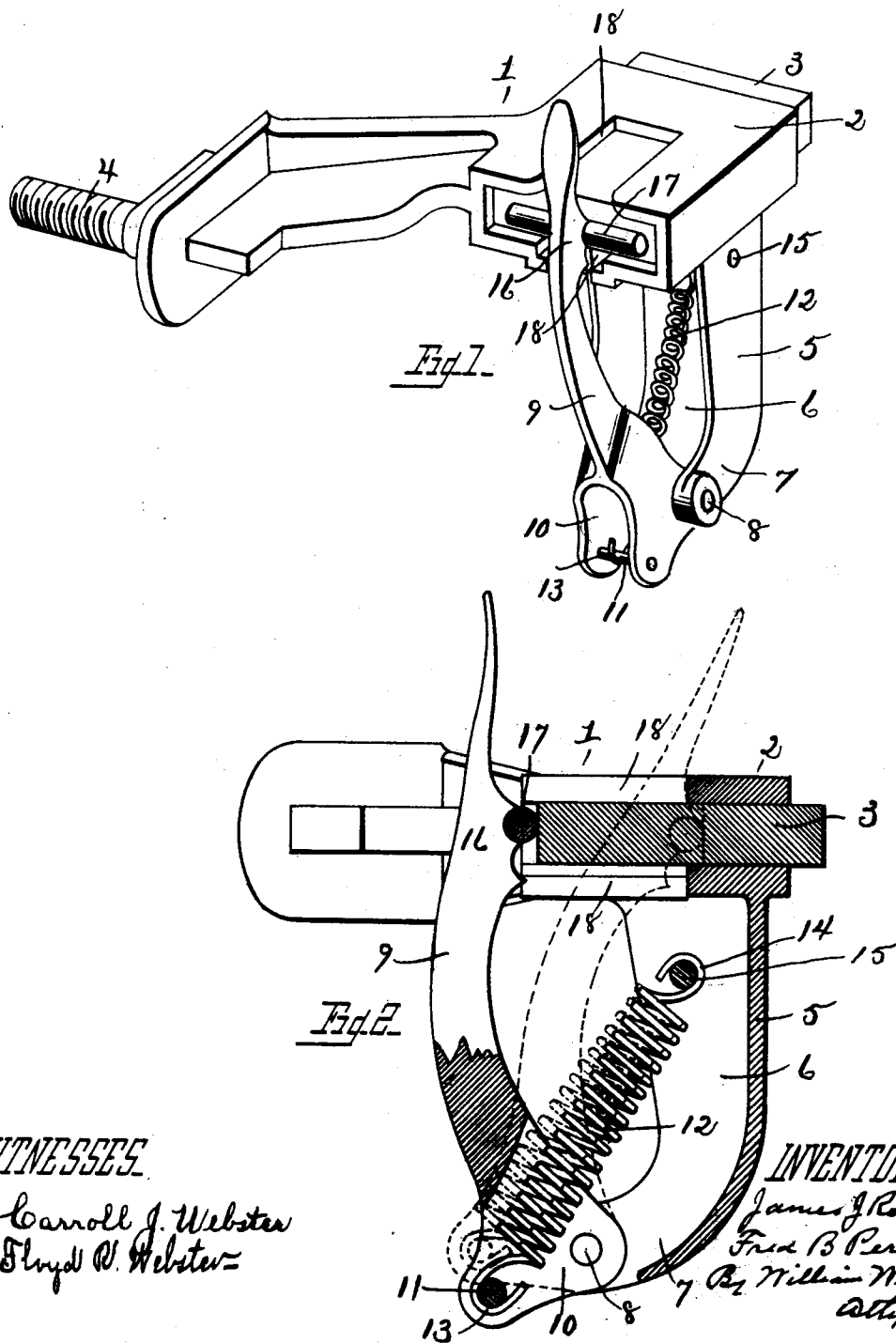


(No Model.)

J. J. ROBISON & F. B. PERKINS.  
BRUSH HOLDER FOR ELECTRIC MOTORS.

No. 511,214.

Patented Dec. 19, 1893.



WITNESSES

Carroll J. Webster  
Gloyd W. Webster

INVENTORS

James J. Robison  
Fred B. Perkins  
By William Webster  
Atty

# UNITED STATES PATENT OFFICE.

JAMES J. ROBISON AND FRED B. PERKINS, OF TOLEDO, OHIO.

## BRUSH-HOLDER FOR ELECTRIC MOTORS.

SPECIFICATION forming part of Letters Patent No. 511,214, dated December 19, 1893.

Application filed February 6, 1893. Serial No. 461,281. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES J. ROBISON and FRED B. PERKINS, of Toledo, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in Brush-Holders for Electric Motors, Dynamos, and Generators; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

Our invention relates to a brush holder for electric motors, dynamos, and generators, and has for its object to provide against possibility of contact of the metal with the commutator.

A further object is to house the spring to guard the same from destruction by reason of the electric flash at the commutator.

A further object is to cause an even pressure upon the brush, and guide the same in its vertical movement without the use of side springs.

A further object is to provide for convenience in inserting or removing the spring.

The invention consists in the novel details of construction hereinafter described, and pointed out in the claims.

In the drawings: Figure 1 is a front elevation of the holder. Fig. 2 is a longitudinal vertical side elevation, showing in full lines the pressure lever extended, and bearing upon a full sized brush, and in dotted lines as moved in an arc of a circle, to compensate for the wear of the brush.

1 designates the bracket of the brush holder, formed with a rectangular shell 2, to receive the brush 3, which fits snugly within the shell, and is guided therein in its movement as fed to the commutator.

4 designates a threaded portion upon the outer end of the bracket, by which to attach the same to the yoke of the motor.

5 designates an arm integral with the shell, and at right angles to the bracket, the arm being formed with flanged sides 6, and curved ends 7, perforated to receive a pin 8, upon which is pivotally secured a lever 9, by which the lever may be moved radially upon the

pin. Lever 9 is formed with a bifurcated end 10, which curves in inverse order to the curve of arm 5, the lowest point of the curved portion being perforated to receive the pin 8, there being a pin 11 passed through the two sides of the bifurcated end, to serve as a convenient attachment for a spiral spring 12, which is formed with a hooked end 13 to engage the pin 11 and a hooked end 14 to engage the pin 15, passed through the flanges 6 of arm 5, so that the tension of the spring normally exerts a pull upon the lever to cause the outer end 16 to press upon the brush.

In order to cause a direct and evenly distributed pressure upon the brush, there is formed a transverse bearing 17 upon the end of the lever, which bears upon nearly the entire length of the brush, thereby presenting the entire end surface to the commutator.

18 designates a slot cut into the upper and lower sides of the shell to allow the extreme end of the lever to pass therein as the brush is worn.

It will be observed that by reason of the pivotal relation of the lever and arm, and the attachment of the spring to the lever, there is exerted an even and constant pressure upon the brush, and that by the simplified manner of attaching the spring to the arm and lever, the engagement or disengagement of the spring is easily accomplished. The spring being housed within the flanged arm prevents the same from becoming heated or destroyed by the flash, and the arrangement of the lever precludes the possibility of the metal thereof contacting with the commutator, to short circuit the current, or damage the commutator.

Bracket 1 in practice, especially for use in dynamos and generators is made of an extra weight of metal, to increase the carrying capacity of the electric current to any desired number of amperes, and the holders are cast in multiple.

What we claim is—

1. In a brush holder for electric motors, an essentially rectangular shell, an arm connected therewith, said arm having flanged sides, providing a housing, a lever pivoted to the end of the arm, a spiral spring connecting the arm and lever, said spring being arranged between the flanges of the arm, and a trans-

verse bearing carried at the free end of the lever to bear upon the brush within the shell.

2. In a brush holder for electric motors, an essentially rectangular shell having its upper and lower sides slotted, an arm integral with said shell, and provided with flanges at each side, forming a housing, a lever pivotally connected to the end of said arm, a spiral spring attached to said lever and connected with the arm between the flanges, and the bracket having a threaded portion for attachment to the yoke.

3. An improved brush holder for electric motors, comprising in combination, a bracket having a threaded portion, a shell for receiving the brush, and slotted as described, an

arm at right angles to the bracket and provided with flanges at each side, a lever pivoted to the end of the arm, and carrying a transverse bearing bar at its free end, pins attached to the arm and lever, and a spiral spring attached to said pins, whereby the lever is pressed against the brush within the holder.

In testimony that we claim the foregoing as our own we hereby affix our signatures in presence of two witnesses.

JAMES J. ROBISON.  
FRED B. PERKINS.

Witnesses:

FLOYD R. WEBSTER,  
WILLIAM WEBSTER.