

J. M. SMITH & H. A. KNOENER.
BRUSH HOLDER FOR DYNAMO ELECTRIC MACHINES.
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990,461.

Patented Apr. 25, 1911.

Fig. 1.

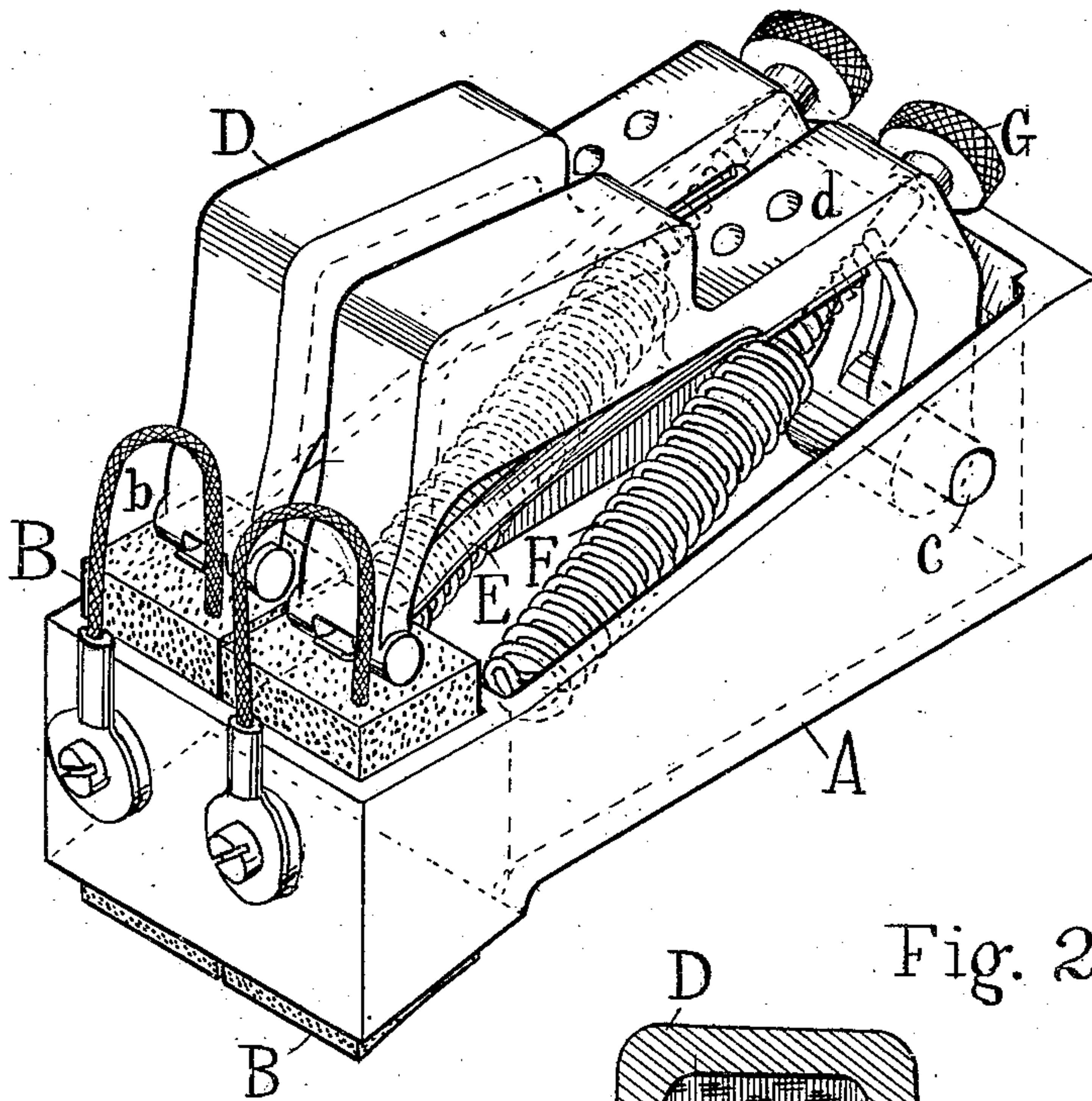
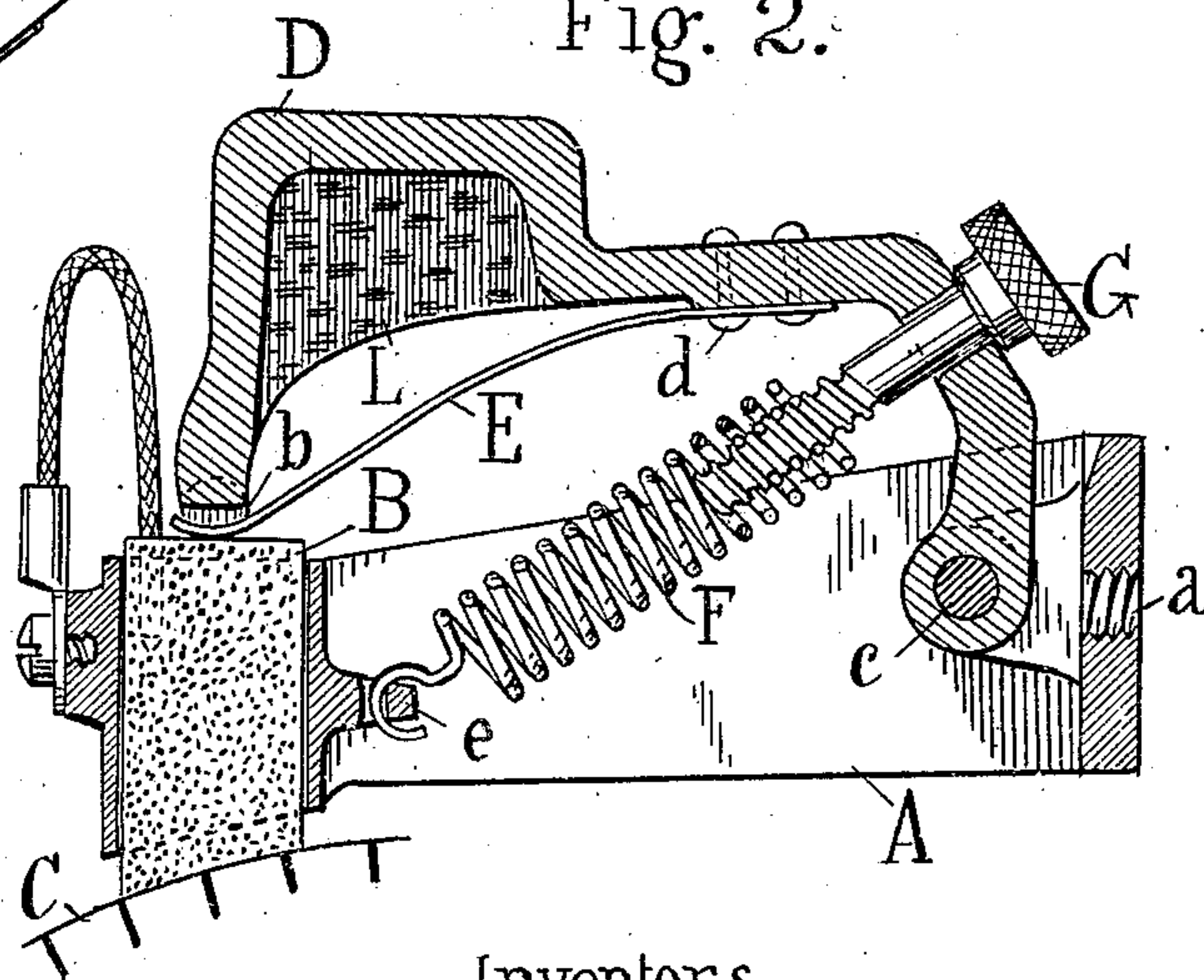


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES MACDONALD SMITH AND HERMANN A. KNOENER, OF EAST ORANGE, NEW JERSEY, ASSIGNORS TO CROCKER-WHEELER COMPANY, OF AMPERE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES.

990,461.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed August 22, 1908. Serial No. 449,864.

To all whom it may concern:

Be it known that we, JAMES MACDONALD SMITH, a subject of Great Britain, and HERMANN A. KNOENER, a citizen of the United States of America, both residents of East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Brush-Holders for Dynamo-Electric Machines, of which the following is a specification.

The object of this invention is to provide a brush holder in which there is provision for the absorption of shock due to irregularities in the commutator surface, and in which the brush will be maintained in more perfect and continuous contact with the commutator.

It is the further aim of the invention to secure this object in a construction of simple character, inexpensive to make, and in which brushes may be readily inserted or removed.

In the accompanying sheet of drawings which forms a part of our application—Figure 1 is a perspective of a brush-holder embodying our invention. Fig. 2 is a vertical section through the brush-holder showing it in connection with a commutator.

The brush-holder comprises a brush-holder arm and brush-box A in which brushes B B are guided. This is secured to the dynamo-electric machine in fixed relation to the commutator C, means for attachment being provided at the tapped hole *a*. A weight D has a head *b* which rests directly on the top or end of the brush. The weight is in the form of an arm pivoted at *c* to the brush-holder arm with an enlarged part containing a pocket filled with lead L. A leaf spring E also bears directly on the top or end of the brush, the bearing end lying within a notch in the head of the weight. This spring is conveniently riveted at *d* to the arm of the weight so that when the weight is thrown clear back to permit the removal or insertion of a brush, the spring will also be lifted off and carried out of the way of the brush. This spring, however, has such an amplitude of movement that it is not lifted out of action until the weight has been lifted to a considerable height in excess of the height to which it is liable to be thrown by irregu-

larities on the commutator. The weight is ordinarily insufficient to impart the desired pressure, and furthermore, since the brush-holder may be underneath as well as above the commutator, a second spring F is provided which acts on the weight and by co-operating with or overcoming the weight holds the brush against the commutator with the desired force. This spring is a spiral tension spring. One end is hooked to a lug *e* cast on the brush-box. At the other end a number of small convolutions of the spring are formed which engage the threads of an adjusting screw G. The head of this screw bears against the arm of the weight.

In operation, it will be seen that the weight will resist the throwing off of the brush from the commutator by roughness thereon, unless the roughness is unusually hard and excessive. In case the brush should be thrown off it will be returned promptly to the commutator by the leaf-spring, the inertia of which is negligible, so that the brush will be thrown forward against the commutator in advance of the return of the weight.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. A brush-holder for a dynamo-electric machine comprising a guide for a brush-block, a weight adapted to engage the brush-block directly and resist the throwing off of the brush from the commutator by roughness thereon, and a suitably supported spring adapted to engage the brush-block independently of the weight, substantially as described.

2. A brush-holder for a dynamo-electric machine comprising a fixed guide for a brush-block, a weight adapted to engage the brush-block directly and resist the throwing off of the brush from the commutator by roughness thereon, and a suitably supported spring adapted to engage the brush-block independently of the weight, substantially as described.

3. A brush-holder for a dynamo-electric machine comprising a guide for a brush-block, a pivoted weight adapted to engage the brush-block directly and resist the throwing off of the brush from the commutator by roughness thereon, and a suitably

supported spring adapted to engage the brush-block independently of the weight, substantially as described.

4. A brush-holder for a dynamo-electric machine comprising a guide for a brush-block, a pivoted weight adapted to engage the brush-block directly and resist the throwing off of the brush from the commutator by roughness thereon, a spring attached to the pivoted weight and adapted to engage the brush-block independently of the weight, and a spring acting on the weight to bring it into contact with the brush-block, substantially as described.

5. A brush-holder for a dynamo-electric machine comprising a supporting member carrying a brush-block and an arm adapted to engage the brush-block directly and through the intermediary of a spring carried by the arm, substantially as described.

Signed by us at East Orange, N. J., this 20th day of August, 1908.

JAMES MACDONALD SMITH.
HERMANN A. KNOENER.

Witnesses to both signatures:
DEXTER N. FORCE, Jr.,
ALBERT J. ACKER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."