(No Model.)

P. CLAUS & E. GENGENBACH.

BRUSH HOLDER FOR DYNAMOS.

No. 418,685. Patented Jan. 7, 1890.

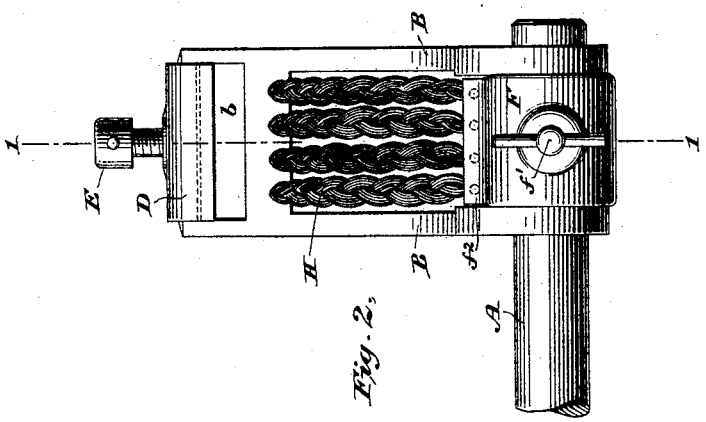

Fig. 2.

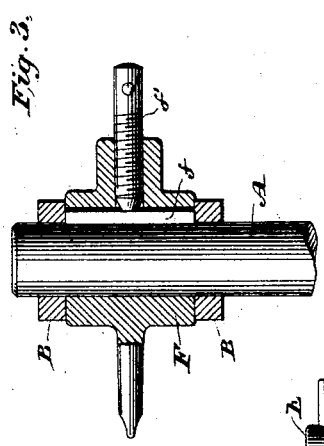

Fig. 3.

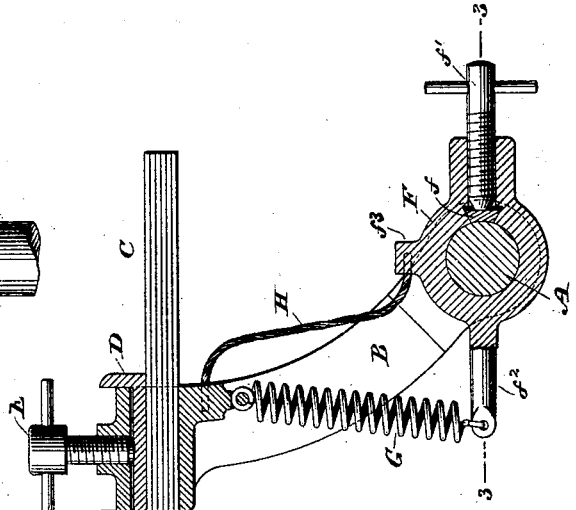

Fig. 1.

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UNITED STATES PATENT OFFICE.

PETER CLAUS AND EUGEN GENGENBACH, OF NEW YORK, N. Y.

BRUSH-HOLDER FOR DYNAMOS.

SPECIFICATION forming part of Letters Patent No. 418,685, dated January 7, 1890.

Application filed May 11, 1889. Serial No. 310,365. (No model.)

To all whom it may concern:

Be it known that we, PETER CLAUS and EUGEN GENGENBACH, subjects of His Majesty the Emperor of Germany, and residents of the city, county, and State of New York, have made a new and useful Improvement in Brush-Holders for Dynamo and Magneto Electric Machines and Motors, of which we declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The object of our invention is to provide a brush-holder which shall keep the brush against the commutator with an even but yielding pressure, which will allow the brush to adjust itself to any inequalities on the periphery of the commutator, and which pressure can be readily increased or diminished to any desired extent, and at the same time to maintain a perfect electrical connection between the different parts of the device; and to this end our invention consists in the novel details of construction and arrangement and combination of parts, hereinafter more fully set forth.

In the drawings, Figure 1 is a sectional elevation of our improved brush-holder on the line 1 1, Fig. 2. Fig. 2 is an end elevation thereof, and Fig. 3 is a detail sectional view on the line 3 3, Fig. 1.

Similar letters of reference are used to designate corresponding parts in all the figures.

The bolt or stud A, which supports the brush-holder, is suitably insulated from the frame of the machine, and is mounted over or adjacent to the commutator in the usual way. An arm B of conducting material is rotatably hung upon the bolt A. The lower portion of this arm is bifurcated, and its upper or solid end is provided with a mortise *b*, in which the brush C is securely held by the clamp D and set-screw E.

Upon the bolt A, between the two lower ends of the arm B, is hung the sleeve F, which is provided with a key *f*, running the entire length of the sleeve. The key *f* is adjustable within the sleeve and is adapted to be pressed tightly against the bolt A by the set-screw *f'*, whereby the sleeve will be prevented from turning or being moved on the bolt A. When the pressure of the set-screw is relieved, however, the sleeve F can be turned freely on said bolt, and the sleeve F and arm B can also be moved lengthwise thereon to any desired point opposite the commutator. The sleeve F is provided with a spur or projection f^2, which extends under the arm B. One end of a spiral spring G is attached to the outer end of this projection, and the other end of the spring is secured to the upper portion of the arm B. One or more flexible conducting-cables H, formed by preference, but not essentially, of fine copper wires braided, as shown, are connected at one end to the upper portion of the arm B and at the other end to the projection f^3 on the sleeve F, thus maintaining a flexible yet thoroughly-efficient electrical connection between the brush C and the sleeve F.

The operation of our invention is as follows: The arm B and sleeve F having been properly mounted upon the bolt A, the brush C is secured in the mortise *b* in the upper end of the arm. They are then moved along the bolt A until the brush is opposite the desired point of contact with the commutator. The sleeve F is then turned so as to carry the outer end of the spur away from the brush C, and the resultant tension of the spring G will tend to draw the upper end of the arm B toward the commutator and bring the end of the brush C firmly against the periphery thereof. The farther the sleeve F is turned the greater will be the pressure of the brush against the commutator, and when the desired pressure is thus attained the set-screw *f'* is turned and the key *f* is forced tightly against the bolt A, clamping the sleeve firmly in position. It will now be understood that the brush is held firmly against the periphery of the commutator with a steady pressure, and automatically adjusts itself to any unevenness on the surface of the latter.

The brush may be lifted entirely clear of the commutator without changing or disturbing the adjustment of the sleeve F. The tension of the spring which holds the brush against the commutator is readily adjustable, and the large bearing-surface of the clamping-key *f* against the supporting-bolts affords a large contact-surface, and at the same time prevents the excoriation of the supporting-bolt, which occurs where ordinary binding or

set screws are used for holding the brush in position. The flexible connection of the brushes to the sleeve, by means of the independent conductors H, renders it possible to attain all these advantages, and at the same time to preserve a perfect electrical contact between the brush and the supporting-bolt, from which the current is taken to the main connections.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a support bolt or stud, of a sleeve carried thereby, a swinging brush-supporting arm, also carried by said bolt or stud, a spring connecting said arm with said sleeve, and a flexible electric connection between said arm and said sleeve, substantially as and for the purposes set forth.

2. The combination, with a supporting bolt or stud, of an adjustable sleeve carried thereby, a clamping device for securing said sleeve to said bolt or stud, a swinging brush-holding arm carried by said bolt or stud, a spring connecting said arm with said sleeve, and a flexible electric connection between said arm and said sleeve, substantially as and for the purposes set forth.

3. The combination, with a supporting-bolt A, of the brush-carrying arm B, the adjustable sleeve F, provided with a key *f* and set-screw *f'*, a spring G, and electric conductors H, substantially as shown and described.

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