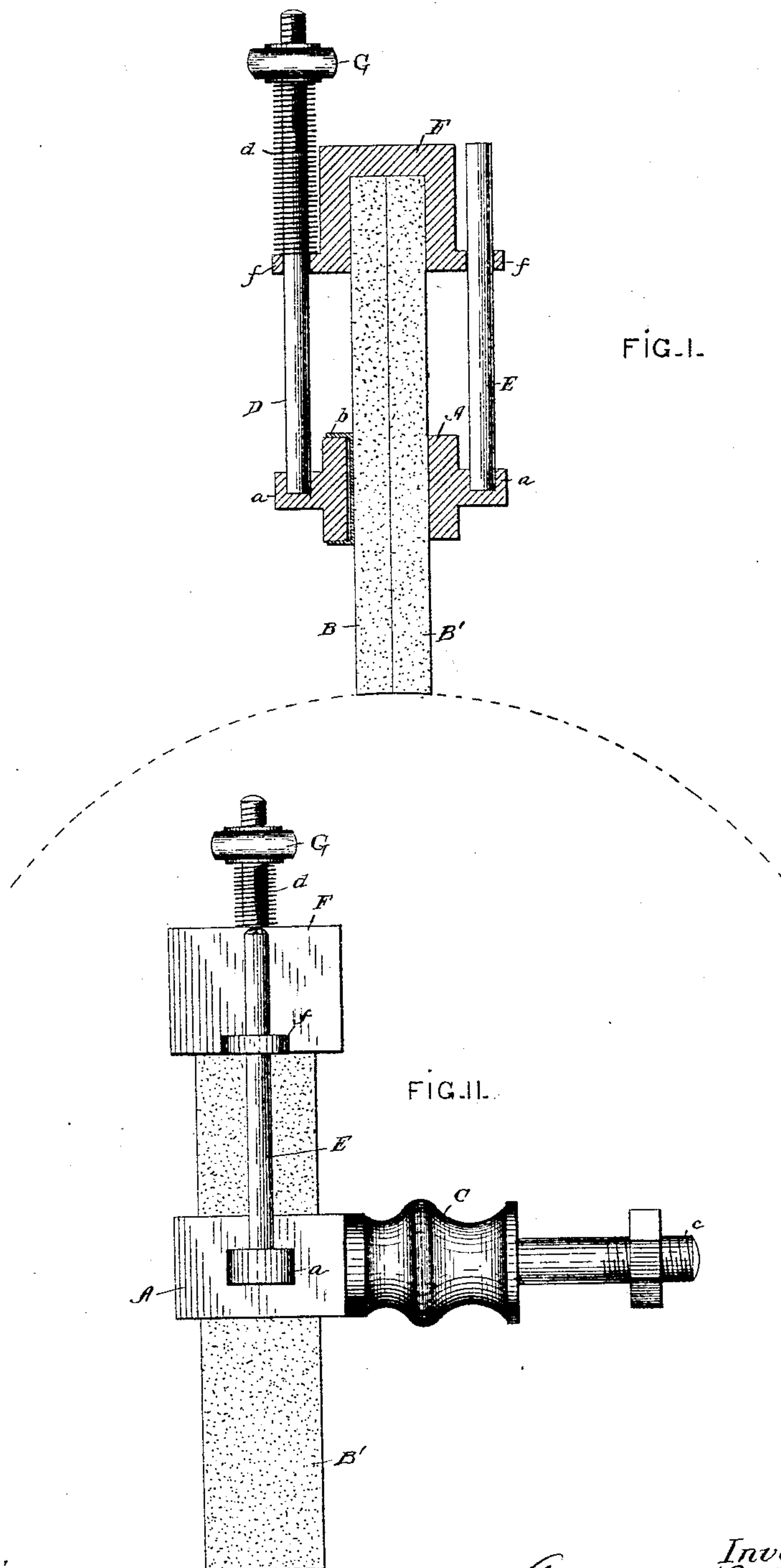


(No Model.)

A. L. RIKER.  
CARBON BRUSH AND HOLDER THEREFOR.

No. 455,518.

Patented July 7, 1891.



Witnesses:  
*John B. Bailey*  
*E. H. Maylor*

Inventor:  
*Andrew L. Riker*  
By *Pollock Mawer*  
his Attorneys.

# UNITED STATES PATENT OFFICE.

ANDREW L. RIKER, OF NEW YORK, N. Y.

## CARBON BRUSH AND HOLDER THEREFOR.

SPECIFICATION forming part of Letters Patent No. 455,518, dated July 7, 1891.

Application filed March 25, 1891. Serial No. 386,374. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW L. RIKER, a resident of New York city, county and State of New York, have invented a new and useful Improvement in Carbon-Brush Holders, which improvement is fully set forth in the following specification.

This invention relates to the construction of holding devices for carbon brushes. Many devices of this sort have been contrived heretofore; but those with which I am acquainted are complicated and costly.

The object of this invention is to produce a simple device which will hold the carbon brushes against the commutator with yielding pressure, making a good electrical contact therewith.

The invention includes the use in a dynamo or electric motor of a brush composed of two carbon plates or bars bearing at their ends against the commutator-plates. Heretofore the brush has been made of a single bar or piece of carbon. I have found by trial that in the use of carbon brushes the ends of the two pieces held together wear in such a way as to preserve a much better electrical contact and produce much less sparking than when the brush is composed of a single carbon piece.

The accompanying drawings, which form part of this specification, illustrate a holder for carbon brushes constructed in accordance with the invention, Figure I being a cross-section, and Fig. II a side elevation, of a brush and its holder.

The holder consists of a rectangular mortised piece or frame A, through which pass the carbons B B', and in which they fit snugly. This frame has at one side a shank or arm C, terminating in a screw c, by which the holder is bolted to the usual rocker-arm, which supports the brushes. Frame A has two laterally-projecting lugs a, one on each side, from which spring the upright rods D E.

F is a cap which fits tightly over the ends of the carbons, and it has two perforated lugs f, through which the guide-rods D E pass loosely. Rod D is prolonged and is screw-threaded at its upper end for engagement with a thumb-nut G. A spiral compression-

spring d surrounds rod D and passes downwardly upon lug f of the cap.

In order to keep the carbons from rattling or separating, a spring-gib or cushion b is placed in the frame A.

As carbon brushes have no elasticity, they cannot be held against the commutator obliquely, as usual, with metal brushes. Moreover, if so held, they would be in greater danger of breakage. Consequently carbon brushes are mounted and held against the cylindrical commutator at right angles to the tangent, as indicated in Fig. I, in which the dotted arc represents the outline of the commutator-surface.

Instead of using one carbon plate, I employ two plates B B', which are plated with metal (preferably copper) and held in contact, the plane of separation being parallel with the armature-shaft. I have found this arrangement of great advantage, in that it diminishes considerably the sparking, which takes place as the circuits of the coils, short-circuited when the brush spans two adjacent commutator-plates, are successively broken.

The spring d presses the cap F downward and keeps the ends of the carbons against the commutator-strips. As the carbons wear off and the spring becomes relaxed it may be tightened by screwing down the thumb-nut G.

I claim as my invention—

1. A holder for the carbon brushes of a dynamo or motor, comprising a mortised frame or box, through which the brush passes, two upright guide-rods fastened to said frame, a cap fitting over the end of the brush and movable on said guide-rods, a spring surrounding one of the rods and bearing on said cap, and an adjusting-nut on said rod, substantially as described.

2. The combination of a mortised frame adapted for attachment to the rocker-arm or support of the brushes and provided with an interior spring-gib or cushion, two upright guide-rods attached to said frame, a cap fitting the top of the brush and having openings through which said rods pass loosely, a spring bearing on said cap, and an adjusting-nut, substantially as described.

3. In combination with a holder adapted to  
present the end of a carbon brush radially  
against the cylindrical surface of the com-  
mutator, a brush composed of two pieces or  
5 plates of metal-plated carbon placed with  
their adjacent surfaces in contact, the plane  
of separation being parallel with the commu-  
tator-strips, substantially as described.

In testimony whereof I have signed this  
specification in the presence of two subscrib- 10  
ing witnesses.

ANDREW L. RIKER.

Witnesses:

PERRY J. FULLER,  
CHARLES M. KIRBY.