(No Model.)

J. C. WRAY.

ARMATURE FOR ELECTRIC MACHINES.

No. 422,681. Patented Mar. 4, 1890.

Fig 1

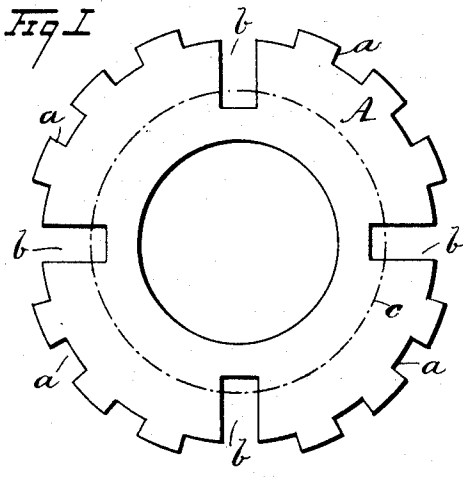
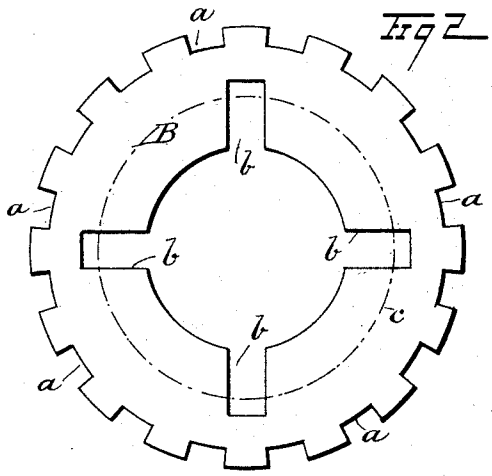


Fig 2



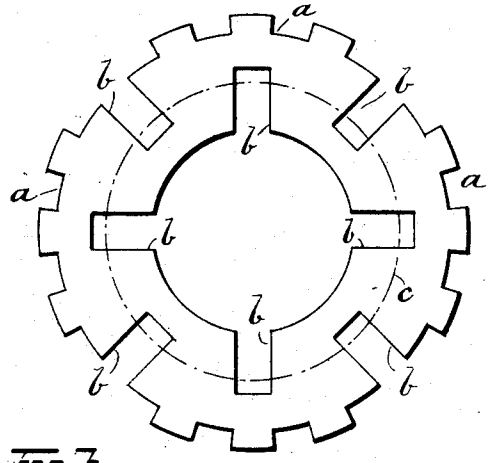


Fig 3

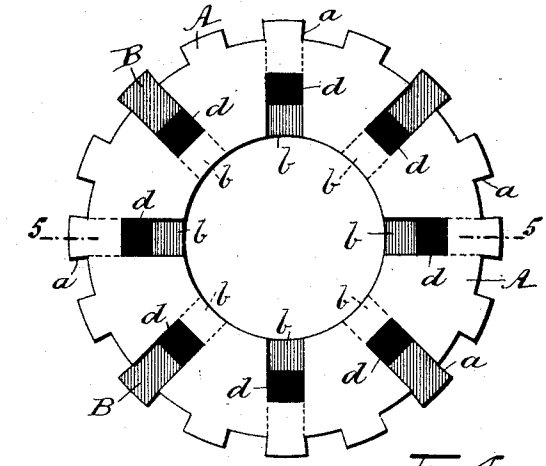


Fig 4

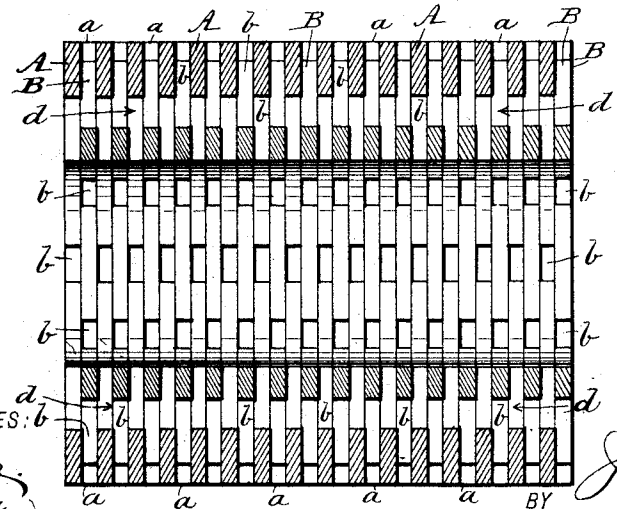


Fig 5

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UNITED STATES PATENT OFFICE.

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ARMATURE FOR ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 422,681, dated March 4, 1890.

Application filed November 26, 1889. Serial No. 331,690. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. WRAY, of Peoria, in the county of Peoria and State of Illinois, have invented a new and useful Improvement in Armatures for Electrical Machines, of which the following is a full, clear, and exact description.

My invention relates to armatures for electrical-current generators or motors of a type in which the core of the armature is constructed of a series of annular plates of iron secured together in cylindrical form.

The object of my invention is to provide means for the effective ventilation of the armature, whereby heating of the same is obviated.

To this end my invention consists in the peculiar construction of the rings composing the armature and their combination, as is hereinafter described, and indicated in the claims.

Reference is to be made to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of an armature-ring made of sheet metal and cut in a peculiar manner. Fig. 2 is a side view of an armature plate-metal ring so formed that when properly joined flatwise to the ring shown in Fig. 1 continuous radial ventilating-passages are afforded thereto. Fig. 3 represents a modified form of sheet-metal ring so cut that the proper combination of a series of these rings will produce a laminated core having radial and longitudinal ventilating-passages therein. Fig. 4 is an end view of an armature-core constructed by the assembling of the annular plates shown in Fig. 3, disposed alternately to produce a cylinder having radial and longitudinal passages in it; and Fig. 5 is a longitudinal section of the armature-core, taken on the line 5 5 in Fig. 4.

The annular plate A (shown in Fig. 1) has radial notches *a* cut in its peripheral edge at spaced intervals, and alternating with these notches the slots *b* are formed in the plate. These slots extend from the outer edge toward a common center and are of suitable width for their use. The depth of the slot *b* is so proportioned to the breadth of the plate they are produced in, considered from the outer to the inner edge thereof, that said slots will pass a center of breadth indicated by the circular dotted line *c*, a sufficient portion of the ring material being left to preserve it intact. Any desirable number of the slots *b* may be formed in the annular plate A, four being shown in the drawings, which number may be increased if the dimensions of the armature will require it.

In Fig. 2 an annular plate B is shown, which in general form is similar to the plate A, with the exception that the slots *b* therein extend from the inner edge of the ring outwardly, the number of slots and spaced distances between them corresponding with the slots in the plate A, so that these slots will radially align when brought together by imposing one plate on the other and properly adjusting the same.

It will be seen from the construction of the plates A and B that if these are placed together alternately and the radial slots *b* made to align their edges continuous radial apertures will be produced thereby in the composite armature-core, and spaced longitudinal rectangular passages *d* also provided, which will admit a current of cool air to the interior of the core. The notches *a* cut in the periphery of each plate A B when these are assembled afford longitudinal grooves on the outer surface of the armature-core, which may be filled with insulated wire coils of Gramme type, or Pacinotti winding of the induction-coils may be employed.

In Fig. 3 the annular plate shown has radial slots *b* produced in its inner and outer edges alternately, which slots are spaced apart, so that in a combination of a series of these plates arranged to align the slots will afford continuous radial and longitudinal passages *d* in the laminated core similar to those produced by employment of the plates A B in the manner previously explained.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A cylindrical armature-core made up of a series of annular plates slotted from their outer edges inwardly and a series of annular plates slotted from their inner edges outwardly, these differently-slotted plates being alternated in a pile and their slots aligned to

produce radial passages in the laminated core, substantially as set forth.

2. A cylindrical armature-core composed of a series of annular plates having radial spaced slots formed from the outer edges of the plates inwardly across their center of width and a series of annular plates having equal dimensions with the first-named series and mating slots which extend from the inner edges outwardly across their center of width, these two series being alternated to produce a laminated cylindrical core having radial apertures and longitudinal passages therein, substantially as set forth.

3. A cylindrical armature composed of a series of annular plates alternately slotted from the inner and the outer edges at spaced distances apart, these plates being arranged in such order as to align the inner radial slots on one plate with the outer radial slots of an adjacent plate, substantially as set forth.

4. A cylindrical armature-core composed of a series of annular plates alternately and radially slotted at spaced intervals from the outer edge inwardly across the center of width of the plates and from the inner edge outwardly across the center of width of the plates, these plates being arranged in such order as to align the inner radial slots of one plate with the outer radial slots in an adjacent plate, thus affording radial apertures and longitudinal passages in the laminated core, substantially as set forth.

JOHN C. WRAY.

Witnesses:
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