connect shunt wires directly to the brushes themselves.

I claim as my invention:—

1. In combination, a brush-holder carrier, a brush-holder, a supporting stud to which said brush-holder is secured, a brush carried by said holder, means for wholly insulating said brush from said holder, a second stud, means mounted on said carrier for insulating said second stud from the supporting

stud, and a shunt wire leading from the brush to said second stud.

2. In combination, a brush-holder carrier, a plate of insulating material carried thereby, a brush-holder, a stud therefor mounted in said plate, a brush carried by said holder, a second stud carried by said plate of insulating material, and a shunt wire connecting said second stud directly to the brush.

In testimony whereof I affix my signature in presence of two witnesses.

LORENZO H. SPARKS.

Witnesses:

HOMER E. STEWART,
NELLE WADSWORTH.