No. 828,584. PATENTED AUG. 14, 1906.

J. K. THOMAS.

BRUSH.

APPLICATION FILED NOV. 7, 1905.

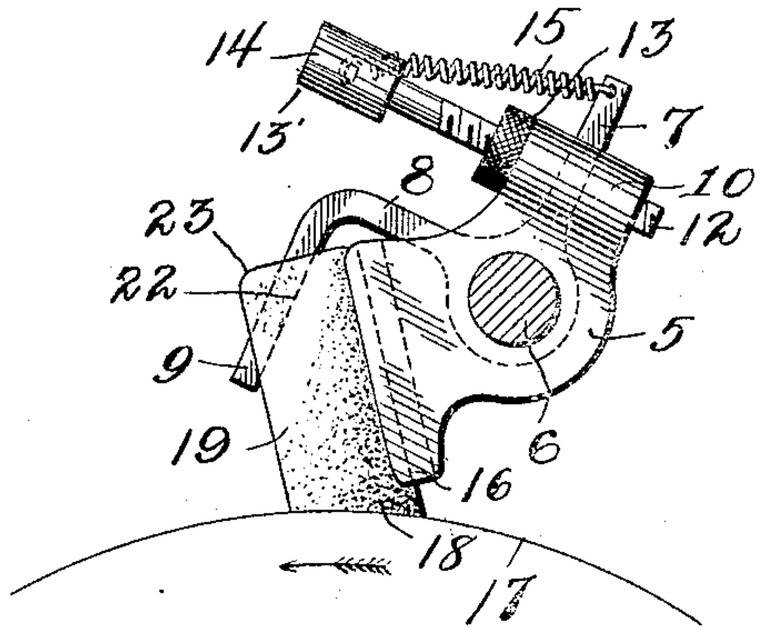


Fig. 1.

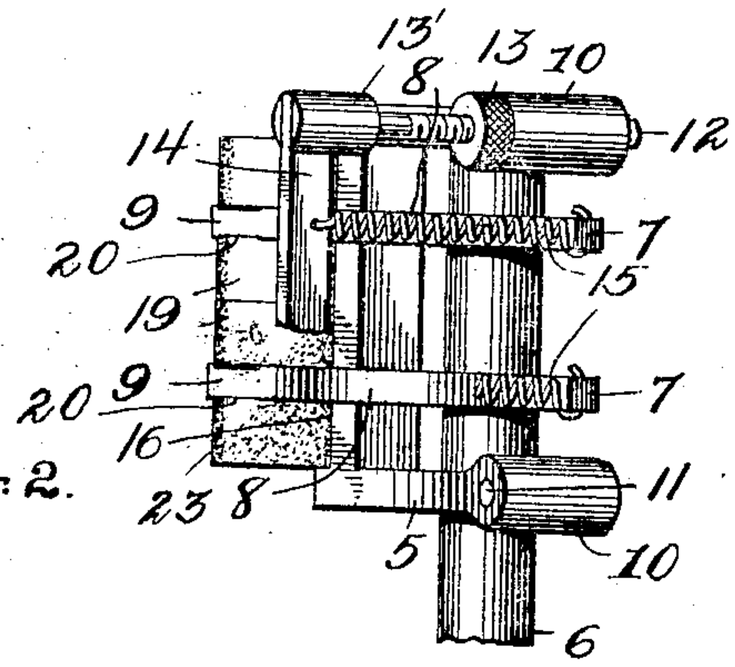


Fig. 2.

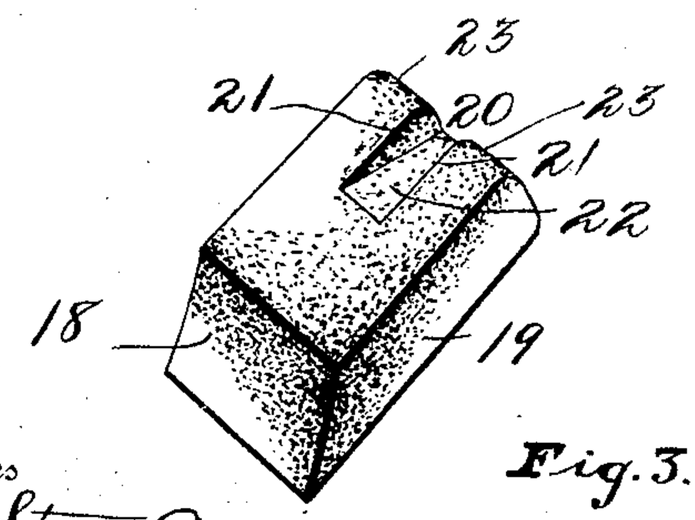


Fig. 3.

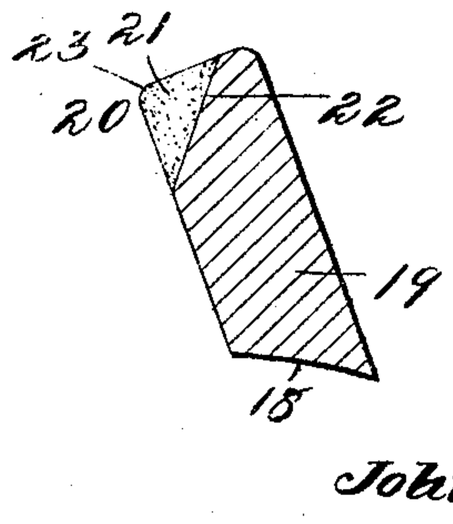


Fig. 4.

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# UNITED STATES PATENT OFFICE.

JOHN KENDALL THOMAS, OF COLUMBUS, OHIO.

## BRUSH.

No. 828,584. Specification of Letters Patent. Patented Aug. 14, 1906.

Application filed November 7, 1905. Serial No. 286,313.

*To all whom it may concern:*

Be it known that I, JOHN KENDALL THOMAS, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Brushes, of which the following is a specification.

My invention relates to brushes for use upon dynamos and motors, and has for its object the provision of an improved method of forming the carbon, whereby said carbon may be more securely held in the carbon-holder than has heretofore been the case.

Further objects and advantages of the invention will be set forth in the detailed description which now follows.

In the accompanying drawings, Figure 1 is a side elevation of a brush constructed in accordance with the invention and illustrating the manner in which said brush is held in the carbon-holder. Fig. 2 is a plan view of the parts shown in Fig. 1. Fig. 3 is a detail perspective view of one of the brushes, and Fig. 4 is a vertical section through one of the brushes.

Like numerals designate corresponding parts in all of the figures of the drawings.

The carbon-holder illustrated herein forms no part of the present invention, but is of the usual and well-known construction and is only illustrated for the purpose of showing how my improved brush is secured in position. Said carbon-holder consists of a frame 5. Pivoted in this frame is a shaft 6, from which extend arms 7 and 8. The arms 8 have downturned ends 9, which serve a purpose which will be hereinafter set forth. The sides of the frame have bosses 10 formed thereon, said bosses having openings 11 formed therethrough. Slidably disposed in these openings are threaded rods 12, with which thumb-nuts 13 engage. These threaded rods 12 are headed, as at 13′, the heads of said rods being connected by a bar 14. Secured to this bar 14 are springs 15, the opposite ends of which are secured to the arms 7. The frame 5 is recessed, as at 16, for the reception of brushes, which in the present instance have been indicated as being formed of carbon, although brushes formed of other material may be used if it be found advantageous.

To clearly bring out the operation of the device, a portion of the commutator of the motor has been indicated by the curved line 17 in Fig. 1. Referring particularly to Figs. 3 and 4, the numeral 18 indicates the end of the brush 19 which rests upon the commutator. Formed in the rear face of this brush is a recess 20, which is adapted to receive the downturned end 9 of the arm 8. The brushes 19 usually lie side by side, (see Fig. 2,) and it is apparent that lateral movement of the brushes will be positively prevented by the walls 21 of the recesses 20. The rear wall 22 of the recess lies at an angle to the front and rear faces of the brush. Heretofore it has been customary to form these brushes without recesses in their rear faces and to have the downturned arms 9 rest upon the corners 23 of the brush. This contact of the arm 9 with the extreme corner of the brush was sufficient to hold said brush in position as long as the commutator was perfectly clean and no undue friction between the brush and the commutator existed. The commutator rotates in the direction of the arrow in Fig. 1, and it was found that when the surface of the commutator became dirty the friction between the commutator and the ends 18 of the brushes was sufficient to cause said brushes to spring from beneath the arms 9 and fall from the machine. It is to obviate this difficulty that the present invention is particularly designed. As has been hereinbefore stated, the invention resides particularly in the block having the recess 20 formed therein for the reception of the retaining member formed by the arm 9. Brushes constructed in accordance with this invention have now been in use for more than a year upon a motor with which constant trouble had been experienced when using the old form of brush and these brushes have not been accidentally displaced once during that time. The present invention provides a very simple and efficient means for obviating what has heretofore been a serious annoyance. By forming the recess 20 in such manner that the bottom thereof lies at the angle shown the pressure upon the brush is not only a forward pressure, but is also a downward pressure, by virtue of which construction the brush is not only held in position, but is also forced into close contact with the commutator.

While the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claim.

What I claim is—

A brush having a recess formed diagonally therethrough from the rear face of the brush to the top face thereof.

JOHN KENDALL THOMAS.

Witnesses:

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