(No Model.)

H. G. REIST.

BRUSH HOLDER.

No. 589,794. Patented Sept. 7, 1897.

FIG. 1.

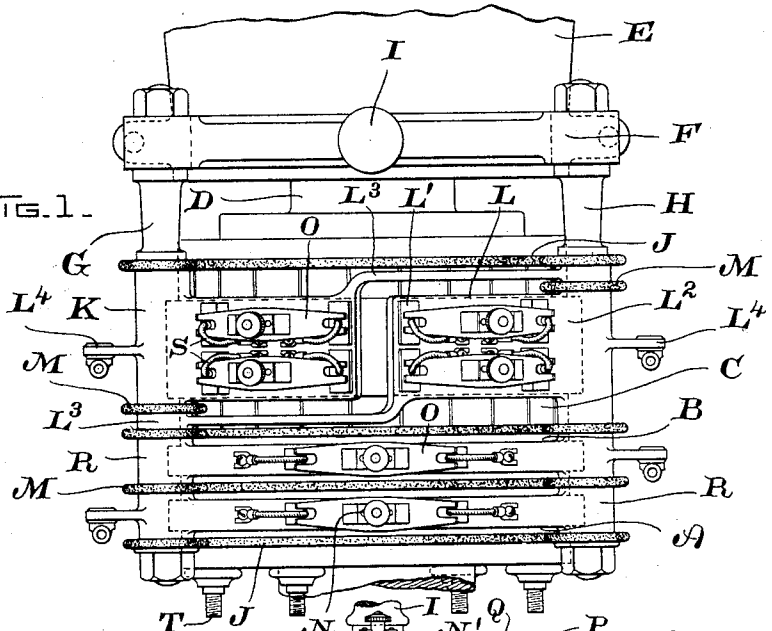
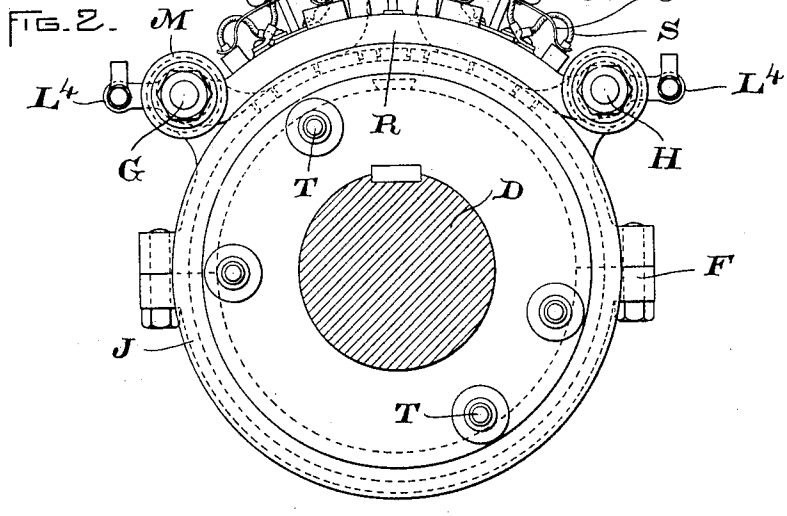


FIG. 2.



WITNESSES.

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UNITED STATES PATENT OFFICE.

HENRY G. REIST, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE GENERAL ELECTRIC COMPANY, OF NEW YORK.

BRUSH-HOLDER.

SPECIFICATION forming part of Letters Patent No. 589,794, dated September 7, 1897.

Application filed May 24, 1897. Serial No. 637,855. (No model.)

To all whom it may concern:

Be it known that I, HENRY G. REIST, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Brush-Holders, (Case No. 522,) of which the following is a specification.

The present invention relates to brush-holders employed on dynamo-electric machines, and has for its object to provide a simple compact brush-holder and one which is cheap to construct.

In the accompanying drawings, attached to and made a part of this specification, Figure 1 is a plan view of my improved apparatus; and Fig. 2 is an end view, partially in section.

The invention is shown in connection with an alternating-current generator, which is provided with collector-rings A and B and a commutator E for rectifying the whole or a portion of the current for energizing the field-coils, a type of machine now well known in the art. The collector and commutator rings are mounted upon the armature-shaft D and are insulated therefrom in any suitable manner

Adjustably mounted upon one end of the armature-shaft bearing E is a split ring F, the two parts being secured by bolts. Mounted in lugs formed on the upper part of the ring and extending parallel with the armature-shaft are brush-holder studs G and H. These are secured in position by means of nuts and form a common support for the brush-holders. A handle I is employed to adjust the brushes to their proper position. The collector-rings are separated from each other and the commutator by disks of insulation J.

This brush-holder being intended for an alternating-current machine where alternate commutator-segments are of the same polarity the brushes may be placed at any distance apart, providing they rest upon segments of opposite polarity. In order to render the brushes easy to inspect, the brush-holders are preferably mounted above the commutator on studs G and H, but are insulated therefrom by suitable bushings. Each brush-holder consists of a comparatively broad portion or box L^2, sleeved at one end upon one of the brush-holder studs, and a narrow or thin arm L^3, extending to and supported upon the second brush-holder stud. The arms L^3 are offset, the whole arranged, as shown in the drawings, so that the brush-holders are insulated and arranged in a compact manner. Each brush-holder is separated from the other by an air-space, and at the point where the arm is sleeved upon the stud insulating-disks M are employed to insulate it from the adjacent brush-holders. A lug L^4 is formed integral with the brush-holder, to which is secured the commutator-lead.

Carbon contact-brushes L', of which four are shown in the drawings, are mounted in each commutator or brush-holder in such a manner that they are free to move radially with respect to the commutator.

Extending in an angular direction, so that it will rest upon two of the brushes, is an equalizer O, having downwardly-curved ends and preferably made of spring metal having sufficient rigidity to maintain the shape shown. Mounted on top of the equalizer is a support P, consisting of a flat piece of metal having a slight depression in the center, in which rests the bottom of the adjusting-nut Q to prevent it from turning, and two semicircular spring-pieces N', which are riveted to the equalizer and the flat piece of metal.

Surrounding a screw-threaded stud which is secured to the brush-holder is a spiral spring N, located between the equalizer and the flat metal piece which forms the top of the support P. This spring furnishes the tension for the brushes through the equalizer O, and by adjusting the nut Q the tension may be varied as desired.

When for any reason one brush rises to a point above the other, the end of the equalizer which rests on the high brush rises slightly, the other brush acting as a pivot. The arrangement of the adjusting-spring N and the support P is such that a practically constant pressure is exerted at all times upon both brushes.

To increase the conductivity between the brushes and holders, flexible connections S are employed. These are secured in any desired manner.

The brush-holders for the collector-rings consist of castings R, which extend between

studs G and H and are supported thereby, suitable insulation being interposed between the studs and the castings. These castings are insulated from each other at their ends by insulating-disks M, and at the ends of the studs H and G are nuts which clamp all the brush-holders securely in place. Two brushes are mounted in each holder, and the construction and arrangement of the springs are the same as those described in connection with the commutator-brushes.

To establish connection with the commutator-segments and collector-rings, binding-posts T are employed.

I have found that two brushes arranged in the manner shown for the collector-rings are very useful in connection with controllers of various kinds employed for regulating electric motors, and in my claims I aim to cover such an arrangement.

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

1. In a brush-holder, the combination of a box in which the brushes are mounted, an equalizer extending between the brushes, and a spring for applying pressure to the brushes.

2. In a brush-holder, the combination of a box in which the brushes are mounted, an equalizer extending between the brushes and resting thereon, a spring for applying pressure to the brushes through the equalizer, and means for adjusting the spring.

3. In a brush-holder, the combination of a cast-metal box in which the brushes are mounted, a spring-metal equalizer having downwardly-curved ends engaging with the brushes, a support mounted upon the upper side of the equalizer, a spiral spring for applying pressure to the brushes, and means for adjusting the tension of the spring.

4. In a brush-holder, the combination of a split ring sleeved upon the armature-shaft bearing, studs carried by one half of the ring, and cast-metal pieces forming boxes for the brushes extending between and supported by both studs.

5. In a brush-holder, the combination of a pair of studs extending parallel with the armature-shaft, brush-holder boxes sleeved upon the studs and situated directly in line with each other, and offset-arms extending from each of the boxes to the opposite studs.

6. In a brush-holder for dynamo-electric machines, the combination of a pair of studs extending parallel with the armature-shaft, holders or boxes for the commutator-brushes situated directly in line and sleeved upon the studs, offset-arms formed integral with the boxes and extending from the boxes to the opposite studs, castings forming holders for the collector-ring brushes, sleeved upon both of the studs, and means for clamping all the brush-holders together.

In witness whereof I have hereunto set my hand this 21st day of May, 1897.

HENRY G. REIST.

Witnesses:
B. B. HULL,
C. L. HAYNES.