

(No Model.)

2 Sheets—Sheet 1.

A. J. OEHRING.  
BRUSH HOLDER.

No. 598,271.

Patented Feb. 1, 1898.

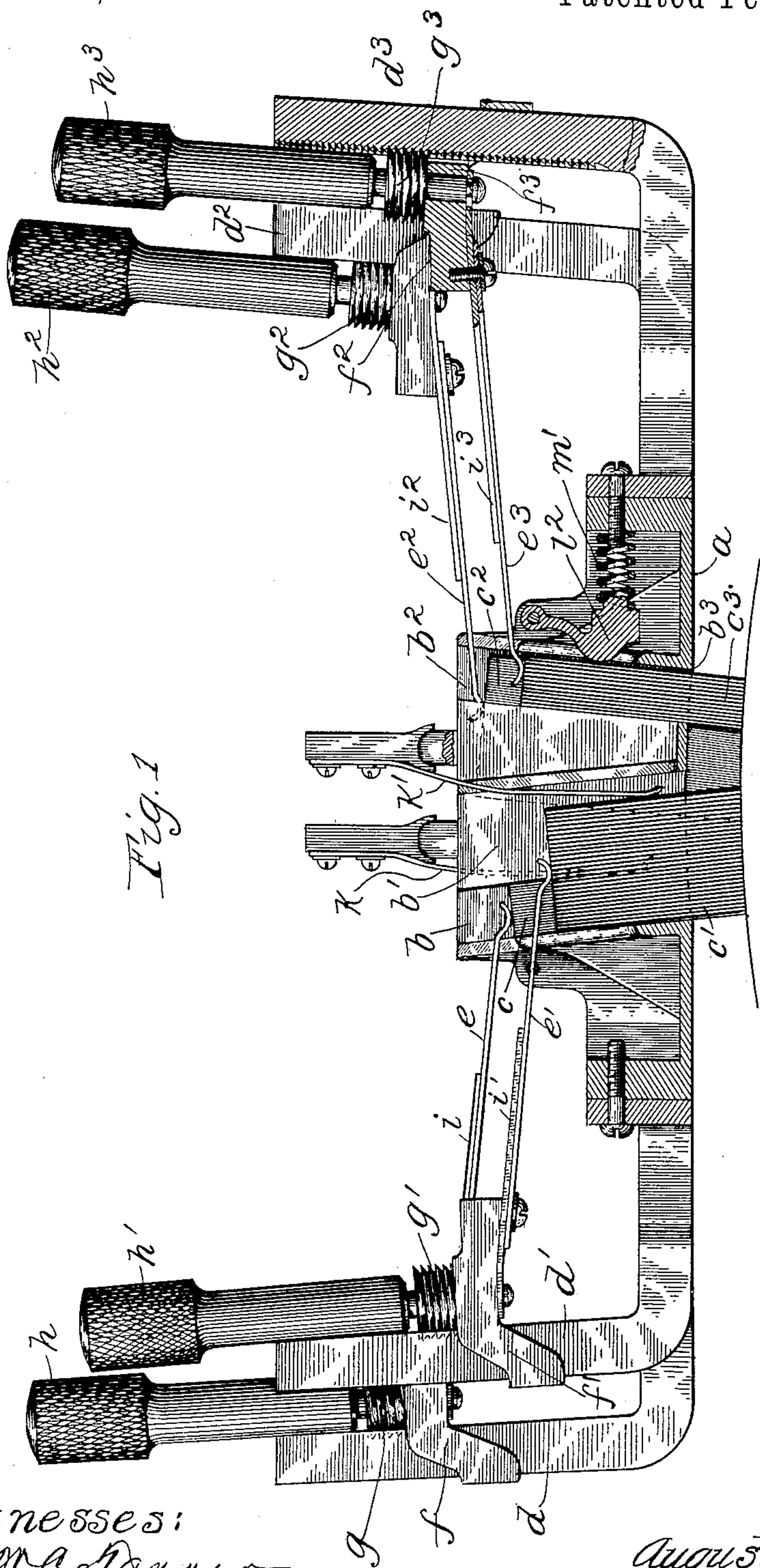


Fig. 1

Witnesses:

J. M. A. Tanner  
John W. Sinclair

Inventor:  
August J. Oehring,  
By Bartlett Brown  
Attorneys.

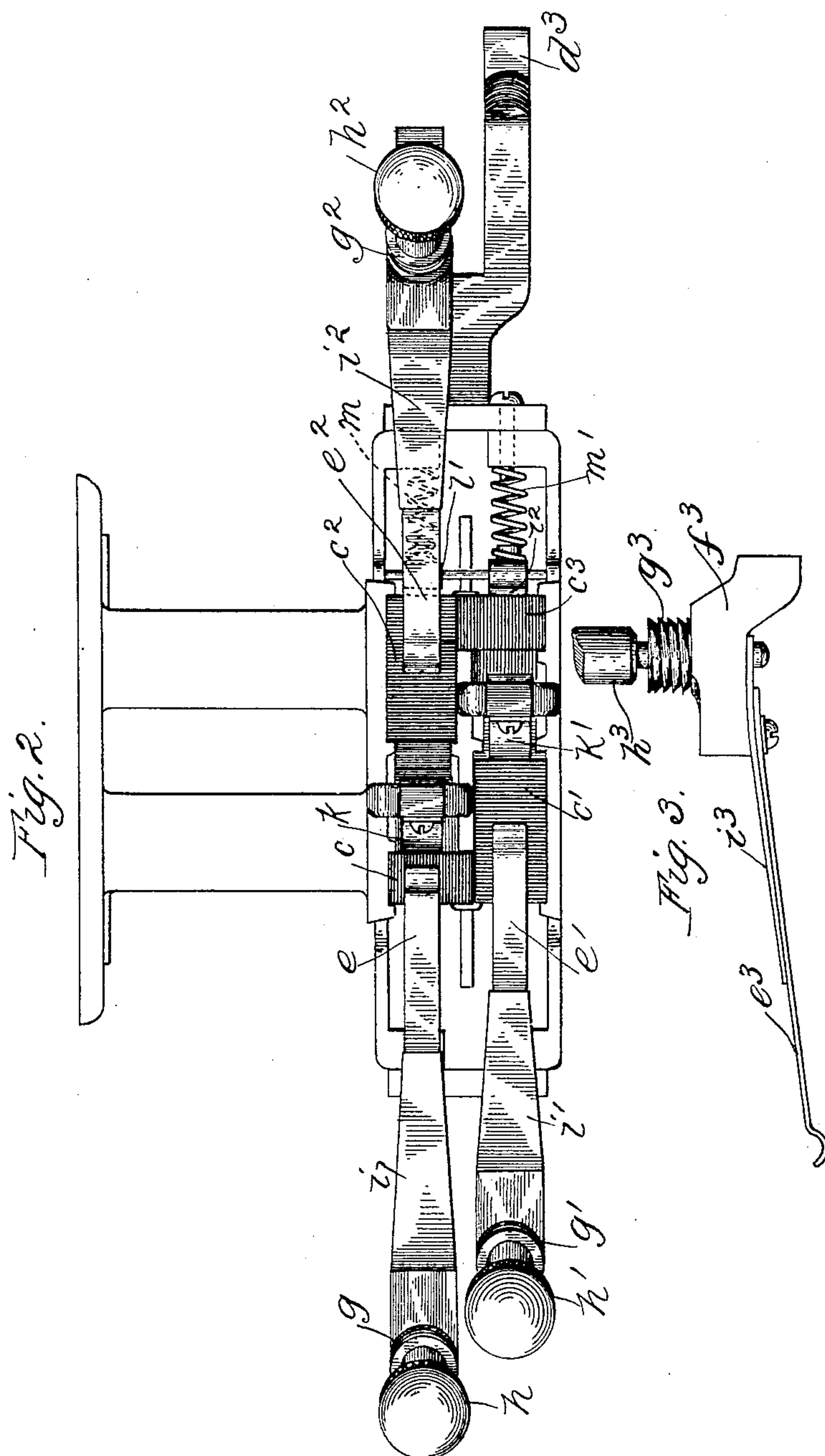
(No Model.)

2 Sheets—Sheet 2.

A. J. OEHRING.  
BRUSH HOLDER.

No. 598,271.

Patented Feb. 1, 1898.



Witnesses.  
D. M. Canner  
John H. Sinclair

Inventor:  
August J. Oehring  
By Bartow Brown  
Attorneys



# UNITED STATES PATENT OFFICE.

AUGUST J. OEHRING, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

## BRUSH-HOLDER.

SPECIFICATION forming part of Letters Patent No. 598,271, dated February 1, 1898.

Application filed June 30, 1896. Serial No. 597,533. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST J. OEHRING, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Brush-Holders, (Case No. 16,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to an improved feed device for the commutator-brushes of dynamo-electric machines, the object thereof being to provide means for securing an even feed and adjustment of the commutator-brushes as the same are worn away or consumed by the arcing of the current during the operation of the machine and for holding the said brushes at the same time firmly in position. In United States Letters Patent No. 563,337, granted to Henry H. Wait July 7, 1896, Figure 6 of the drawings shows a holder for a number of carbon brushes which are adapted to be forced into engagement with the commutator-segments by springs which are mounted upon uprights, the inner faces of which are serrated. The said springs are adapted to be adjustably secured at any (approximately at the desired) height upon their respective uprights by engaging the rear ends thereof with the teeth cut in said uprights, whereby compensation is made for the wearing away of the carbon brushes and the force exerted by the said springs is regulated. It is apparent that the spacing of the teeth upon the uprights regulates the successive downward adjustments of the springs, and it has been found that a close adjustment cannot thus be conveniently secured, while the springs, not being fastened to the brush-holder, when released from the engaging teeth upon the uprights are liable to be thrown out of position by the force they exert and fall into the machine.

My invention relates to improvements in the above appliance which overcome the objections to be urged against the same.

These improvements consist in providing a rack-and-screw adjustment for the springs controlling the feeding of the brushes and pivoted dogs actuated by laterally-acting springs

for holding the said brushes firmly in position during the operation of the machine.

I will explain the features of my invention more fully by reference to the accompanying drawings, in which—

Fig. 1 is a view in elevation of a brush-holder fitted with my improvements, with a portion of the device broken away to show the dog and laterally-acting spring. Fig. 2 is a top view of the same device. Fig. 3 is a detail view of the spring mounted upon the collar and extension, showing the adjusting-screw.

Like letters of reference designate the same parts throughout the several figures.

The frame *a* of the brush-holder is provided with the openings *b b' b<sup>2</sup> b<sup>3</sup>*, in which the carbon brushes *c c' c<sup>2</sup> c<sup>3</sup>* are placed in position to extend below the central portion of the frame and bear upon the commutator-segments. Standards *d d' d<sup>2</sup> d<sup>3</sup>* are rigidly secured by screws to the frame of the brush-holder at a slight outward angle with the vertical. Each carbon brush is provided with a spring *e e' e<sup>2</sup> e<sup>3</sup>*, adapted to bear upon its top and independently force it into engagement with the commutator. The said springs are each mounted upon a collar and extension *f f' f<sup>2</sup> f<sup>3</sup>*, adapted to fit loosely upon the standards. A ratchet screw-thread is cut upon the inner face of each of the standards, with which the screws *g g' g<sup>2</sup> g<sup>3</sup>*, rotatably mounted upon the extensions, are adapted to engage when the springs are placed in position and bear upon the carbon brushes.

The screws are provided with insulating thumb-pieces *h h' h<sup>2</sup> h<sup>3</sup>*, by turning which the adjustment of the carbon brushes is secured. As the collars fit loosely upon the standards, by merely inclining the pieces while slipping them into position upon the standards the screws may be thrown out of engagement with the ratchet-thread cut upon the said standards until the inner end of the spring bears upon the carbon brush. Secondary or reinforcing springs *i i' i<sup>2</sup> i<sup>3</sup>* are secured to the extensions above the springs *e e' e<sup>2</sup> e<sup>3</sup>*, which serve the double purpose of strengthening the said brush-springs and securing the adjusting-screws in position. The latter is accomplished by means of a slot cut in the rear



end of each of the secondary springs, the walls of which engage a groove cut in the screw-shaft, which extends through the extension. It is evident that the pressure exerted by each spring upon the corresponding brush may be altered as desired by turning the screw after the same engages the ratchet-thread upon the supporting-standards. In this way a finely-graduated adjustment is secured and compensation made for the wear and consumption of the brushes.

The brush-holder shown in the drawings is adapted for use in connection with a commutator rotating in contra-clockwise direction. Springs  $k k'$ , secured to the brush-holder, are adapted to force the brushes  $c c'$  firmly against the left walls of the openings  $b b'$ , and dogs  $l' l^2$ , pivoted in the brush-holder at the right of the openings  $b^2 b^3$ , are likewise adapted to hold the brushes  $c^2 c^3$  firmly in position, being actuated by the coiled springs  $m m'$ . The brush-holder may, however, be readily altered for use with a commutator rotating in a clockwise direction by merely securing the springs  $k k'$  upon the opposite side of the support upon which they are mounted, so that the lower ends will extend within the openings  $b^2 b^3$ , and changing the dogs  $l' l^2$  and springs  $m m'$  to the corresponding position at the left of the openings  $b b'$ .

The improvements above described furnish independent means for securely holding each brush in position and adjusting the force with which it is pressed against the commutator, as well as compensating for the wear and consumption of the said brush.

I do not desire to be understood as broadly claiming the device herein shown and described, as my invention relates only to the improvements I have provided therein, whereby the commutator-brushes are securely held in position by dogs and laterally-acting springs, and a finely-graduated downward adjustment of the said brushes is obtained by means of the screw provided upon each of the brush-springs.

I therefore claim as novel—

1. In a commutator-brush holder for dynamo-electric machines, the combination with an opening or socket in which the brush is easily inserted, of a spring adapted to bear upon the brush and yieldingly force it into engagement with the commutator, a standard, a collar mounted upon the said standard to which one end of the spring is secured, and engaging threaded parts provided upon the said standard and collar affording a rack-and-screw adjustment whereby the tension of the spring is regulated, substantially as described.

2. In a commutator-brush holder for dynamo-electric machines, the combination with

the commutator-brush, of a dog bearing laterally upon said brush, and a spring actuating the said dog to hold the brush securely in position, substantially as described.

3. In a commutator-brush holder for dynamo-electric machines, the combination with commutator-brushes adapted to be inserted in said holder, of dogs pivoted in the frame of the brush-holder, and springs actuating said dogs to laterally engage the brushes and hold the same securely in position, substantially as described.

4. In a commutator-brush holder for dynamo-electric machines, the combination with the commutator-brush, of a spring adapted to force the same into engagement with the commutator, a collar and extension to which the spring is secured, a standard upon which the collar loosely fits provided with a threaded face, and a screw mounted upon said collar and extension adapted to engage the threaded portion of the standard whereby the collar is adjusted at any height upon the standard and the tension of the spring regulated, substantially as described.

5. In a commutator-brush holder for dynamo-electric machines, the combination with adjustable carbon brushes, of springs bearing upon the said brushes, screws adapted to secure the adjustment of the said springs and brushes, dogs pivoted in the frame of the brush-holder, and springs actuating the said dogs to laterally engage the brushes and hold them firmly in position, substantially as described.

6. In a commutator-brush holder for dynamo-electric machines, the combination with adjustable carbon brushes  $c c' c^2 c^3$  adapted to be inserted in the said holder, of the standards  $d d' d^2 d^3$  having a ratchet-thread cut upon their inner faces, collars and extensions  $f f' f^2 f^3$  adapted to fit loosely upon the said standards, springs  $e e' e^2 e^3$  secured to the said extensions and bearing respectively upon the carbon brushes  $c c' c^2 c^3$ , screws  $g g' g^2 g^3$  mounted upon the extensions and adapted to engage the ratchet-thread provided upon the inner faces of the standards and secure, by their rotation, the adjustment of the said springs and brushes, dogs  $l' l^2$  bearing laterally upon the said brushes, and springs  $m m'$  actuating the said dogs to hold the carbon brushes firmly in position, substantially as described.

In witness whereof I hereunto subscribe my name this 13th day of June, A. D. 1896.

AUGUST J. OEHRING.

Witnesses:

GEORGE L. CRAGG,  
JOHN W. SINCLAIR.