(No Model.) 2 Sheets—Sheet 1.

T. A. EDISON.

DYNAMO ELECTRIC MACHINE.

No. 297,584. Patented Apr. 29, 1884.

Fig. 1.

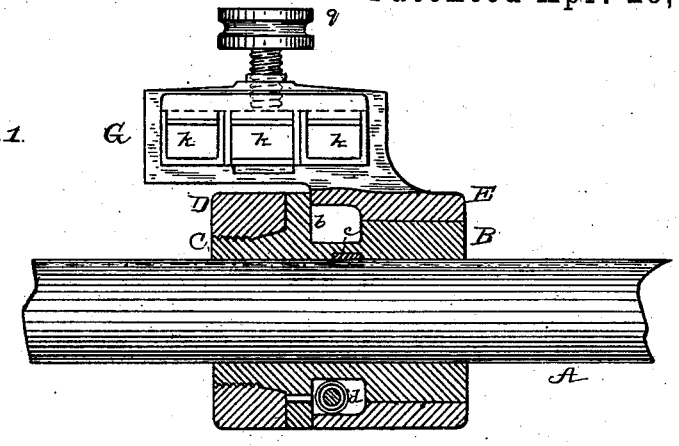


Fig. 3.

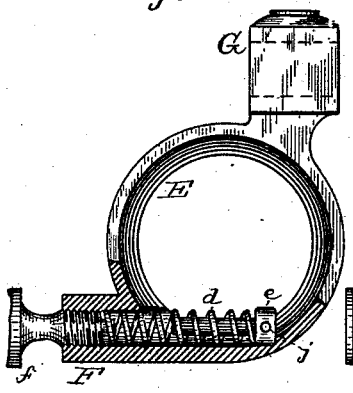


Fig. 2.

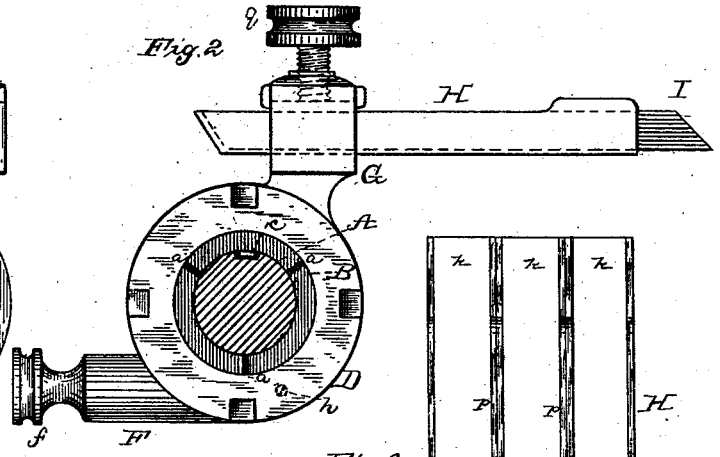


Fig. 6.

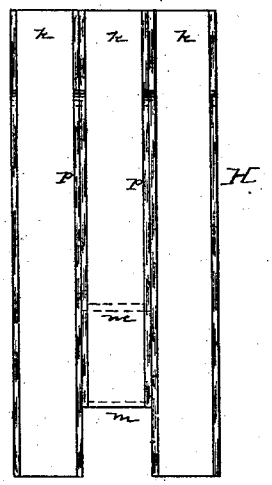


Fig. 4.

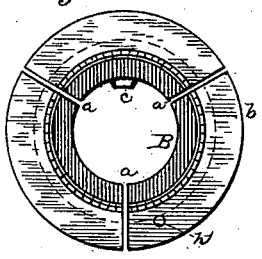
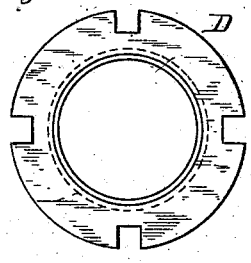


Fig. 5.



ATTEST:

E. C. Rowland

A. W. Seeley

INVENTOR:

Thomas A. Edison,

By Richd N. Dyer

Atty.

(No Model.) 2 Sheets—Sheet 2.

T. A. EDISON.

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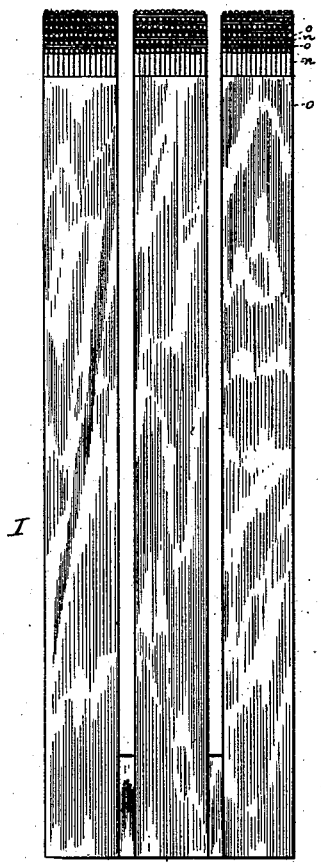
No. 297,584. Patented Apr. 29, 1884.

Fig. 1.



ATTEST:
E. C. Rowland,
A. W. Seeley

INVENTOR:
Thomas A. Edison,
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Atty.

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 297,584, dated April 29, 1884.

Application filed October 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Dynamo-Electric Machines, (Case No. 588,) of which the following is a specification.

This invention relates both to the brush-holders and the brushes themselves of electrical generators and motors. So far as it relates to the former, it is intended as an improvement on the invention set forth in my Patent No. 263,140. As is the case in that patent, I construct the main portion of the holder in two parts, one of which is fixed, while the other, which holds the brush, is held by an adjustable spring-pressure.

The present improvement has for one of its objects to render the brush-holder more compact in form and to conceal and protect the pressure-adjusting devices. The holder is also so constructed that as the end of the brush wears away it can readily be adjusted forward, while at the same time its whole length is well supported. The brush itself is preferably divided longitudinally into several (two or more) parts, so as to diminish spark, and that part of the holder which directly supports the brush is correspondingly divided.

My invention is illustrated in the annexed drawings, in which Figure 1 is a longitudinal section and partial elevation of my improved brush-holder mounted on a shaft or spindle; Fig. 2, an end view of the same holding the brush; Fig. 3, a view of the adjustable and adjusting parts of the holder; Fig. 4, an end view of that part of the holder which is placed on the spindle but with the clamping-ring removed; Fig. 5, a view of the clamping-ring; Fig. 6, a view of that part of the holder in which the brush is directly placed, and Fig. 7 a view of the divided brush.

A is the shaft or spindle, on which one or more brushes, bearing on one side of the commutator-cylinder, are mounted. Upon this spindle is placed a cylinder, B, one end, C, of which is split at *a a*, forming a split sleeve, upon which and against the flange *b* is screwed the ring or collar D, which clamps it upon the shaft. The cylinder B is also provided with a pin or projection, *c*, which enters a slot or groove in the spindle A to keep the cylinder from turning. This cylinder, therefore, forms the fixed portion of the brush-holder.

Upon the cylinder B is placed the adjustable part E, which holds the brush. From the sleeve or collar E a projecting tube, F, extends, in which is placed the spiral spring *d*, which is held between the plate *e* and thumb-screw *f*. The plate *e* bears against the inside of collar E, a depression being formed for this purpose, and plate *e* is connected with cylinder B by a pin, *h*, passing through a hole, *i*, in the split sleeve C into a hole, *j*, in the plate. The cylinder B and collar E are thus connected through the spring *d*, and their relative movement is limited by the spring. The projecting head G also extends from collar E, the collar E, tube F, and head G being all made in one piece. The head G supports the brush-holding frame H, which consists of three parts, *k k*, (or any other suitable number,) attached together, passed through the aperture in the head G and held by downwardly-projecting parts *m m*, one on each side of the head G.

The brush I is composed of layers of wires *n*, alternating with copper strips *o*. Through the greater part of its length it is divided into three parts, and these parts are placed in the three divisions of the frame H, separated by the sides *p* of the divisions. The ends of the brush-sections bear separately upon the commutator-cylinder, thus diminishing the spark. The brush is held by a set-screw, *g*, and by loosening this set-screw the brush may be adjusted forward as the ends of the wires wear away. The use of the alternate wires and strips gives strength to the brush and prevents it from spreading apart.

It will be seen that as the part E turns upon the part B, and the spring *d* bears upon the former, the brush is held against the commutator-cylinder by the spring-pressure, and such pressure is adjusted by means of the thumb-screw *f*. Several of these brush-holders may be placed upon the same shaft or spindle, all being adjustable independently.

What I claim is—

1. The combination, in a commutator-brush holder, of the shaft or spindle, a cylinder fixed thereon, a movable collar concentric to said cylinder and carrying the brush, and adjust-

ing means connecting said collar and cylinder, substantially as set forth.

2. In a commutator-brush holder, the combination of the cylinder fixed upon the shaft or spindle, the movable collar carrying the brush and sleeved upon the fixed cylinder, and the adjustable spring connecting the two parts, substantially as set forth.

3. The combination of the shaft or spindle, the inner cylinder formed as a split sleeve, the clamping-ring, and the outer adjustable collar carrying the brush, substantially as set forth.

4. The combination of the shaft or spindle, the inner cylinder having a pin entering a groove in said shaft or spindle, the clamping-ring, and the outer movable collar carrying the commutator-brush, substantially as set forth.

5. The combination, with the inner cylinder fixed upon the shaft or spindle and the outer movable collar thereon, of the adjustable spring attached to the movable collar, and the pin connecting said spring with the fixed cylinder, substantially as set forth.

6. The combination, with the adjustable collar provided with a projecting tube and the spring within said tube, of the inner fixed cylinder and a connection between the spring and said fixed cylinder, substantially as set forth.

7. The frame carried by the brush-holder and supporting the brush throughout the greater part of its length, substantially as set forth.

8. The combination, with the adjustable cylinder having a projecting head, of the brush-supporting frame carried by such head, substantially as set forth.

9. The combination of the adjustable cylinder having a projecting head provided with an aperture, the brush-supporting frame fixed in such aperture, and the brush held in such frame and adjustable through said aperture, substantially as set forth.

10. The combination of the longitudinally-divided brush and the brush-supporting frame correspondingly divided, the ends of the brush-divisions projecting beyond the frame, substantially as set forth.

11. The commutator-brush composed of alternate metal strips and layers of wires, substantially as set forth.

12. The longitudinally-divided commutator-brush composed of alternate metal strips and layers of wires, substantially as set forth.

This specification signed and witnessed this 8th day of August, 1883.

THOS. A. EDISON.

Witnesses:
H. W. SEELY,
EDWARD H. PYATT.