No. 635,739. Patented Oct. 31, 1899.

S. BERGMANN.

ARMATURE FOR DYNAMO ELECTRIC MACHINES.

(Application filed Nov. 15, 1898.)

(No Model.)

Fig. 1.

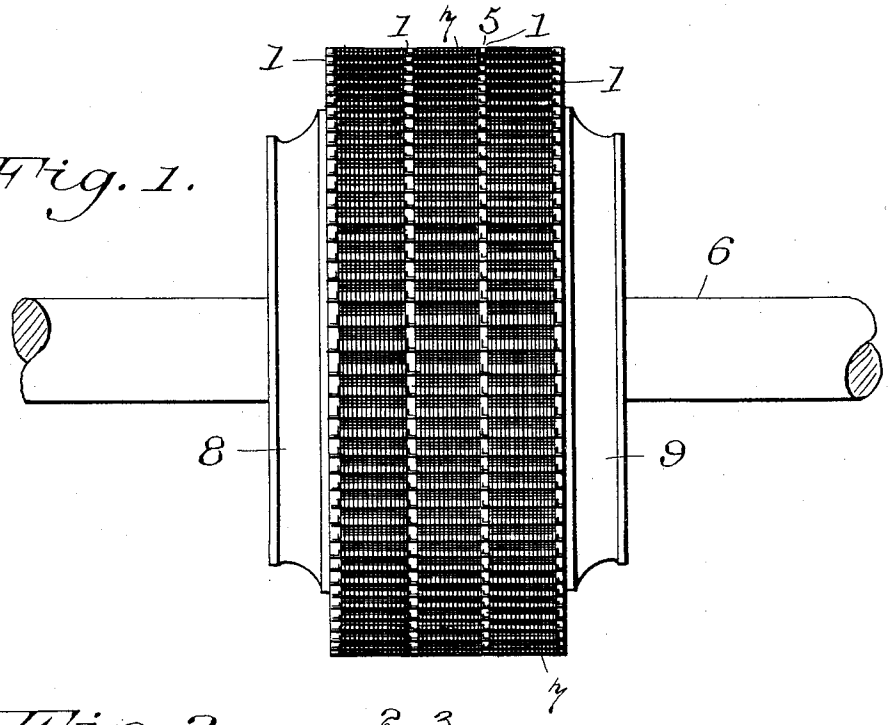
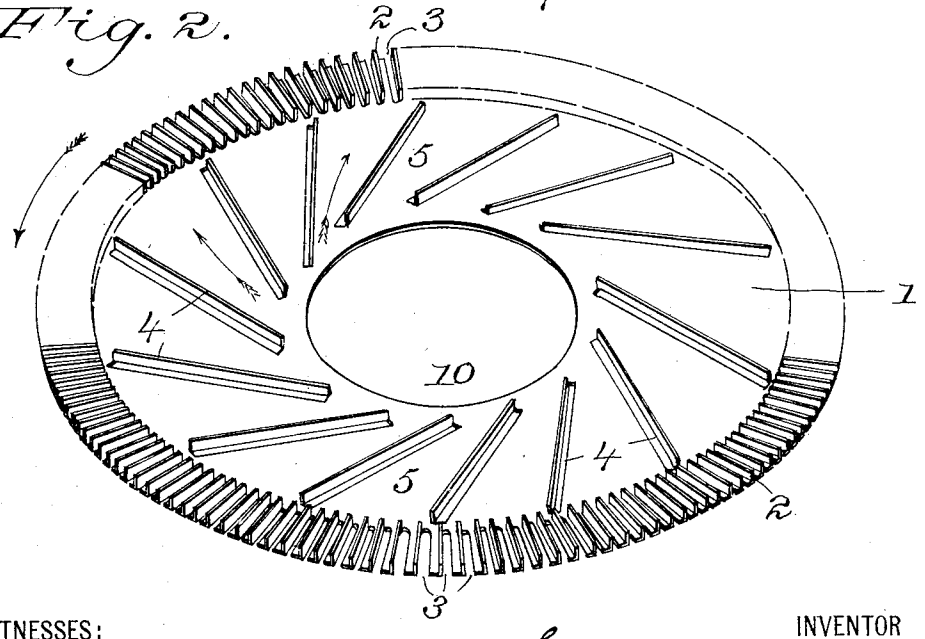


Fig. 2.



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SIGMUND BERGMANN, OF NEW YORK, N. Y., ASSIGNOR TO THE GENERAL INCANDESCENT ARC LIGHT COMPANY, OF NEW YORK.

ARMATURE FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 635,739, dated October 31, 1899.

Application filed November 15, 1898. Serial No. 696,619. (No model.)

To all whom it may concern:

Be it known that I, SIGMUND BERGMANN, a citizen of the United States, residing at New York city, county and State of New York, have invented new and useful Improvements in Dynamo-Armatures and Disks for Use in Same, of which the following is a specification.

My invention relates to an improved self-ventilating armature for dynamo-electric machines and a disk to be used in the construction thereof. As is well known, the armature in a dynamo-electric machine or motor becomes heated by the rapid reversals of electric current and magnetism produced thereby, and it becomes important, especially in armatures run at a high rate of speed, to secure an effective and simple means for ventilating the same, so that currents of cold air may be caused to pass in and out of the armature during its rotation, thus carrying away enough of the heat generated to keep the temperature below a point which might be destructive to the insulation. I propose to accomplish this by building the armature of annular-shaped disks and interspersing at various points throughout its length a special form of ventilating-disk made by stamping up portions of the material and leaving such stamped-up portions projecting at right angles to the plane of the disk, whereby the said stamped-up portions will serve to hold said disk at a regulated distance from its neighboring disk on the side toward which the stamped-up portions extend and whereby suitable air-passages for drawing out or forcing in air will be formed between said stamped-up portions. Moreover, certain of said stamped-up portions adjacent to the circumference of the disk form radial notches in which the wire or wires forming the armature-coils may be placed.

The preferred form of my invention is illustrated in the accompanying sheet of drawings, in which—

Figure 1 is a side elevation of a drum-armature and a portion of the shaft therefor, with certain of my ventilating-disks interspersed throughout the armature; and Fig. 2 is a perspective view of one of said disks.

Throughout the drawings like reference-figures refer to like parts.

1 represents the annular disk of sheet metal forming the body of the ventilating-plate. 2 2, &c., represent stamped-up portions of said disk near the circumference thereof. The stamped-up portions are bent at right angles to the plane of the disk and arranged parallel to the radii thereof, so as to form the series of radial notches 3 3, &c., in which the coils of the armature may be placed. 4 4, &c., represent other stamped-up portions of the disk, located more nearly to the center thereof. These stamped-up portions are also bent at right angles to the plane of the disk and arranged at approximately uniform angles to the radii of the disk intersecting the same. When a plain disk 7 of the same size is placed against one of these ventilating-disks, as shown in Fig. 1, a series of air-passages 5 5, &c., are formed between the stamped-up portions 4 4, extending from nearly the inner circumference of the annular disk nearly to the outer circumference. The armature is composed of a large number of these disks 7 7, &c., interspersed at regular distances with ventilating-disks 1 1, &c., all as shown in Fig. 1, the disks being japanned or otherwise provided with sufficient insulation one from the other. The armature being mounted on the shaft 6 by means of end plates or cast-iron spiders 8 and 9, there is formed a central annular air-space 10 about the shaft 6, and the air-passages 5 5, &c., serve as a communication from this central annular air-space to the exterior circumference of the armature.

The operation of my invention is evident. When the armature is rotated, the inclined stamped-up portions or wings 4 4 act like the blades of a rotary fan to draw in or force out air from the annular chamber 10, according to the direction in which the armature is revolved. Thus if the armature is revolved in the direction of the arrow, Fig. 2, the stamped-up portions 4 4 (shown in said figure) will operate to force the air out through the passages 5 5 in the manner indicated by the arrow in said passage-ways. If the armature is revolved in the opposite direction or if the inclination of the stamped-up portions is reversed, they will act to draw in air, which will be forced out at some other point.

It is evident that the inclination of the

stamped-up portions 4 4 to the radii of the disk might be varied within wide limits, according to whatever might be found to give the best results in practice, and indeed said portions might be made parallel to the radii if it were found that the centrifugal action was alone sufficient to produce the desired currents of air without any inclination. Other means of forming said air-passages leading from the central annular air-space to the exterior circumference of the armature might be employed; but I prefer the special form of plate shown in Fig. 2 as being the cheapest, most durable, and effective means of securing this result.

I am aware that an armature-disk has heretofore been made having stamped-up portions bent at right angles to the plane of the disk, and such I do not claim as my invention.

Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. As an article of manufacture, an armature-disk, having stamped-up portions bent at right angles to the plane of the disk, some of said stamped-up portions being arranged at approximately uniform angles to the intersecting radii of the disk, substantially as described.

2. As an article of manufacture, an armature-disk, having stamped-up portions bent at right angles to the plane of the disk, the stamped-up portions about the circumference being arranged parallel to the radii of the disk, and others located nearer the center being arranged at approximately uniform angles to said radii, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

SIGMUND BERGMANN.

Witnesses:
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