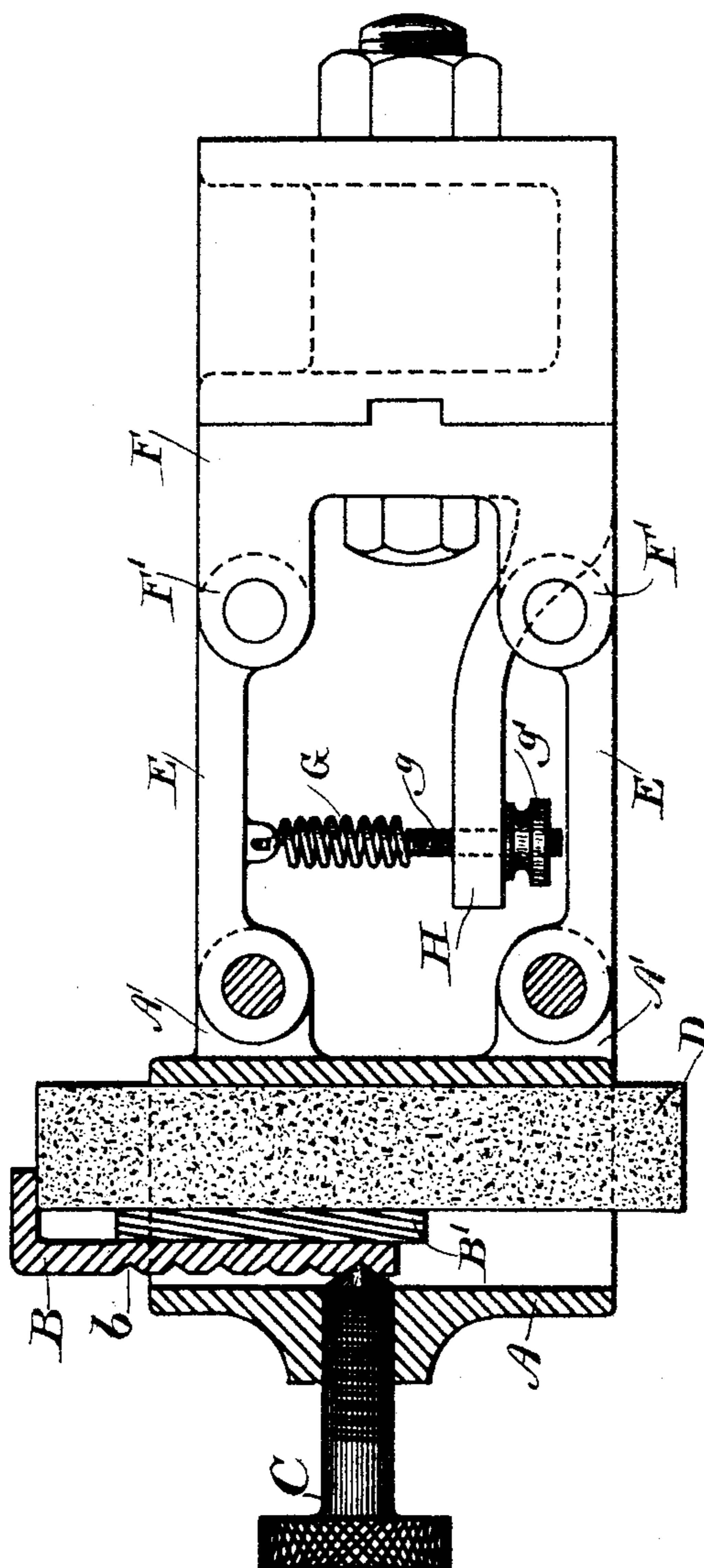


(No Model.)

S. H. LIBBY.  
BRUSH HOLDER.

No. 500,144.

Patented June 27, 1893.



ATTEST

*A. C. Orne*  
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INVENTOR

*By Sam H. Libby,*  
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# UNITED STATES PATENT OFFICE.

SAM H. LIBBY, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE GENERAL ELECTRIC COMPANY, OF NEW YORK.

## BRUSH-HOLDER.

SPECIFICATION forming part of Letters Patent No. 500,144, dated June 27, 1893.

Application filed January 19, 1893. Serial No. 458,909. (No model.)

*To all whom it may concern:*

Be it known that I, SAM HAMMOND LIBBY, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Brush-Holders, of which the following is a specification.

My invention relates to dynamo-electric machines, either generators or motors, and its object is to provide an adjustable holder for the brushes. It is especially adapted to that class of machines in which the brushes consist of blocks of carbon pivotally supported and spring-pressed against the commutator. It is obvious that in any holder supported at a tangent to the commutator by pivotal arms, as the brush wears away at the point of contact with the commutator changing the angle of the supporting arm or arms, not only will the spring-pressure diminish but the position of the contact surface of the brush upon the commutator will be changed, so that in order to maintain a proper adjustment of the apparatus it becomes necessary to replace the worn brush with a new one or to feed it toward the commutator by changing its position in the brush holder.

My invention consists in a device for holding the brush firmly against the commutator in substantially the same position while a considerable portion of it is being worn away, and providing ready means for further adjustment when necessary.

The accompanying drawing shows a cross-section of my brush-holder containing an unworn brush properly adjusted.

The frame A, which forms the movable part of the holder is pivotally supported to the fixed portion F of the holder, as hereinafter described. This frame is of suitable size and shape, usually rectangular, to form a support for the brush D and determine its lateral position therein, but does not fit closely enough to prevent a vertical movement of the brush when it is not clamped in place as hereinafter described. To keep the brush firmly in place when properly adjusted, I provide a clamping-piece B which consists of an L-shaped piece of suitable material adapted to fit over the side of the brush not engaged by the frame A, as shown in the drawing. The

outside of the said clamping-piece is provided with notches or indentations *b*, to receive the point of a binding-screw C threaded in the wall of the frame A opposite that portion against which the brush rests. Between the clamping-piece and the brush I prefer to place a plate of metal or other suitable material B', of such size and shape as to cover and protect the side of the brush against which it rests and distribute the clamping-pressure of the screw C thereby holding the brush more firmly in position. The frame A thus described is supported by superposed parallel arms E of equal length, extending laterally therefrom and pivoted at each end, the object of which is to keep the brush constantly parallel to its line of support, said line of support being parallel to the radius of the commutator at the proper point of contact with the brushes. With pivotal arms of convenient length it is obvious that a considerable portion of the brush may be worn away before there is any appreciable difference in the relative position of brush and commutator, so that readjustments of the brush in the frame A need not be of frequent occurrence. The said arms E are pivoted at the back of the frame A upon the lugs A' which may be cast with the frame or suitably fastened thereto. The other ends of said arms are pivoted on the lugs F' integral with or fastened to the fixed portion F of the holder. A spring G fastened at its upper end to the lower side of the upper arm and at its lower end to a fixed projection H below said upper arm, serves to press the brush firmly against the commutator. The lower end of this spring may be attached to a screw or bolt *g*, which passes through an opening in the projection H and is held by a nut *g'*, so that the tension of the spring and consequent pressure of the brush upon the commutator may be adjusted by turning said nut.

In a holder of the above description the whole contact surface of the brush is pressed against the commutator, enabling large currents to be taken off and insuring evenness of wear, while all liability to chatter is avoided. The pivoted frame and movable clamping-piece therein, moreover, afford easy means of adjusting the brush as it wears

away, so that the same brush may be utilized for a much longer time than with brush-holders heretofore in use.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a dynamo electric machine or motor, a parallel motion brush holder, a frame or holder for the brush carried thereby, a binding screw in a wall of said frame and a clamping piece engaged by the screw and adapted to hold the brush in place.

2. A brush-holder for dynamo-electric machines or motors, comprising a fixed support, parallel arms pivoted thereto, a frame pivoted to the outer end of said arms, a binding-screw threaded in a wall of said frame, and a clamping-piece engaged by said screw and adapted to hold the brush in place.

3. A brush-holder for dynamo-electric machines or motors, comprising a rigid frame supported by superposed parallel arms of equal length, a binding-screw threaded in a

wall of said frame, and a movable clamping-piece provided with notches or indentations adapted to be engaged consecutively by said binding-screw, substantially as and for the purpose described.

4. In a brush-holder for dynamo-electric machines or motors, the combination with a fixed support, of superposed parallel arms of equal length pivoted thereto, a rigid frame pivoted to the outer end of said arms and adapted to receive the brush, a clamping-piece vertically movable within said frame and adapted to engage the brush, and a binding-screw adapted to hold said clamping-piece in any of a series of predetermined positions, as set forth.

In witness whereof I have hereunto set my hand this 16th day of January, 1893.

SAM H. LIBBY.

Witnesses:

JOHN W. GIBBONEY,  
BENJAMIN B. HULL.