

(No Model.)

C. O. C. BILLBERG.

BRUSH HOLDER FOR DYNAMO ELECTRIC MACHINES OR MOTORS.

No. 465,234.

Patented Dec. 15, 1891.

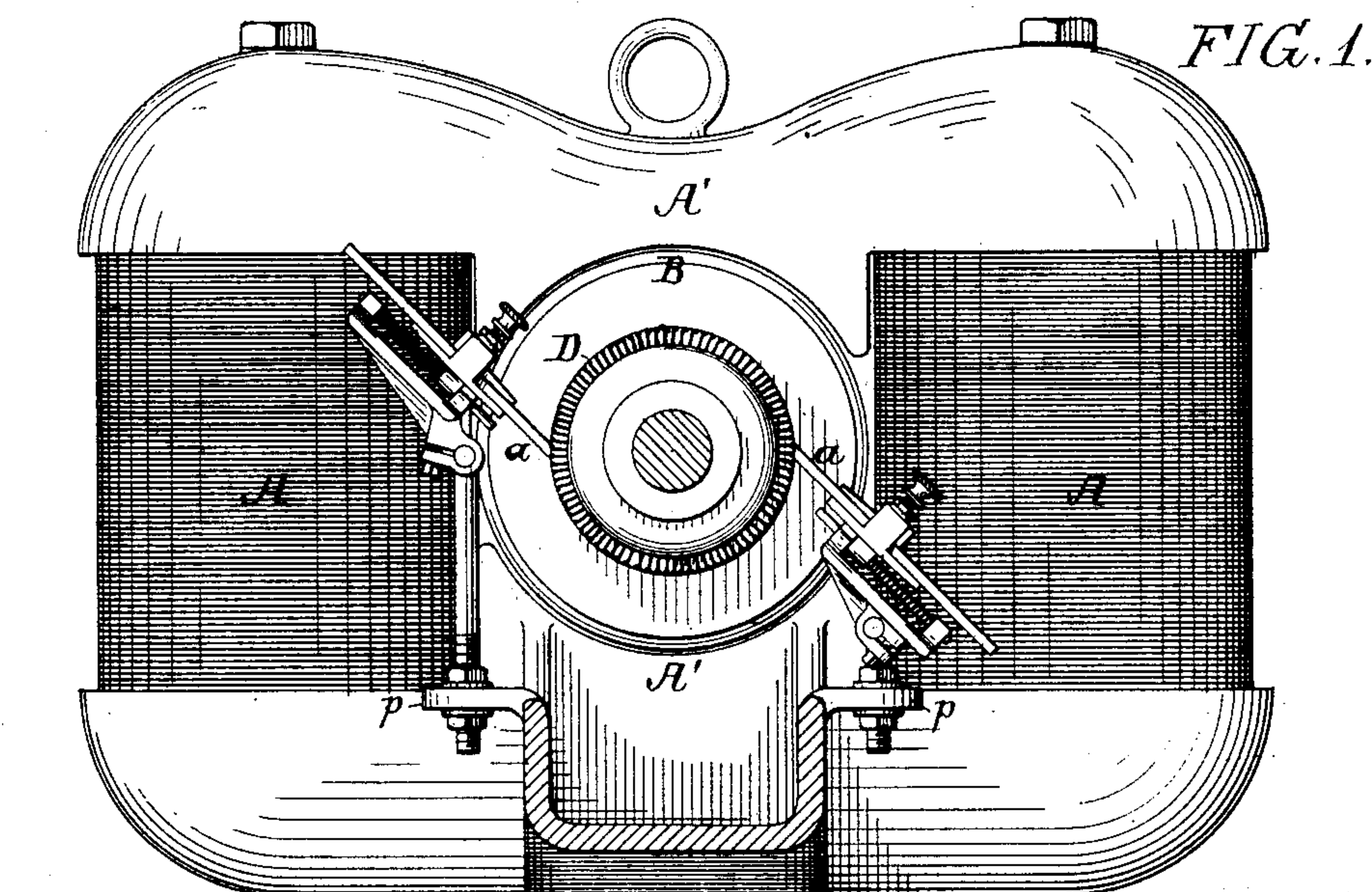
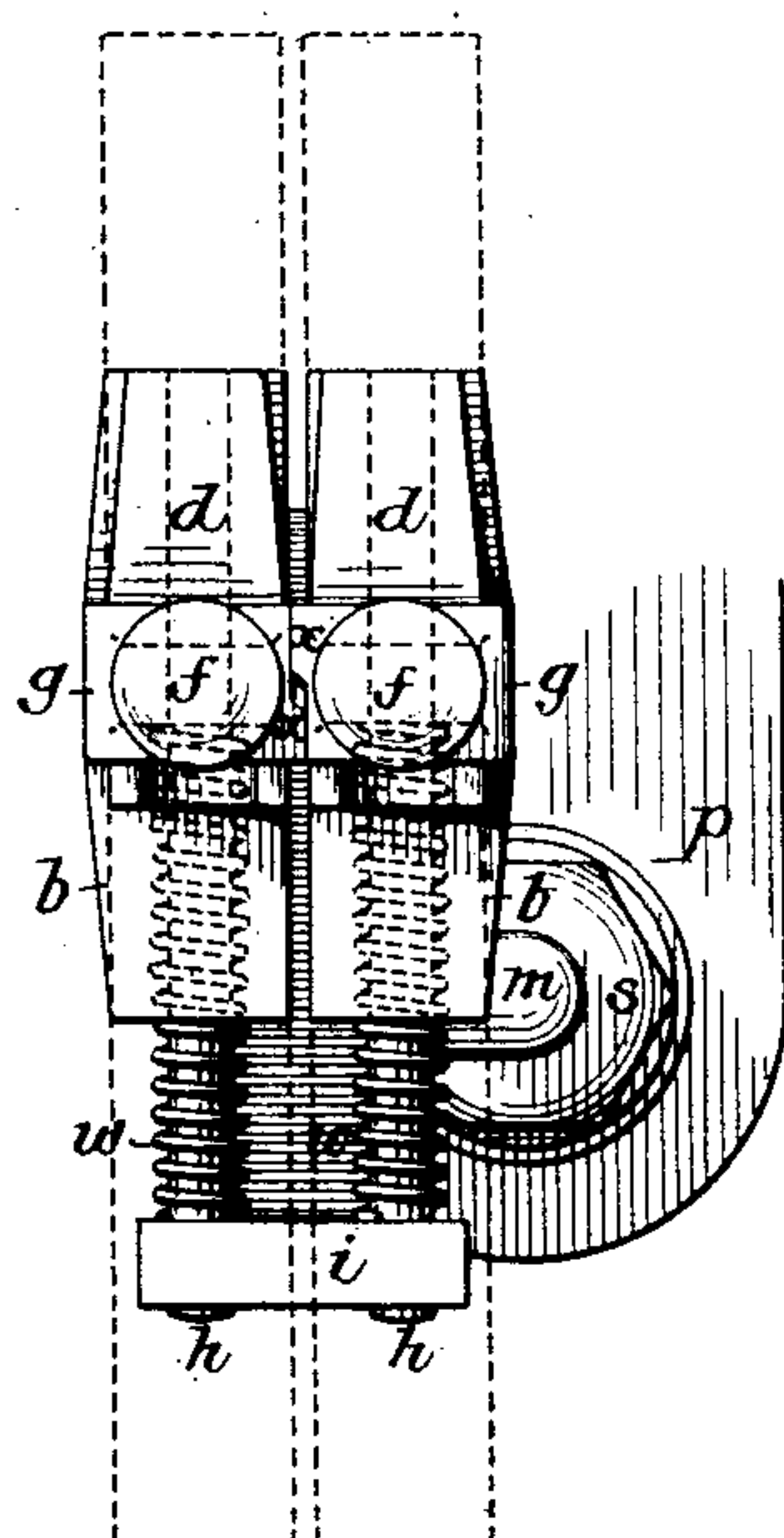


FIG. 1.

FIG. 3.



Witnesses:
A. V. Grouppe.
Fred R. Goodwin.

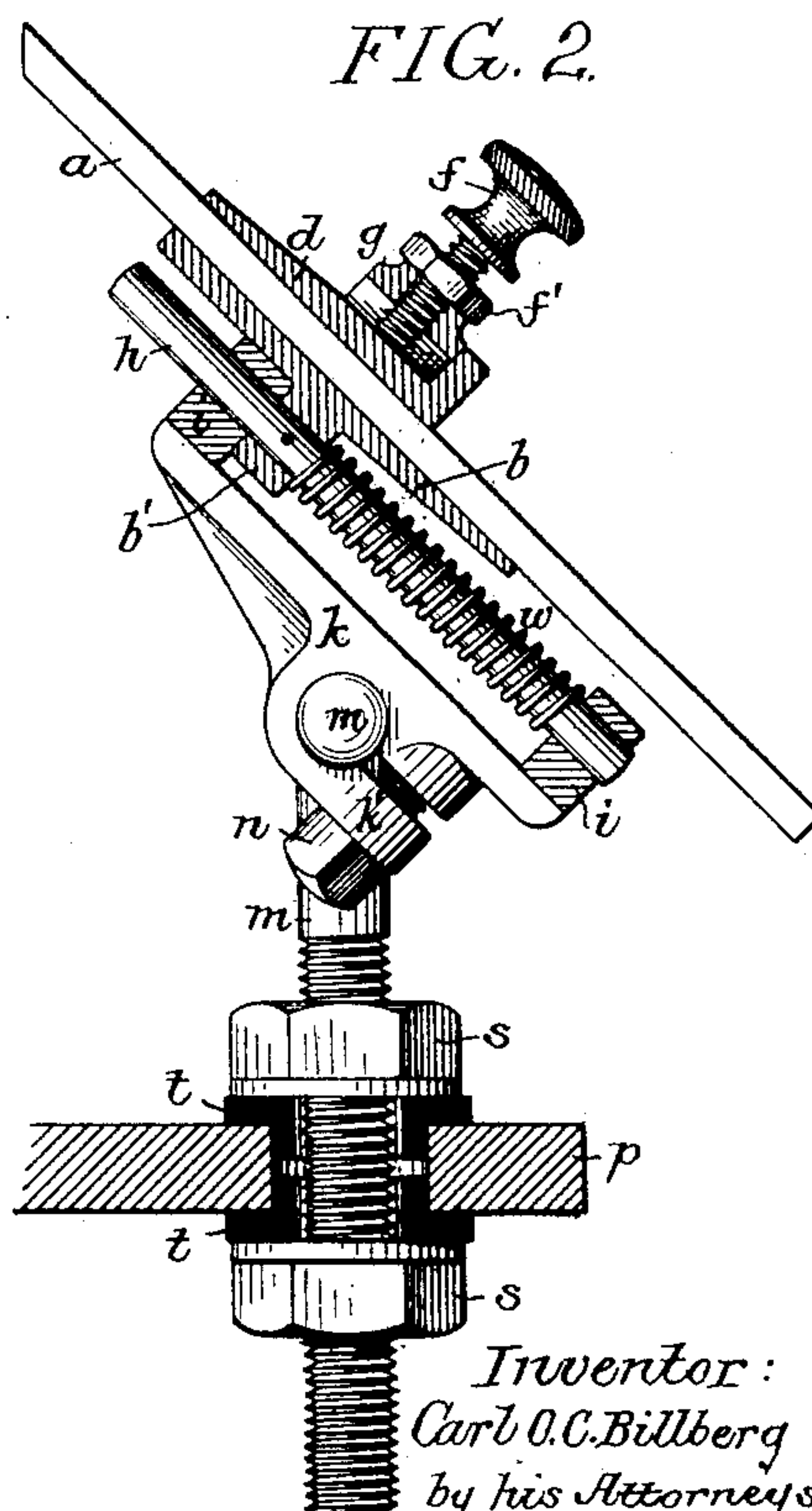


FIG. 2.

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CARL O. C. BILLBERG, OF PHILADELPHIA, PENNSYLVANIA.

BRUSH-HOLDER FOR DYNAMO-ELECTRIC MACHINES OR MOTORS.

SPECIFICATION forming part of Letters Patent No. 465,234, dated December 15, 1891.

Application filed April 25, 1891. Serial No. 390,371. (No model.)

To all whom it may concern:

Be it known that I, CARL O. C. BILLBERG, a subject of the King of Sweden, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Dynamo-Electric Machines or Electric Motors, of which the following is a specification.

My invention relates to that class of brush-holders which are mounted upon the frame of a dynamo-electric machine or electric motor and when once fixed in position remain so, in contradistinction to that class of brush-holders in which the brushes are carried by an arm swinging on the axis of the commutator.

The objects of my invention are to so construct such a brush-holder and its mounting that the proper bearing of the brush upon the commutator and the proper relation of the brush thereto will at all times be insured. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a view, mainly in elevation, but partly in section, of a dynamo-electric machine or electric motor provided with my improved holder for the commutator-brushes. Fig. 2 is an enlarged sectional view, partly in elevation, of one of said brush-holders with its brushes; and Fig. 3 is a plan view of the same with the outline of the brushes shown by dotted lines.

In Fig. 1, A A represent the field-magnets; A', the pole-pieces; B, the armature; D, the commutator, and *a* the commutator-brushes of a dynamo-electric machine or electric motor, which may be of any of the usual types. Each of the brushes *a* is by preference made in two parts, as shown by dotted lines in Fig. 3, and each part of the brush is mounted in a slide *b*, the brush being clamped in said slide by means of a follower *d*, acted on by a set-screw *f*, which passes through a threaded opening in a yoke *g* on the slide and is locked in position after adjustment by means of a lock-nut *f'*. The slide *b* has on the under side a lug *b'*, which is pinned or otherwise secured to a rod *h*, the latter being guided so as to be free to slide in bearings *i* on a frame *k*, which has a split clamp *k'*, embracing the bent upper end of a supporting-bolt *m*, the clamp be-

ing tightened upon said bolt by means of a bolt *n*. The supporting-bolt *m* passes down through an opening in a lug *p* on the frame of the machine and is confined in position vertically by nuts *s* above and below said lug, these nuts bearing upon insulating-washers *t*, so that the supporting-bolt and the parts carried thereby are insulated from the frame of the machine.

Surrounding each of the guide-rods *h* and interposed between the outer bearing *i* for said rod and the lug *b'* on the slide *b* is a spring *w*, which tends to project the slide and the brush carried thereby, so as to maintain said brush at all times in close contact with the periphery of the commutator D, while the vertical adjustment of the supporting-bolt *m* and the pivotal adjustment of the frame *k* on the bent upper end of said bolt permit of the proper adjustment of the holder to effect the desired angular bearing of the brush upon the commutator.

By causing the spring *w* to act upon a slide carrying the commutator-brush and having a guide-rod adapted at each end to a bearing in the frame *k* the movement of said brush is facilitated, as the slide can be conveniently guided by the rod *h*. Hence a light spring can be used and there is much less liability of the brush to stick than if the spring acted directly upon the material of which the brush is composed.

The yokes *g* of the two slides *b* have engaging-lugs *x*, as shown in Fig. 3, so that when it is desired to remove the brushes from contact with the commutator the pulling back of the right-hand slide will effect a like rearward movement of the left-hand slide.

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

1. The combination of the commutator-brush of a dynamo-electric machine or electric motor, a slide on which said brush is clamped, a rod secured to said slide, a frame having bearings for each end of said rod, and a spring acting on said slide and tending to project the same, substantially as specified.

2. The combination of the commutator-brush, the slide carrying the same, the spring

acting on said slide, the frame carrying the slide and having a clamp, a supporting-bolt having a bent portion adapted to said clamp, and means for vertically adjusting said bolt,
5 substantially as specified.

3. The combination of a two-part commu-
tor-brush, a slide for each part of the same, a
carrier for said slides, springs acting on the
slides, and lugs on the slides engaging each
10 other, whereby rearward movement of one

slide is imparted to the other, substantially
as specified.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

CARL O. C. BILLBERG.

Witnesses:

EUGENE ELTERICH,
HARRY SMITH.