

No. 684,188.

Patented Oct. 8, 1901.

J. BURKE.
BRUSH HOLDER.

(Application filed Nov. 2, 1899.)

(No Model.)

Fig. 1

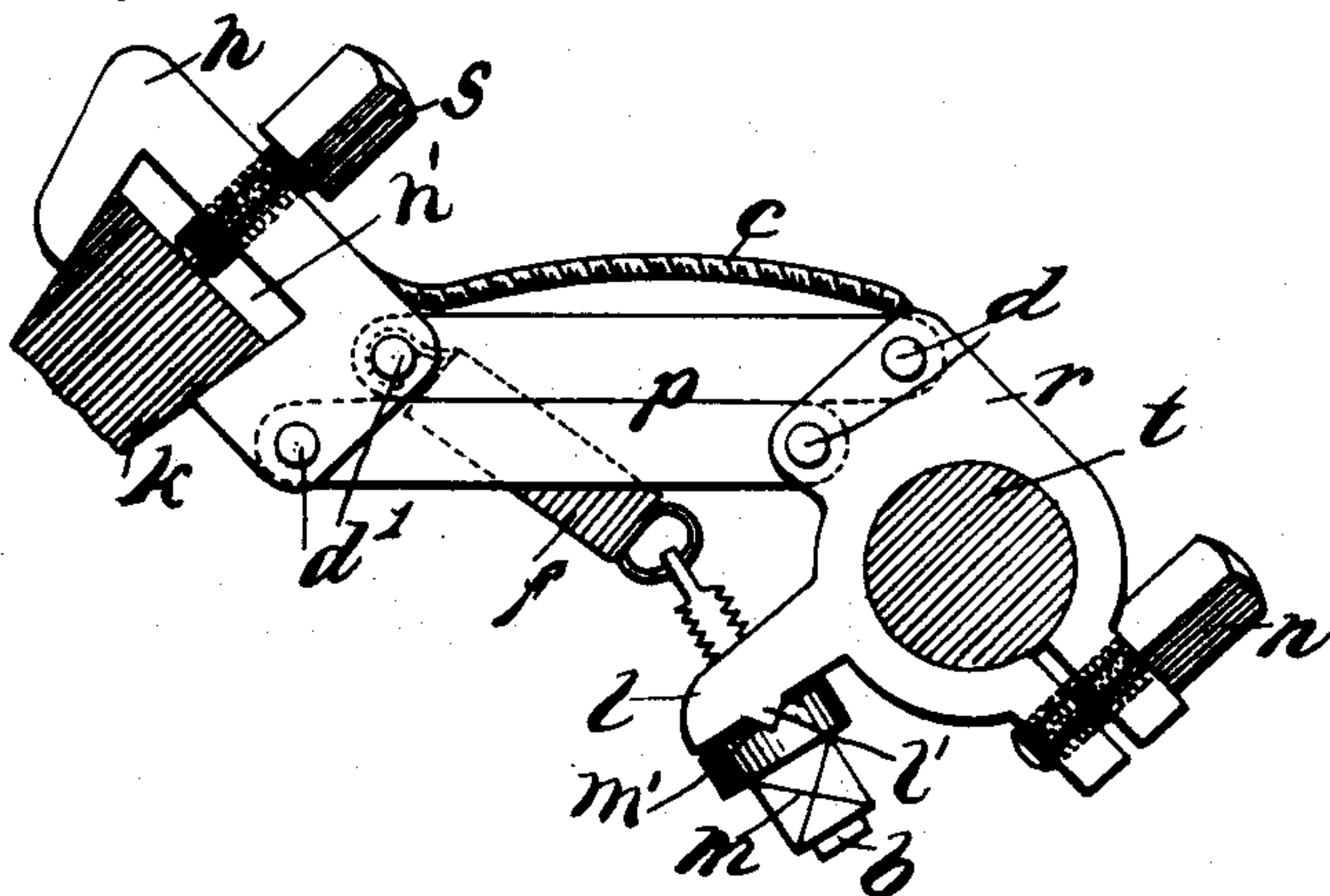
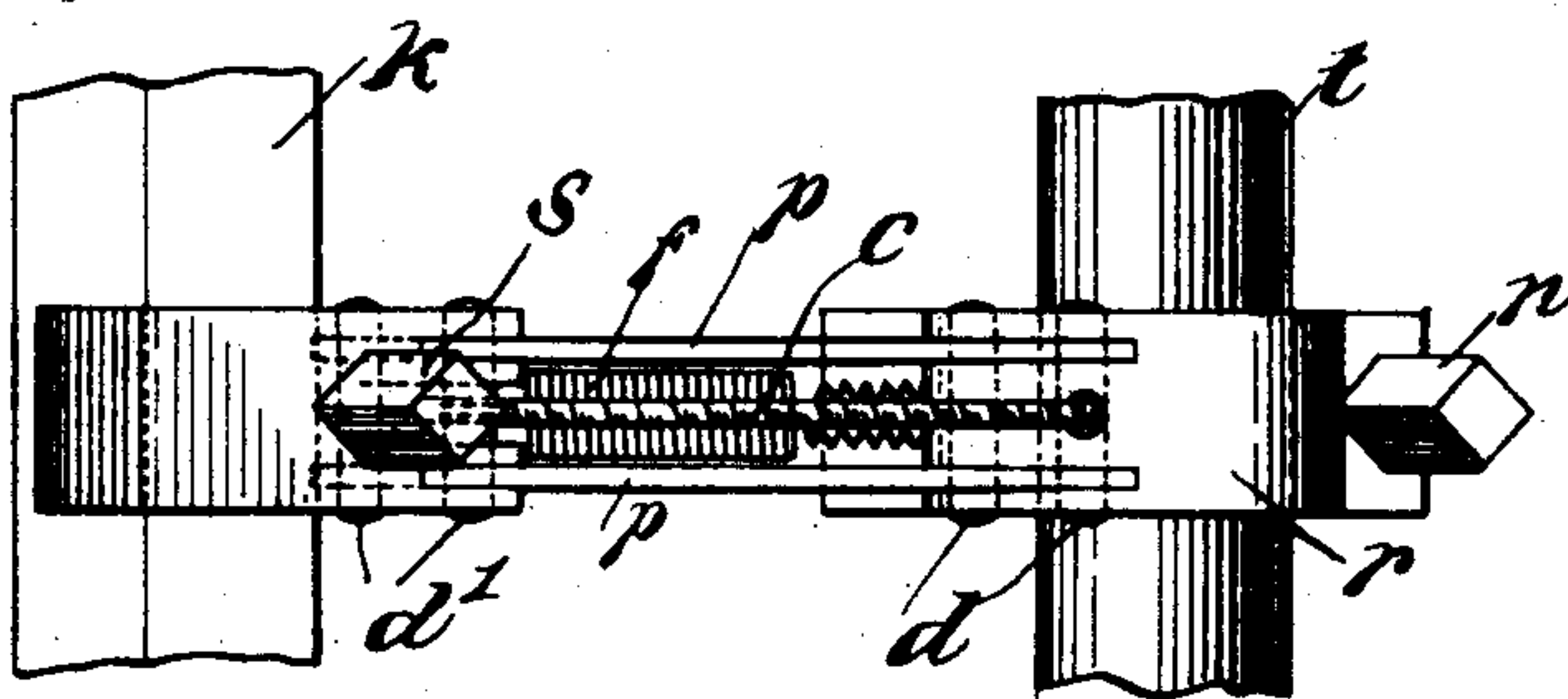


Fig. 2



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES BURKE, OF BERLIN, GERMANY.

BRUSH-HOLDER.

SPECIFICATION forming part of Letters Patent No. 684,188, dated October 8, 1901.

Application filed November 2, 1899. Serial No. 735,593. (No model.)

To all whom it may concern:

Be it known that I, JAMES BURKE, a citizen of the United States, residing at Berlin, in the Empire of Germany, have invented certain new and useful Improvements in Brush-Holders, of which the following is a full, clear, and exact specification.

This invention relates to brush-holders for dynamo-electric machines or motors; and its object is to construct a brush-holder which shall in its operation be flexible to a high degree and effect good and constant contact with the commutator-surface with moderate pressure and with a minimum of wear of the rubbing-surfaces.

It is of much importance that the electric current shall pass from the brush to the commutator or conversely without creating sparks at the point of contact, and it is well known that the frequency of sparking depends to a large extent upon the contact between the brushes and the commutator. Brush-holders as they are usually made comprise either rigid levers carrying copper or carbon brushes pressed by springs against the commutator or of flat springs pressing against the end of a copper or carbon brush held in a metal tube or box in which the brush slides toward the commutator, the spring serving to hold the brush in contact with the commutator. Both of these constructions have the fault of making insufficient contact whenever there is the slightest roughness on the surface of the commutator and after the contact-pieces have been reduced to a certain extent by wear. I propose to obviate these objectionable features by providing a brush-holder which shall at all times give the brush an even pressure and hold it in such position that its entire contact-surface will always be in complete contact with the commutator and which shall also be so constructed that the brush may be easily removed or replaced.

The invention will be more particularly described hereinafter with reference to the accompanying drawings, in which—

Figure 1 is a side view of a brush-holder constructed in accordance with my invention, and Fig. 2 is a plan view of the brush-holder shown in Fig. 1.

Referring more particularly to the draw-

ings, t is a pin or stud carried by the machine and insulated therefrom. A clamping-ring r , open at one side, is adapted to be adjusted and fixed upon the pin t by means of a screw n . Two pairs of links $p p$ are pivoted at one end of the clamping-ring r by pins $d d$ and at the other end by pins $d' d'$ to a brush-carrier h . The links p should be of equal length in order that the clamp will move in a parallel plane with the ring r —that is to say, when the clamp moves it will move directly toward and away from the circumference of the commutator and will not be tilted from its proper position. The brush-carrier h is provided with a dovetailed slot h' , into which is adapted to fit the wedge-shaped carbon or metal brush k , the latter being adapted to be fixed in the slot by means of an adjusting-screw s . Carried by the clamping-ring r is a lug l , and a helical or other suitable spring f is connected to the brush-carrier h at one end and to the lug l at the other. The pressure of the brush upon the commutator may be adjusted by regulating the tension of the spring f , and this may be done by means of a screw b loosely passing through the lug l and attached at its end to the spring, the screw b engaging a nut m , which latter is provided with a V-shaped groove m' , engaging with a rib l' upon the lug l . c is a flexible conductor connecting the clamping-ring r with the brush-carrier h .

In the operation of the device the clamping-ring r is fixed to the stud t , and the length of the links p are so adjusted that the brush k will rest upon the proper part of the commutator. The tension of the spring f is then regulated by means of screw b , so that the brush will bear upon the commutator with proper pressure.

It is obvious that instead of employing a ring r a sleeve-block or other suitable construction may be employed, and instead of two pairs of parallel links p there may be a greater number, if desired.

It will be noted that the two pairs of metal links $p p$ form a parallelogram between the ring r and the brush-carrier h , which permits the brush to act on the commutator at all its points with equal pressure, the parallel motion due to this arrangement of the links preventing any tilting motion such as occurs

when the brush-holder is a rigid lever pivoted to the holder-stud. Furthermore, in the brush-holder above described there are but few places where friction can occur. The
5 friction upon the pins d d' may be almost entirely neglected, as it is so small that it does not in any way interfere with the operation of the device. As a consequence the holder is permitted to move freely and to
10 remain in good contact with the commutator, even in cases where the commutator is slightly roughened. By reason of the increased flexibility of the device and the small pressure required to hold it in perfect contact with the
15 brush-holder the wear upon the commutator will be much reduced.

Having thus described my invention, I declare that what I claim as new, and desire to secure by Letters Patent, is—

20 In a brush-holder or the like, a support,

a brush-carrier, two pairs of parallel links connecting said carrier and said support, all of said links being of substantially equal length and each link being pivoted to said carrier and said support, and a spring con- 25 nected at one end to a relatively-fixed part and having its other end connected to said carrier at a point intermediate said pairs of links, whereby all pressure upon the carrier is exerted at a single point intermediate said 30 levers and said carrier is caused to move quickly and evenly in parallelism; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES BURKE.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.