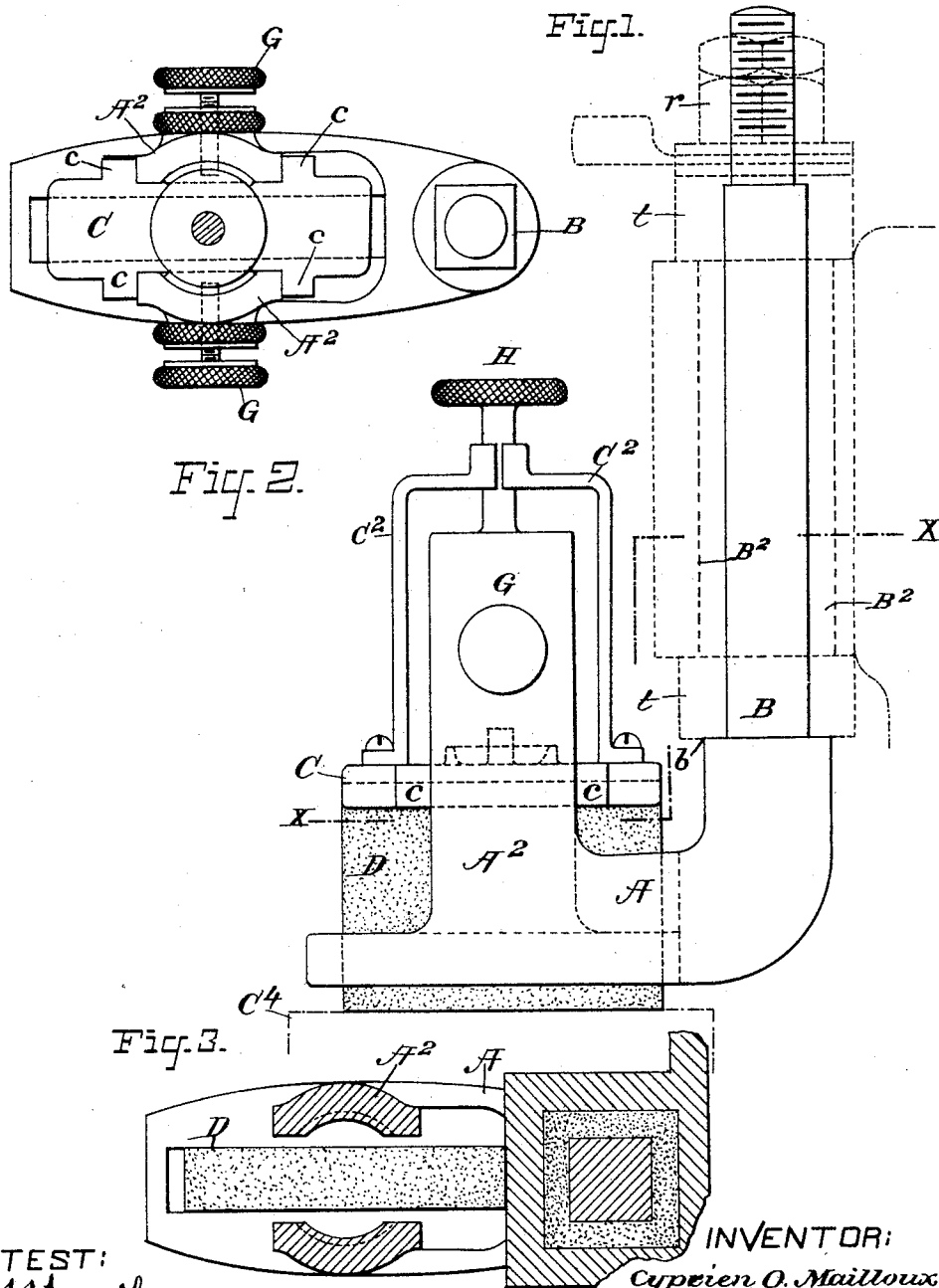


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BRUSH HOLDER FOR DYNAMO ELECTRIC MACHINES OR MOTORS.

No. 457,358.

Patented Aug. 11, 1891.



ATTEST:

*J. H. Mundy*  
*Wm. H. Raper*

INVENTOR:

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*By H. H. Townsend*

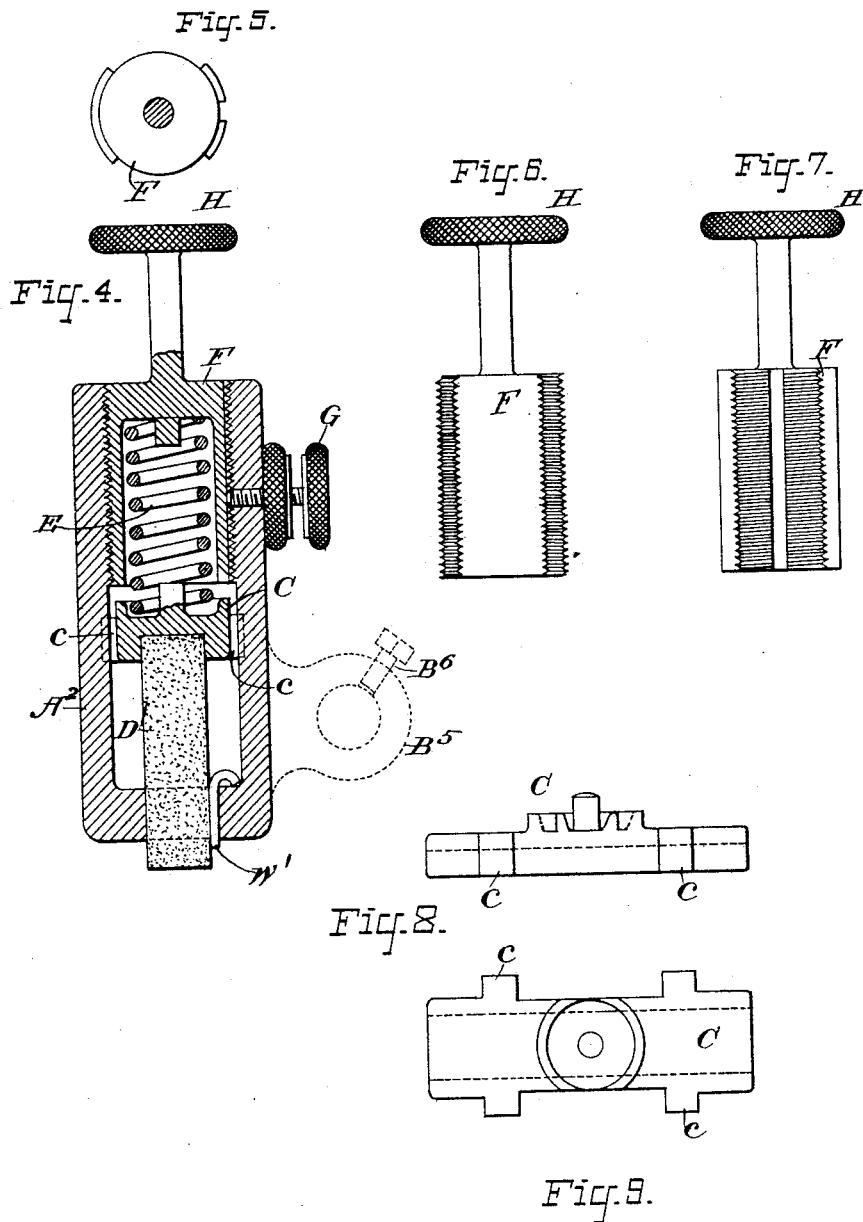
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Fig. 10.

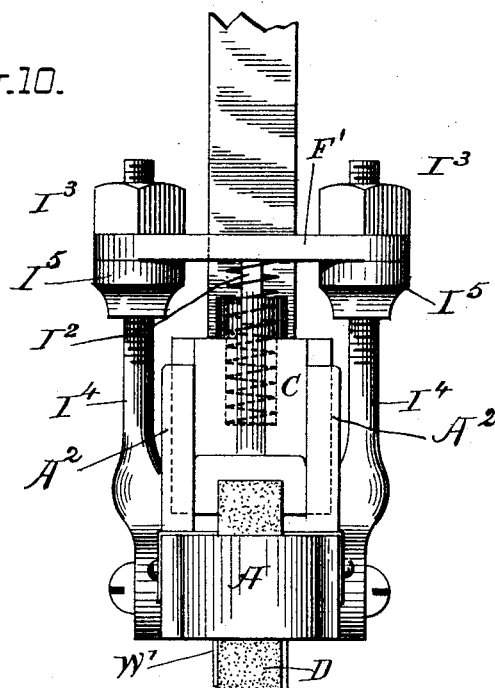
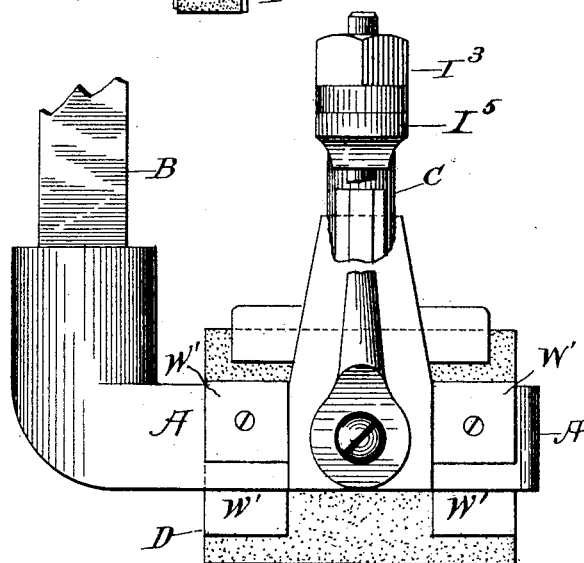


Fig. 11.



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# UNITED STATES PATENT OFFICE.

CYPRIEN O. MAILLOUX, OF NEW YORK, N. Y.

BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES OR MOTORS.

SPECIFICATION forming part of Letters Patent No. 457,358, dated August 11, 1891.

Application filed March 18, 1891. Serial No. 385,490. (No model.)

*To all whom it may concern:*

Be it known that I, CYPRIEN O. MAILLOUX, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Carbon-Brush Holders, of which the following is a specification.

My invention relates to the construction of the brush-holder or device which is used in dynamo-electric machines or motors for holding the brush or collecting device which bears upon the commutator-cylinder or conducting-ring moving with the armature, and either takes up electric current from such cylinder or ring or supplies current thereto.

My invention is particularly designed to afford a simple and efficient means for holding a brush or block of carbon or other material; and the invention consists in the novel features of construction and the combinations of parts hereinafter described, and more particularly specified in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a brush-holder constructed in accordance with my invention. Fig. 2 is a plan view of the device. Fig. 3 is a cross-section through the stem or rod which carries the body of the brush-holder on line *x x* of Fig. 1. Fig. 4 is a vertical section through the holder proper and the devices for adjusting and setting the brush. Fig. 5 is a top view of the adjustable head which operates upon the socket or follower to which the brush is directly connected. Fig. 6 is a side view of the head detached from its guide or support. Fig. 7 is a side view taken at right angles from the view Fig. 6. Fig. 8 is an edge view of the holder or follower, with which the carbon brush engages directly. Fig. 9 is a plan of the same. Fig. 10 is an elevation of a modified form of the invention. Fig. 11 is an elevation at right angles to Fig. 10.

A is the body of the device, upon which the adjustable and movable parts are mounted.

The body A of the brush-holder is here shown as an arm extending at right angles from a rod B, which is supported in a bracket or projection extending from a portion of the field-magnet of the machine or from other suitable part, as will be presently described.

C is the holder or follower having a socket or bearing at its under side to receive the car-

bon brush D and provided on its upper side with a cup-shaped projection and central stud therein to receive and hold in place a spiral spring E, which is pressed down against the follower by means of an adjustable head F, to be presently described. The socket or follower C is capable of a vertically-guided movement on the body of the holder, and is for that purpose provided with the transverse lugs or projections *c*, that engage with the vertical extensions *A*<sup>2</sup>, rising from the body of the holder. The arms or uprights *A*<sup>2</sup> also form means for attachment and support of the adjustable head F and one or more set-screws G, designed to hold the said head from turning in its support. The head F is formed, preferably, with a hollow body, which forms a socket to receive the upper end of the spring E. A sufficient space is left between the lower end of said head and the upper surface of the block or follower C to permit the head to be forced down to compress the spring. On its exterior the head F is provided on its opposite faces with a screw-thread, such screw-thread being interrupted, however, at the diametrically-opposite portions on a line at right angles to the plane in which the screw-thread lies, as clearly shown in the end view of such head, Fig. 5. On the interior of the uprights *A*<sup>2</sup>, in which the head is supported, is formed a similar screw-thread. The continuity of the latter screw-thread is interrupted by the open spaces between the arms and for a distance circumferentially equal at least to the circumferential distances or lengths of arc occupied by the screw-thread upon the head, Fig. 2. When the head and its support are thus constructed each with an interrupted screw-thread, it is obvious that by bringing the screw-thread on the head into coincidence with the spaces or openings in its support, where a screw-thread is wanting, the head may be moved freely in a vertical direction in its support, while by turning it from such relative position of the two screw-threads the screw-threads will be caused to engage, and the head will be held from movement and the spring E kept compressed. To prevent the head from turning, so that the screw-thread will be unlocked or disengaged, I provide in one or both sides thereof a groove, as indicated in Figs. 5 and

7, into which the set-screws G may enter and lock the head from turning. The set-screws G may be provided with suitable lock-nuts, as shown.

5 H is a suitable handle or thumb-piece connected to the upper end of the head.

From the guided holder or follower rise arms C<sup>2</sup>, with which the head may engage when it is lifted out of its support, thus lifting the block or follower C with it and preventing the two from becoming disconnected. The lower end of the holder or body A is properly formed to guide the carbon block or brush D near the end thereof, which engages with the surface of the cylinder or collecting-ring indicated at C<sup>4</sup>.

In applying the devices the block or follower C is inserted from above between the uprights A<sup>2</sup>, so as to be guided thereon, and the head F brought into position with relation to the screw-threads on said arms, so that it may be moved down freely between the arms. The head is forced down by the handle, so as to compress the spring E to the desired amount, and thereby cause the brush to be forced firmly against the commutator cylinder or ring, and is then turned to cause the screw-threads to lock, after which a further turning will cause a slight further compression of the spring. The head is set and the parts locked by means of the screw G, as before explained.

The spring E will take up a certain amount of wear of the brush and preserve good contact; but after the brush is worn away to a certain extent the head may be unlocked and forced down farther against the spring and again reset.

The rod B is preferably formed as a square rod which enters a vertical socket in a block B<sup>2</sup>, clamped against a suitable support—as, for instance, the yoke of a field-magnet frame. Interposed between the rod and the block is a square bushing of insulating material, and above and below the block B<sup>2</sup> are washers *t t*, of suitable insulating material. The rod is provided at *b* with a shoulder near its lower end, and at its upper end is provided with a screw-thread, with which engages a nut *r*, by means of which the rod may be fastened in position. The nut may also serve as the means for clamping the terminal of an electric conductor that is to be placed in electrical connection with the rod and through the same with the collecting or commutator brush.

The body of the brush-holder might obviously be supported or mounted by other means in place of the rod B. Thus, for instance, as indicated in Fig. 4, the body of the brush-holder might be attached to or formed in one piece with a rocking sleeve B<sup>5</sup>, adapted to rock on a horizontal rod or spindle in a way well known in the art, and to be set or fixed by means of a set-screw B<sup>6</sup>.

65 In the modification of my invention indicated in Figs. 10 and 11 the adjustable head F' consists of a cross-piece having a down-

wardly-projecting pin I<sup>2</sup>, which enters a cavity in the block or follower C, which has an upwardly-extending projection adapted to receive the pin I<sup>2</sup>. Between the head and the bottom of the cavity is a spring which is compressed by a downward movement of the head and forces the block or follower carrying the carbon brush downward. The pin or stud I<sup>2</sup> serves to hold the spring in position. The head is adjusted and forced downward by means of nuts I<sup>3</sup>, engaging with the screw-threads on rods I<sup>4</sup>, which pass up through the ends of the head, and are fastened, as indicated, to the body of the brush-holder. The head is fixed or held in position by means of the two nuts I<sup>3</sup> I<sup>5</sup>, engaging with it above and below. The follower block or holder is guided in the upwardly-extending arms A<sup>2</sup> by a tongue or projection which enters a groove in said uprights A<sup>2</sup>. This is the obvious equivalent of the projections engaging with the outside of the arms, in the manner indicated in Fig. 2.

It will be obvious that the body of the holder, where it guides the carbon brush or rod, serves the purpose of forming an electrical connection near the contact end of said brush, thus cutting out the resistance of the length of the brush between the points of connection and the upper end thereof. It will also be obvious that springs, such as indicated at W', might be employed for engaging with or making contact with the brush at the point where it is guided near its lower end.

What I claim as my invention is—

1. In a brush-holder for dynamo machines or motors, the combination, substantially as described, of a sliding holder or follower for the brush, a holder-body formed with guides or ways to prevent the holder from turning, an adjustable head mounted in said body, and an interposed spiral spring between said head and the top of the block or follower which engages directly with or carries the brush.

2. In a brush-holder, the combination, substantially as described, of a follower-block or brush-holder, an adjustable head having an interrupted screw-thread, a fixed support having a similar interior screw-thread, and an interposed spring between the head and the follower.

3. In a brush-holder, the combination, substantially as described, of the holder-body having the separate uprights provided on their inside with a screw-thread, a brush-holding block or follower guided on said uprights, and an adjustable head having an interrupted screw-thread adapted to be brought into engagement with the screw-thread on the uprights, and a spring interposed between the same and the follower.

4. The combination, substantially as described, of the guided socket or follower engaging or carrying the carbon brush, a spring bearing on the top of the same, an adjustable head, a support with which the head engages

by an interrupted screw-thread, and a set-screw engaging with said head and adapted to hold the same from turning.

5 5. The combination, substantially as described, of the guided socket or follower, a carbon or other brush engaged directly thereby, the adjustable head, the interposed spring between the head and follower, and arms or  
10 projections from the follower with which the head may engage when lifted from its support, whereby the two parts may be removed together and kept in proper relative position.

15 6. In a brush-holder, the combination, substantially as described, of the holder-body A, having the uprights A<sup>2</sup>, the follower-block C, guided thereon, the vertically-adjustable head supported by the holder, and the interposed spring between the head and the follower.

20 7. In a brush-holder, the combination, substantially as described, of a guided socket or follower having at its bottom a cavity adapted to receive the carbon or other brush and at its top a socket or depression, and a hollow screw-threaded adjustable head, and the spiral  
25 spring between the follower and the head, as and for the purpose described.

30 8. The combination, substantially as described, of the rod B, having a screw-thread on one end and a shoulder at or near its other, a perforated or recessed block in which the arm is mounted, an arm extending at right angles from said rod, the follower guided thereon and engaging with the contact brush

or block, a head, and an interposed spring between said follower and head, as and for 35 the purpose described.

9. In a brush-holder, the combination, substantially as described, of the holder-body A, forming at its lower end a guide for the carbon block or brush, a follower C, guided on 40 said body or the uprights rising therefrom, an adjustable head supported upon the body and bearing upon the follower, and an interposed spiral spring.

10. In a brush-holder, a holder-body A, 45 formed at its lower end as a guide for the carbon brush, in combination with the follower guided on said body, a spiral spring engaging the follower at its top, and an adjustable head engaging the said spring. 50

11. The combination, substantially as described, of the holder-body having uprights formed on their inside with a screw-thread, a follower-block C, guided on said uprights and having a socket to receive the carbon brush, 55 a head having an interrupted screw-thread adapted to enter the space between the uprights, and a spiral spring interposed between said head and the follower.

Signed at New York, in the county of New 60 York and State of New York, this 24th day of February, A. D. 1891.

CYPRIEN O. MAILLOUX.

Witnesses:

WM. H. CAPEL,  
T. F. CONREY.