(No Model.)

J. A. WILLIAMS.

COMMUTATOR FOR DYNAMOS OR MOTORS.

No. 492,176. Patented Feb. 21, 1893.

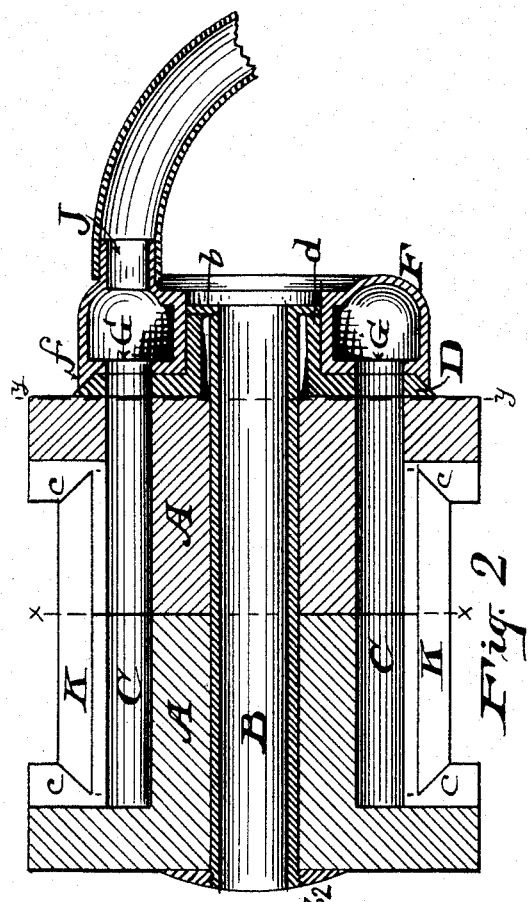

Fig. 2.

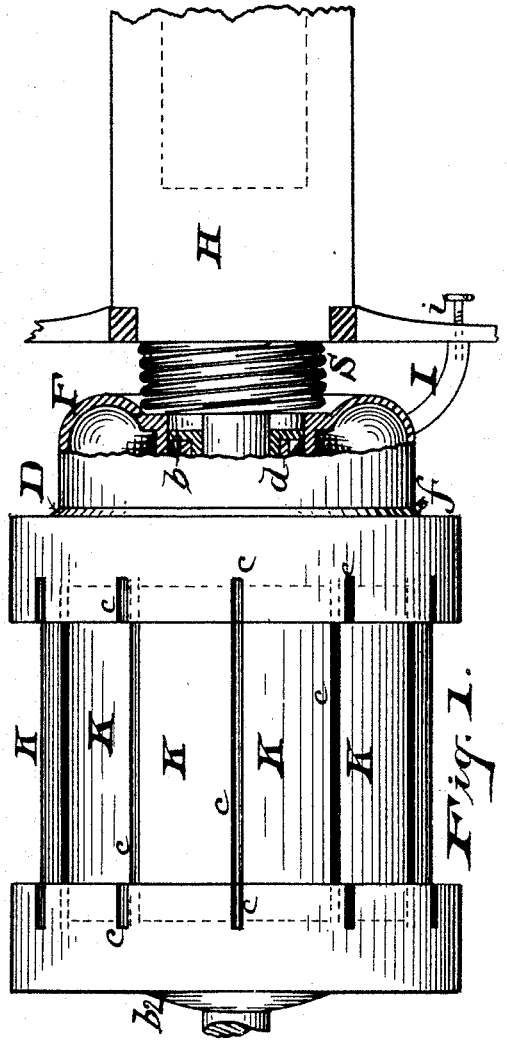

Fig. 1.

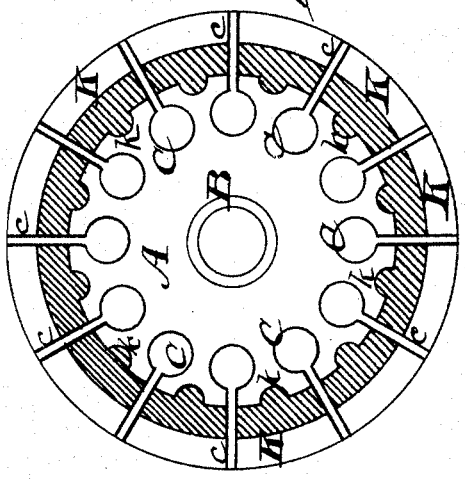

Fig. 3.

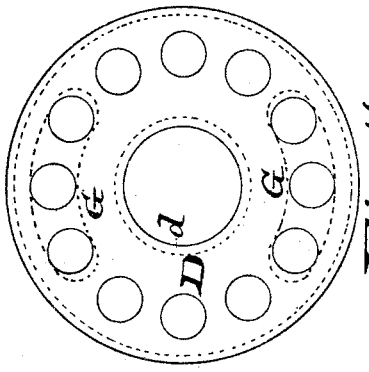

Fig. 4.

Witnesses
D. C. Grover
M. G. Norton

Inventor,
Joseph A. Williams,
By Geo. W. Tibbitts Atty.

UNITED STATES PATENT OFFICE.

JOSEPH A. WILLIAMS, OF CLEVELAND, OHIO.

COMMUTATOR FOR DYNAMOS OR MOTORS.

SPECIFICATION forming part of Letters Patent No. 492,176, dated February 21, 1893.

Application filed May 2, 1892. Serial No. 431,597. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. WILLIAMS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Commutators for Electric Dynamos and Motors, of which the following is a specification.

This invention relates to commutators for electric dynamos and motors, and has for its object to provide a blast of air outward from the interior of a chambered body having radial slots leading outward from said chamber and between the commutator bars, by means of which the tendency to a voltaic arc between the bars will be avoided, and the invention consists in the peculiar constructions and combinations substantially as hereinafter described and pointed out in the claims.

In the accompanying drawings—Figure 1 is a top or plan view of a commutator embodying my invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a cross-section on line *x x*, on Fig. 2. Fig. 4 is a cross-section on line *y y*, on Fig. 2.

A A represent the body of my commutator, which is made in two parts for the convenience of putting together and securing the several parts comprising the device, each part having a heavy annular flange and are composed of any suitable non-conductive material, and have a central longitudinal opening for attaching them onto armature shaft.

B is a tube or sleeve upon which are placed the two parts or halves of the body A A, one end of which has a flange *b*, the other end is screw-threaded and provided with a nut b^2. This tube or sleeve serves as a bolt for securing the several parts of the commutator together, and is also fitted and secured onto the armature shaft. In the body A are also made longitudinal chambers C C, and *c c* are radial slots cut in the body, connecting with the said chambers for providing communication with the open air, and the said chambers extend through one end of said body.

D is a metal-disk having same number of holes as there are chambers in the body, and also has a neck *d*, against which the flange *b* of the sleeve B rests for holding the disk firmly against the body, the holes in the disk being maintained in line with the said chambers. In the face of chamber F, adjoining the disk are made curved openings G G, of sufficient length to uncover three or more, or less, of the holes in the disk, for the admission of air to the cells or chambers C, and are so located on opposite sides as to direct a blast of air into the three chambers that have just passed under the brushes, the said blast of air emerging through the slots between the commutator bars.

H, Fig. 1 is the support for the end of the armature shaft, and on a shoulder of the said bearing support is placed a stiff spiral spring S which bears against the chamber F, for pressing it against the disk D, to maintain a close joint. At one side of chamber F is provided an arm I, and through the brush rocker arm on the shaft support is placed a screw *i*, for engagement with said arm, for holding the chamber from turning, except with the brush rocker.

J is a nipple on one side of chamber F, to which a suitable connection is made for conveying air into the chamber supplied from a suitable source, as a blower or air pump.

K K are metal bars such as are usually used on a commutator, and have beads or ribs *k* on their under side, resting in corresponding grooves in the surface of body A, midway between the aforesaid slots, and the ends of said bars are beveled off to rest in corresponding bevel grooves in the annular flanges of the body, by which means the bars are secured firmly in place, and maintaining between them a continuation of the aforesaid slots *c c*.

The working of this device will now be seen to be as follows:—As the commutator revolves the holes in the disk are successively brought into communication with the slots G G, in the chamber F, and that the air blast enters the chambers C C and passes out through the radial slots *c c* into the outer air and thereby breaking off the arc, and prevents the discharge of electricity from brush to brush.

Having described my invention, I claim—

1. In a commutator for dynamos and motors the chambered and slotted body A, perforated disk D, annular chamber F, commutator bars K and means for supplying air blast to the chambers in combination as and the purpose set forth.

2. In a commutator for dynamos and mo-

tors, the divided, chambered and slotted body A, having annular flanges, segmental bars K having beads or ribs *k* fitted to rest in the grooves in the surface of the body between the slots *c c*, and having beveled ends held in bevel grooves in the body flanges; perforated disk D having neck *d;* sleeve bolt B and nut b^2, binding the body segmental bars and disk together, and the annular chamber F, all constructed to operate as and for the purpose set forth.

JOSEPH A. WILLIAMS.

Witnesses:
GEO. W. TIBBITTS,
D. C. GROVER.