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J. F. CARD.

BRUSH HOLDER FOR DYNAMO ELECTRIC MACHINES OR MOTORS.

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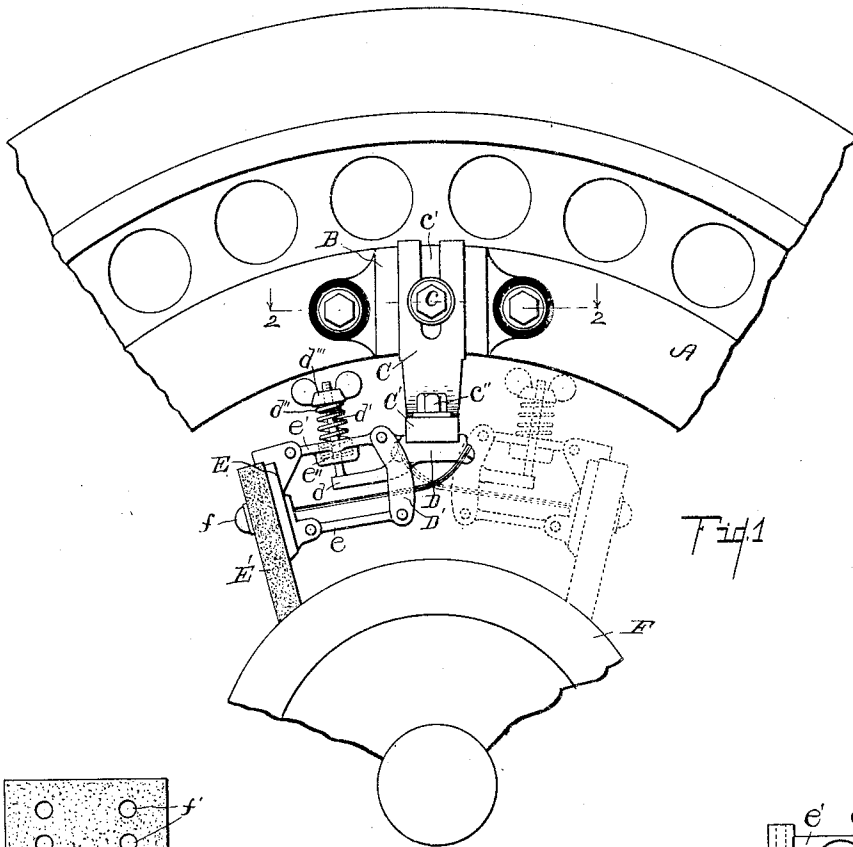


Fig. 1

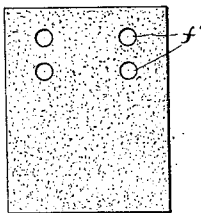


Fig. 3

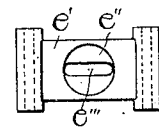


Fig. 4

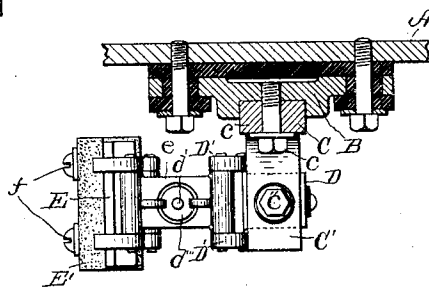


Fig. 2

Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN F. CARD, OF THREE RIVERS, MICHIGAN, ASSIGNOR TO SHEFFIELD CAR COMPANY, OF THREE RIVERS, MICHIGAN.

BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES OR MOTORS.

SPECIFICATION forming part of Letters Patent No. 784,547, dated March 14, 1905.

Application filed October 1, 1903. Serial No. 175,257

To all whom it may concern:

Be it known that I, JOHN F. CARD, a citizen of the United States, residing at the city of Three Rivers, in the county of St. Joseph and State of Michigan, have invented certain new and useful Improvements in Brush-Holders for Dynamo-Electric Machines or Motors, of which the following is a specification.

This invention relates to improvements in brush-holders for dynamo-electric machines or motors.

The objects of this invention are, first, to provide an improved brush-holder for dynamo-electric machines or motors by which the brush is held in a manner to secure the most desirable results which is simple and compact in structure and easy to operate; second, to provide an improved brush-holder for dynamo-electric machines or motors which may be quickly and easily reversed; third, to provide an improved brush-holder for dynamo-electric machines or motors which is economical to produce and use and not likely to get out of repair; fourth, to provide an improved brush-holder for dynamo-electric machines or motors which may be quickly and easily adjusted to compensate for the wear of the brush or to secure the desired tension thereon.

Further objects and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined, and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail side elevation view of a structure embodying the features of my invention, my improved brush-holder being shown in its operative relation. Fig. 2 is a detail sectional view taken on line 2 2 of Fig. 1 looking in the direction of the little arrows at the ends of the section-lines. Fig. 3 is an enlarged plan view of the brush E'. Fig. 4

is an enlarged plan view of the link e' , showing the structural details thereof. 50

In the drawings similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A represents the brush-rocker to which the brush-supporting bracket B is secured. 55 The bracket B may, however, be secured to any suitable support, according to the particular style of machine on which it is desired to use the structure. The bracket B is suitably insulated, as appears in Fig. 2. Adjustably secured to the bracket B by the set-screw a , which engages a slot e' therein, is a bracket C, having a laterally-projecting arm C' thereon. 60

A block D is detachably secured to the arm C'. The block D is provided with projecting lugs or ears D', to which the links $e e'$ are pivotally secured. A brush-holding plate E is pivotally secured to the outer ends of these links $e e'$. The brush E', which is preferably a carbon brush of the usual style, is clamped to the brush-plate E by a pair of set-screws f , which are arranged through suitable perforations f' in the brush. A series of two or more perforations are preferably provided, 75 (see Fig. 3,) so that the brush may be adjusted to compensate for wear.

Tension is applied to the brush by means of the spring d'' , which rests in the seat or socket e'' in the upper link e' . The tension 80 of the spring is adjusted by means of the thumb-nut d''' on the pin d' . The pin d' is arranged through the slot e''' in the link e' and is carried by the arm d , which projects from the block D. The brush is thus yieldingly held against the commutator F. 85

The supporting-links $e e'$ are preferably made of brass casting of sufficient size to suitably supply the brush and also to carry any current which may be passed therethrough. 90 The brush may, however, be provided with any suitable electrical connection desired.

When desired, the brush-holder may be reversed, as is indicated in dotted lines in Fig. 1, by removing the set-screw e'' . This, it is evident, can be quickly done, and the relation of 95

the brush to the commutator remains the same. The tension upon the brush can be very nicely adjusted, so that the brush is subject to the least possible wear and vibration or chattering thereof prevented.

When desired, the bracket C may be quickly removed or secured to any position or adjusted to meet the existing conditions.

I have illustrated and described my improved brush-holder for dynamo-electric machines or motors in the form preferred by me on account of the simplicity in structure and durability in use. I am, however, aware that the same may be varied considerably in structural details without departing from my invention.

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

1. The combination of the bracket B secured to a suitable support; a slotted bracket C having a laterally-projecting arm C' thereon; a set-screw *c* carried by said bracket B, adapted to engage said slot; a block D, having lugs or ears D' thereon, and a projecting arm *d*; a set-screw *c'* for securing said block to said arm C'; links *e e'* pivotally secured to said arms D', said link *e'* having a seat or socket *e''* and a slot *e'''* therein; a brush-holding plate E pivotally secured to said links *e e'*; a brush E' adjustably secured to said plate E; a coiled spring *d''* arranged in the said seat in the said link; an upwardly-projecting pin *d'* carried by said arm arranged through said slot in said link; and a thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

2. The combination of the bracket B secured to a suitable support; a slotted bracket C having a laterally-projecting arm C' thereon; a set-screw C carried by said bracket B, adapted to engage said slot; a block D having lugs or ears D' thereon, and a projecting arm *d*; a set-screw *c'* for securing said block to said arm C'; links *e e'* pivotally secured to said ears D', said links *e'* having a seat or socket *e''* and a slot *e'''* therein; a brush-holding plate E pivotally secured to said links *e e'*; a brush E' secured to said plate E; a coiled spring *d''* arranged in the said seat in the said link; an upwardly-projecting pin *d'* carried by said arm *d* arranged through said slot in said link; and a thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

3. The combination of a bracket C having a laterally-projecting arm C' thereon; a block D having a projecting arm thereon; a set-screw *c'* for securing said block to said arm C'; links *e e'* pivotally secured to said block; a brush-holding plate E pivotally secured to said links *e e'*; a brush E' adjustably secured to said plate E; a coiled spring arranged on said link *e'*; an upwardly-projecting pin *d'* carried by said arm *d* arranged through said link *e'*; and a

thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

4. The combination of a bracket C having a laterally-projecting arm C' thereon; a block D having a projecting arm thereon; a set-screw *c'* for securing said block to said arm C'; links *e e'* pivotally secured to said block; a brush-holding plate E pivotally secured to said links *e e'*; a brush E' secured to said plate E; a coiled spring arranged on said link *e'*; an upwardly-projecting pin *d'* carried by said arm *d* arranged through said link *e'*; and a thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

5. The combination of a suitable support; a block having a projecting arm thereon; links *e e'* pivotally secured to said block; a brush-holding plate E pivotally secured to said links *e e'*; a brush E' adjustably secured to said plate; a coiled spring arranged on said link *e'*; an upwardly-projecting pin *d'* carried by said arm *d* arranged through said link *e'*; and a thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

6. The combination of a suitable support; a block having a projecting arm thereon; links *e e'* pivotally secured to said block; a brush-holding plate E pivotally secured to said links *e e'*; a brush E' secured to said plate; a coiled spring arranged on said link *e'*; an upwardly-projecting pin *d'* carried by said arm *d* arranged through said link *e'*; and a thumb-nut on said pin for adjusting the tension of said spring, all coacting for the purpose specified.

7. The combination of the bracket B secured to a suitable support; a slotted bracket C having a laterally-projecting arm C' thereon; a set-screw *c* carried by said bracket B, adapted to engage said slot; a block detachably secured to said arm; links *e e'* pivotally secured to said blocks; a brush-holding plate E pivotally secured to said links *e e'*; a brush E' adjustably secured to said plate; a coiled spring for applying tension to said links; and means for adjusting the tension of said spring, all coacting for the purpose specified.

8. The combination of the bracket B secured to a suitable support; a slotted bracket C having a laterally-projecting arm C' thereon; a set-screw *c* carried by said bracket B, adapted to engage said slot; a block detachably secured to said arm; links *e e'* pivotally secured to said blocks; a brush-holding plate E pivotally secured to said links *e e'*; a brush E' secured to said plate; a coiled spring for applying tension to said links; and means for adjusting the tension of said spring, all coacting for the purpose specified.

9. The combination of a suitable support; a bracket adjustably secured thereto; a block detachably secured to said bracket; a pair of parallel-arranged links pivotally secured to said block; a brush-holding plate pivotally se-

cured to said links; a brush adjustably secured to said plate; a tension-spring; and means for adjusting the tension on said spring, for the purpose specified.

5 10. The combination of a suitable support; a bracket adjustably secured thereto; a block detachably secured to said bracket; a pair of parallel-arranged links pivotally secured to said block; a brush-holding plate pivotally secured to said links; a brush secured to said

plate; a tension-spring; and means for adjusting the tension on said spring, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses. 15

JOHN F. CARD. [L. s.]

Witnesses:

M. J. HUSS,
C. E. CRAIG.