

(No Model.)

J. C. CHAMBERLAIN.
HOLDER FOR COMMUTATOR BRUSHES.

No. 423,309.

Patented Mar. 11, 1890.

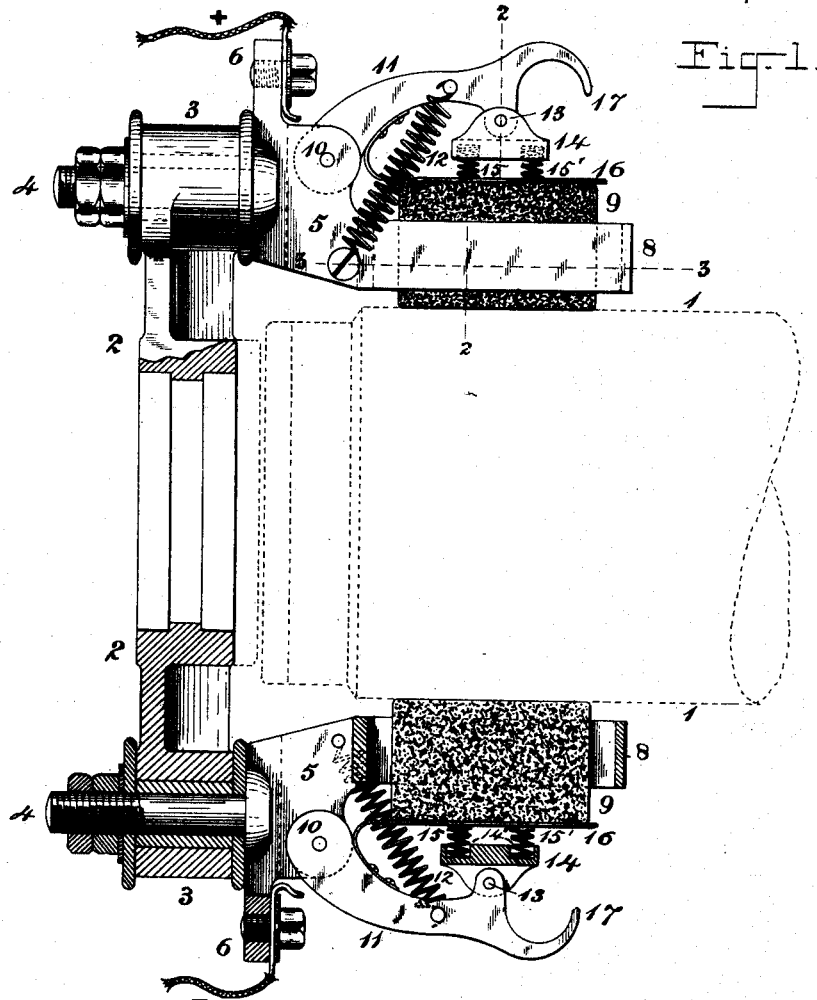


Fig. 1.

Fig. 2.

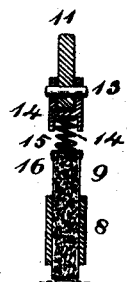


Fig. 3.

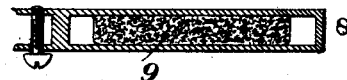
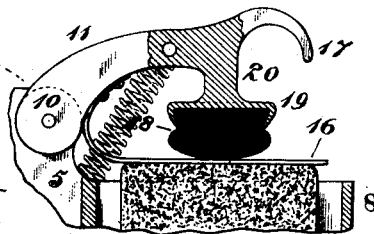


Fig. 4.



Witnesses

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HOLDER FOR COMMUTATOR-BRUSHES.

SPECIFICATION forming part of Letters Patent No. 423,309, dated March 11, 1890.

Application filed May 29, 1889. Serial No. 312,518. (No model.)

To all whom it may concern:

Be it known that I, JACOB CHESTER CHAMBERLAIN, a citizen of the United States, residing at New York, county and State of New York, have invented new and useful Improvements in the Holders of Commutator-Brushes, of which the following is a specification.

My invention relates especially to improvements in the holders of those "brushes" or current-collectors for the commutators of electric motors and dynamos which are adapted to operate with equal facility with either a forward or backward rotation of the armature.

My improvements are directed to prevention or suppression of the obnoxious chattering, piping, or grating noises consequent on intermittent and unequal contact of such brush with the commutator-cylinder.

The effect of my construction is, first, to hold the brush firmly and equably upon the commutator-cylinder, thus preserving contact and preventing vibration, and, secondly, to deaden or muffle whatever sound arises at the line of said contact.

Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a partly-sectioned side view of a brush-holder embodying my invention. Fig. 2 is a section on the line 2 2. Fig. 3 is a section on the line 3 3. Fig. 4 represents a modification of the pressing and sound-muffling device.

The dotted lines 1 represent a commutator-cylinder.

2 is a head so secured to the dynamo-frame as to be capable of rotation about a line coincident with the commutator-axis, as customary with such heads. The two extremities of the head being equipped with precisely similar brush-holders, it is necessary only to describe one of them. An eye 3 receives a bolt 4, which fastens to said head a bracket 5, having customary binding-posts 6 for one of the wire-conductors + and -. A portion of the bracket takes the form of a guide or holder 8, having a rectangular opening for a "brush" or collector of suitable conducting and refractory material. Said collector is preferably a tablet 9 of graphite or gas-retort carbon, or other form of hard plumbago. The relative dimensions of said tablet and said opening therefor are such that the tablet fits snugly but easily in its said holder, so that, while be-

ing retained to a radial position on the periphery of the commutator, it can at all times remain seated squarely thereupon. Hinged to the said bracket at 10 is the pressure-arm 11, which extends in rear and in the plane of the tablet, and is drawn theretoward by one or more springs 12, whose ends are secured to the bracket and the arm, respectively. Hinged to said arm at 13, so as to be capable of vibrating in the plane of the tablet, is a piece 14, which I call the "rocker." Two sockets or cavities 14' in the under side of this rocker receive and hold a pair of light spiral springs 15 15', which, bearing on the rear edge of the tablet, cause said tablet to press with its entire length equably and in a regular position on the periphery of the commutator-cylinder. The said springs 15 15' may be in direct contact with the tablet, but are preferably in contact with and rest upon a copper plate 16, which, itself resting upon the tablet and having one end screwed fast to the arm 11, serves as a backing to the tablet and to conduct the current in shunt of the supplementary springs 15 15'. Thus a sure connection is made between the collector and the holder, constant metallic contact with the collector being assured. The plate 16 further serves to hold the auxiliary springs in place, and this holder when the arm and its attachments are lifted, as for insertion of a new tablet. An important effect of the springs 15 15' and their rocking holder 14 is to deaden or muffle the objectionable grating noise to which these forms of commutator-brushes are subject, while it also, by securing a more equable and constant brush-contact, lessens the cause of such sounds and diminishes liabilities to sparking. A hook or lip 17 on the end of the arm 11 facilitates the lifting of it when desired.

The above-described preferred form of my invention is susceptible of various modifications without departing from the essential principles of my invention. For example, an india-rubber pad or cushion 18, attached to a rigid projection 19 20 from the arm 11, may be substituted for the pair of auxiliary springs 15 15'.

The tablet 9 may be of copper or other suitable conducting material.

I claim—

1. The combination of the stationary guide

8, its loosely-inserted tablet 9, and the arm 11, connected to said guide by hinge 10 and springs 12, and the auxiliary spiral springs between the said arm and the said tablet.

5 2. In a holder for a commutator-brush or collector, the combination of the pressure-arm, the supplementary spring or cushion, the brush-tablet or collector, and the interposed conducting-plate.

10 3. The combination, with the collector or tablet, of a rocker thereon, and a spring between said rocker and said tablet.

4. The combination of the holder proper 8, the graphite collector or tablet 9, loosely held and guided therein, the spring-depressed arm 15 11, its attached rocker 14, the supplementary springs or sound-deadeners 15 15', and the plate-conductor 16, interposed between said sound-deadeners and such tablet, substantially as and for the purposes set forth.

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Witnesses:

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