(No Model.)

H. W. HANAHAN.

DEVICE FOR BLOWING OUT SPARKS ON COMMUTATORS OF DYNAMOS.

No. 512,612. Patented Jan. 9, 1894.

Fig. 1.

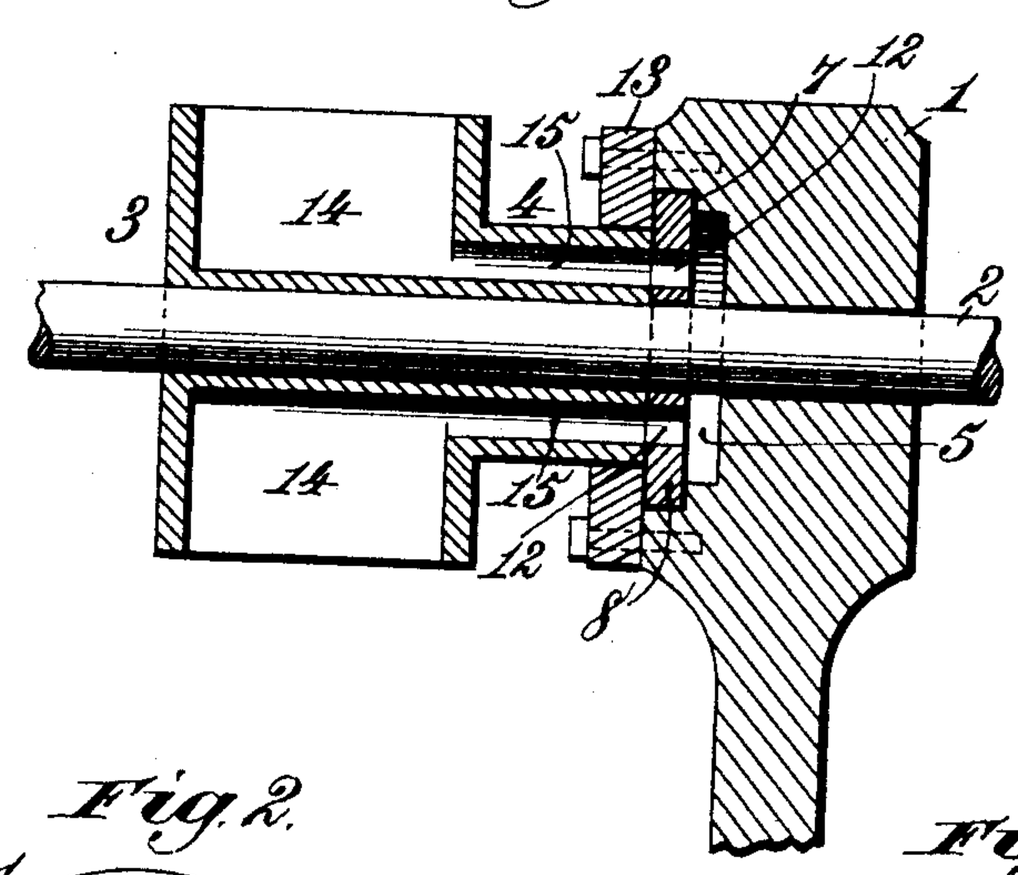


Fig. 2.

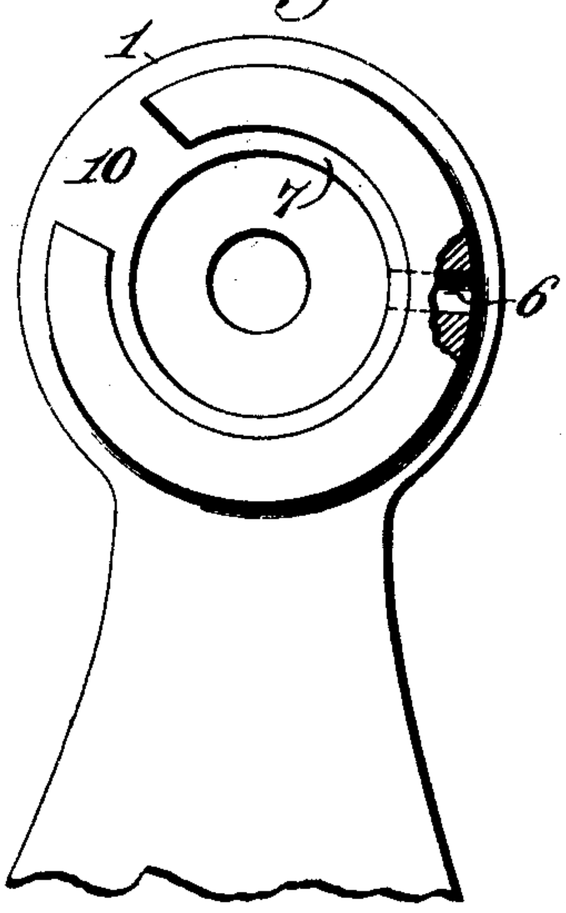


Fig. 3.

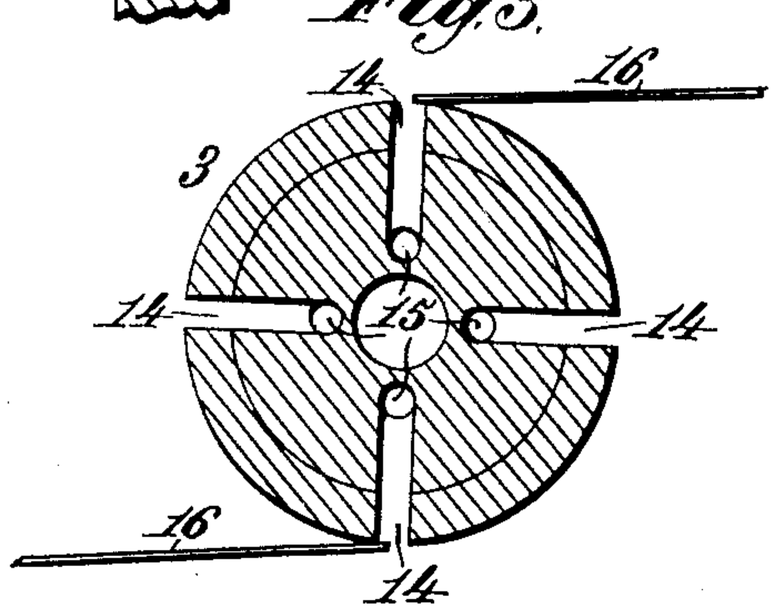


Fig. 4.

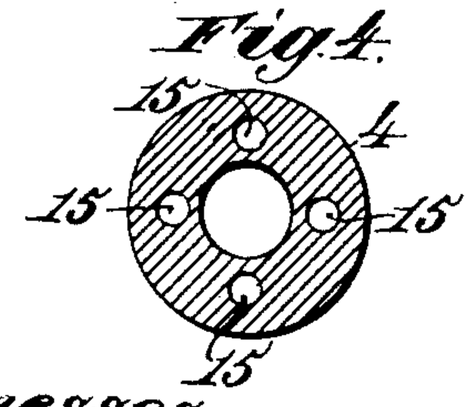


Fig. 5.

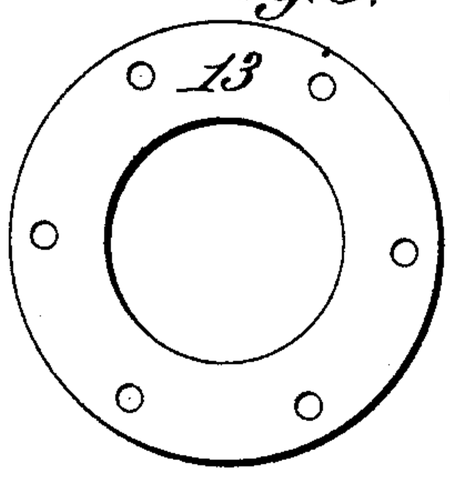
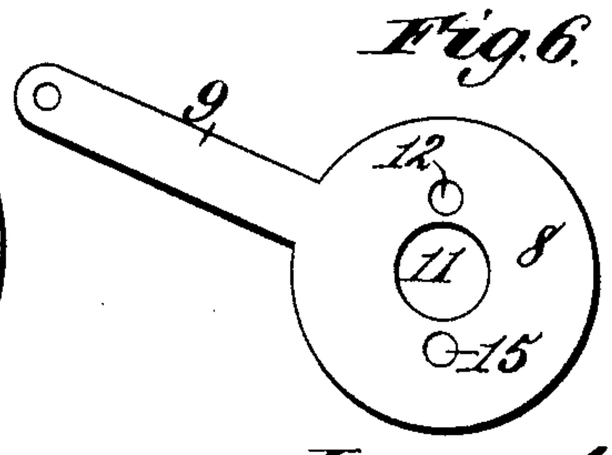


Fig. 6.



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HAMILTON W. HANAHAN, OF WINNSBOROUGH, SOUTH CAROLINA.

DEVICES FOR BLOWING OUT SPARKS ON COMMUTATORS OF DYNAMOS.

SPECIFICATION forming part of Letters Patent No. 512,612, dated January 9, 1894.

Application filed March 28, 1893. Serial No. 468,072. (No model.)

To all whom it may concern:

Be it known that I, HAMILTON W. HANAHAN, a citizen of the United States, residing at Winnsborough, in the county of Fairfield and State of South Carolina, have invented new and useful Improvements in Devices for Blowing Out Sparks on Commutators of Dynamos, of which the following is a specification.

This invention relates to simple and effective means for preventing or extinguishing sparks on the commutators of dynamo-electric machines, and for the accomplishment of this result my improvements consist in the features of construction and novel combinations of devices as hereinafter more fully set forth.

In the annexed drawings illustrating the invention—Figure 1 is a partly sectional side elevation of a portion of a dynamo-electric machine. Fig. 2 is an elevation of the inner side of one of the bearings, showing a circular air chamber formed therein. Fig. 3 is a transverse section through the commutator, showing, also, the commutator brushes. Fig. 4 is a section through a sleeve or cylindrical extension on one end of the commutator. Fig. 5 is a view of an annular plate forming the cap or front of the air chamber and surrounding one end of the commutator sleeve. Fig. 6 is a view of a perforated disk adjustably placed in the front of the air chamber against the end of the commutator sleeve which has a set of holes bored through it in position to successively register with the holes in said disk through which the air chamber communicates with the interior of the slotted commutator.

Referring to Figs. 1 and 2, the numeral 1 designates one of the bearings for the armature shaft 2, on which the commutator 3 and its sleeve or cylindrical extension 4 are firmly fixed to rotate therewith. In the inner face of the bearing 1 is formed a circular air chamber 5, having an inlet 6, Fig. 2, through which air may be supplied from a fan or blower, not shown, that may be operated from the dynamo shaft, or otherwise, as convenient. The air chamber 5 is provided internally with an annular shoulder 7 adapted to support an adjustable non-rotary disk or circular plate 8 having a handle or lever 9, Fig. 6, that projects outward through a slot 10, Fig. 2, in the bearing. The disk 8 has a central opening 11 for passage of the armature shaft and it is provided, also, with two perforations 12 at opposite sides of the central opening and on the same diameter. After the disk 8 has been placed in the air chamber 5 the front of the chamber will be closed by an annular plate or cap 13, Figs. 1 and 5, bolted to the inner face of the bearing.

The commutator 3 may comprise any number of segments separated by slots 14, Figs. 1 and 3, as usual. At one end of the commutator and integral therewith, is the sleeve or cylindrical extension 4, which surrounds the armature shaft and rotates with it and with the commutator. In this sleeve 4 is formed a series or set of longitudinal passages 15, Figs. 1, 3 and 4, that are extended, also, nearly through the commutator 3 along the bottoms of its radial slots 14 and communicating therewith. The end of the sleeve 4 is passed through the annular plate 13 and bears against the disk 8 in which are the perforations 12 for the passage of air from the air chamber 5 and through the longitudinal passages or channels 15 to the commutator slots.

It will be observed that the number of longitudinal passages 15 in the commutator 3 and sleeve 4 is the same as the number of slots 14 between the commutator segments. The longitudinal passages 15 are adapted to register with the perforations 12 of the disk 8 and as the commutator revolves the ends of these passages successively communicate with and pass by said perforations 12, in such a manner as to permit the flow of air at proper intervals from the chamber 5 through the perforations 12 and passages 15 to the commutator slots or openings 14, thus preventing or extinguishing sparks at the brushes 16 which are arranged as usual. The position of the disk 8 is adjusted by the same lever that controls the position of the commutator brushes so that the perforations 12 will always be in line with the points of contact of the brushes, thus causing the air to be discharged through the slots 14 as the brush leaves one segment or bar of the commutator to pass to the next.

What I claim as my invention is—

1. The combination with a commutator having radial slots and longitudinal passages extended nearly through the commutator at the bottom of said slots and communicating therewith, and a stationary air chamber surrounding the armature shaft, of an adjustable non-rotary disk located in said air chamber at one end of the commutator and provided with apertures that are adapted to register at intervals with the longitudinal passages of the commutator and through which air will pass from the air chamber to the slots of the commutator to prevent sparking, substantially as described.

2. The combination with the commutator brushes and a radially slotted commutator having longitudinal passages at the bottom of the commutator slots and communicating therewith, of an air chamber located in a bearing for the armature shaft and an adjustable non-rotary disk located in said chamber around said shaft and provided with apertures to register at intervals with the longitudinal passages of the revolving commutator and permit the passage of air through the commutator passages and slots to prevent sparking, substantially as described.

3. The combination of a commutator having radial slots and provided at one end with an integral sleeve or cylindrical extension having a set of longitudinal passages extended therethrough and nearly through the commutator at the bottom of said slots, an air chamber formed in the inner side of one of the bearings for the armature shaft, an annular cap or plate for closing said chamber, and an adjustable disk located in the air chamber and provided with apertures with which the longitudinal passages of the revolving commutator will register at intervals to permit the flow of air outward through the commutator slots to prevent sparking, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HAMILTON W. HANAHAN.

Witnesses:

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FRANK M. CLARKE.