

(No Model.)

S. H. SHORT.
BRUSH HOLDER.

No. 582,883.

Patented May 18, 1897.

Fig. 1.

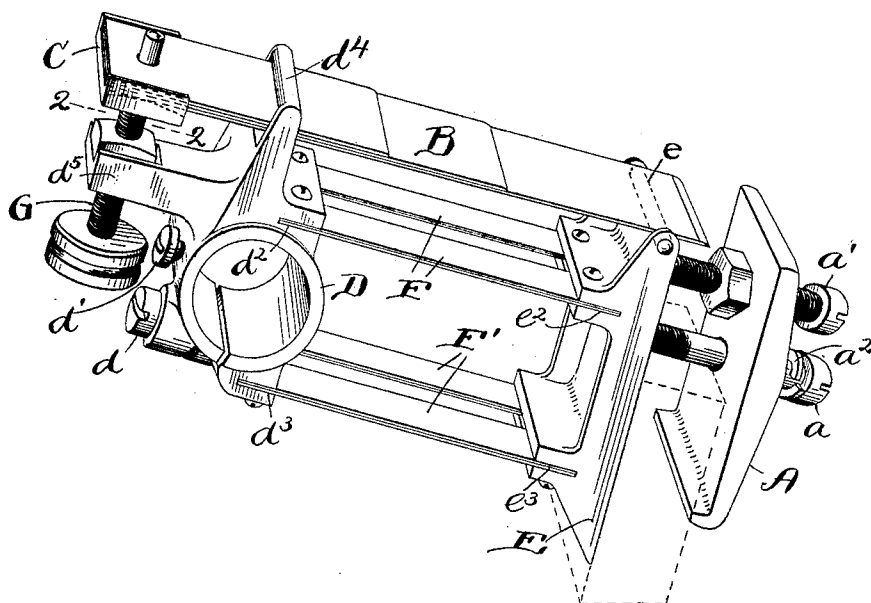
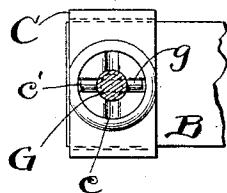


Fig. 2.



Witnesses:
E. B. Gilchrist
H. M. Hutchison.

Inventor
Sidney H. Short
By E. L. Thurstone
his atty

UNITED STATES PATENT OFFICE.

SIDNEY H. SHORT, OF CLEVELAND, OHIO.

BRUSH-HOLDER.

SPECIFICATION forming part of Letters Patent No. 582,883, dated May 18, 1897.

Application filed January 2, 1897. Serial No. 617,862. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY H. SHORT, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Brush-Holders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-

10 pertains to make and use the same.

My invention relates to brush-holders adapted for use with electric generators and motors.

One object of the invention is to hold the brush firmly in contact with the commutator and in such manner that the angle of the brush relative to the commutator-surface with which it contacts is not sensibly changed as the brush wears away.

20 Another object of the invention is to prevent the current from drawing the temper of the tension-spring.

The invention consists in the construction and combination of parts hereinafter described and claimed.

30 In the drawings, Figure 1 is a perspective view of my improved brush-holder, and Fig. 2 is a bottom view of the tension-spring clasp and a sectional view of the adjustment-screw on line 2 2 of Fig. 1.

Referring to the parts by letters, D represents what I may call the "attaching" member of the device, meaning the part whereby the brush-holder is attached to the support therefor. It is in the form of a split clamping-sleeve, the meeting edges of which may be drawn together by the screw $\bar{d}$. It may be more securely fastened to the shaft or sleeve which the said split sleeve embraces by one or more set-screws $\bar{d}'$.

E represents the brush-clamp plate, which is connected to and supported from the member D by the springs F F', which are arranged in two parallel rows, one above the other. Each of these springs is preferably made of two or more flat copper leaves. Their ends are clamped in slots $\bar{d}^2 \bar{d}^3$ in the member D and $e^2 e^3$ in the clamp-plate E. There are preferably two springs F in one row and two springs F' in the other row, as shown, but this number may be varied as desired. These connecting-springs act substantially as do the

connecting-links of a parallel ruler, wherefore the plate E may be moved up or down without sensibly changing its angular relation to the member D or to any other part of the electric machine—the commutator, for example. At the same time these springs F F' tend to straighten themselves, and thereby to return the clamp-plate to what may be called its "natural" position.

The brush-clamp A is supported by a screw a , which passes loosely through it and screws into plate E, a spring-washer a^2 being interposed between the head of the screw and the clamp A. A second screw a' screws through the upper end of the clamp A and bears against the plate E. By the operation of these two screws the brush (indicated by dotted lines) may be clamped between the clamp A and plate E.

B represents the tension-spring, made up preferably of several leaves. Its outer end bears upon an insulated pin e , which extends across the top of plate E. It passes beneath a cross-bar $\bar{d}^4$, which forms the upper part of a loop on top of the member D. The inner end of the spring B rests in a clasp-plate C.

An adjustment-screw G screws through a bracket-arm $\bar{d}^5$ on member D. Its upper end, which is unthreaded, passes through holes in the clasp-plate and spring, thereby preventing the relative movement of said two parts. A transverse pin g , passing through the screw, supports the clasp-plate and normally lies in one of the crossed grooves $c c'$ on the under side of the clasp-plate, whereby the accidental turning of the screw is prevented. The degree of pressure of the brush upon the commutator is regulated by this screw. The current does not pass through the tension-spring because its end bears upon the insulated pin e . There is therefore no danger that its temper will be drawn or that its efficiency will be in any degree impaired by the current.

Having described my invention, I claim—

1. In a brush-holder, in combination, the attaching member, a brush-clamping device, a metallic connection between them, and a tension-spring carried by the attaching device, and bearing against an insulated surface upon the clamping device, substantially as and for the purpose specified.

2. In a brush-holder, in combination, the

attaching member, a brush-clamping device, two parallel rows of springs connecting said parts, and an insulated tension-spring carried by the attaching member and bearing upon the clamping device, substantially as and for the purpose specified.

3. In a brush-holding device, the combination of the attaching member D, the brush-clamping device, and two parallel rows of springs connecting these two parts, a tension-spring bearing upon an insulated surface upon the clamping device, and a tension-regulating device carried by the member D, substantially as and for the purpose specified.

4. In a brush-holding device, the combination of the attaching member D, a brush-clamp plate, and two parallel rows of springs connecting the member D and brush-clamp plate, with a brush-clamp and its operating mechanism, a tension-spring engaging at one end upon an insulated surface upon the brush-clamp plate, and a tensioning device on member D engaging beneath the other end of said spring, and a bar carried by the member D which engages with the top of the tension-spring between its ends, substantially as and for the purpose specified.

5. In a brush-holding device, the combination of the split sleeve D, having the bar d^4 , and bracket-arm d^5 , the brush-clamping plate

E, and two parallel rows of springs F, F', connecting the sleeve and plate, with a clamp A adjustable toward and from the clamp-plate, a tension-spring B passing under said bar d^4 , and engaging at its outer end upon an insulated surface upon the clamp-plate, and an adjustable screw engaging with said bracket and the inner end of said spring, substantially as and for the purpose specified.

6. In a brush-holder, the combination of a sleeve D, having a bar d^4 and bracket-arm d^5 , a brush-clamp plate E and two parallel rows of spring-plates F F' connecting said parts, with a brush-clamp A, its operating mechanism, the leaf tension-spring B which bears at its outer end on an insulated surface upon the brush-clamp plate, and passes beneath the bar d^4 , the clasp-plate C, the adjusting-screw G, which is supported by the bracket d^5 , and has a cylindrical end which passes through holes in the clasp-plate and spring, and a transverse pin g secured to said screw below the clasp-plate, substantially as and for the purpose specified.

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

SIDNEY H. SHORT.

Witnesses:

E. L. THURSTON,
H. M. HUTCHISON.