

(No Model.)

E. W. RICE, Jr.

ARMATURE FOR DYNAMO ELECTRIC MACHINES.

No. 521,671.

Patented June 19, 1894.

FIG. 1.

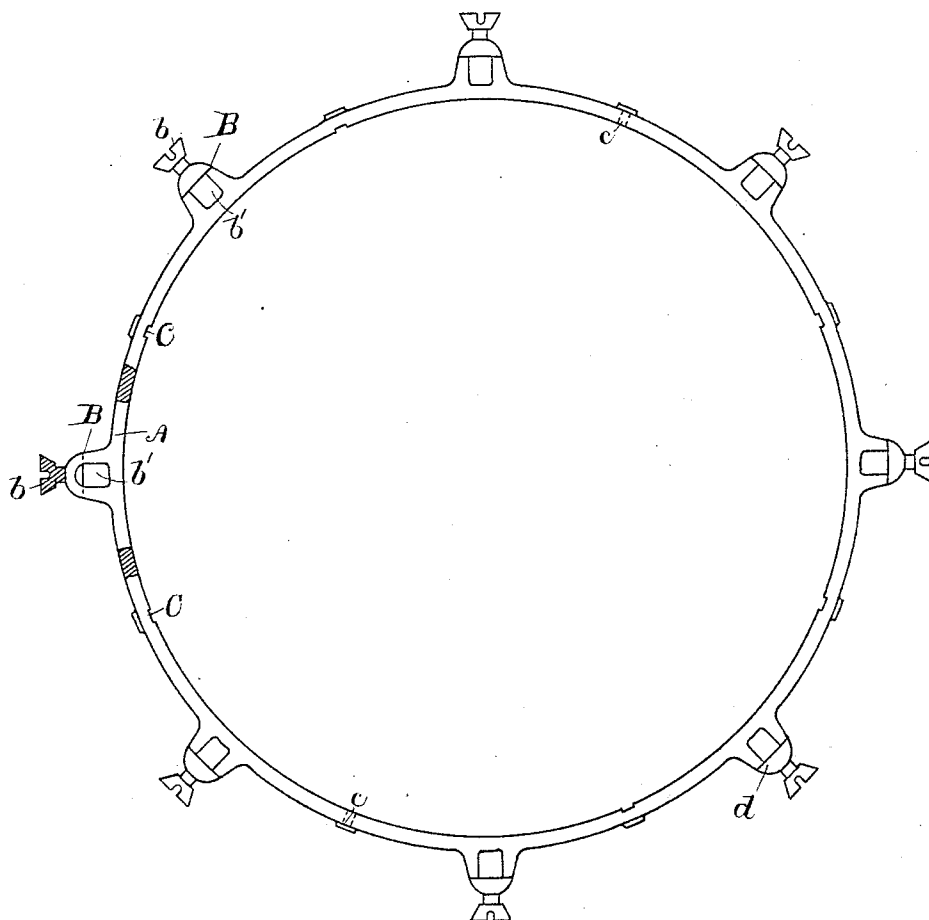
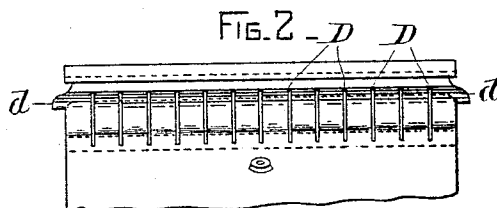


FIG. 2.



WITNESSES.

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UNITED STATES PATENT OFFICE.

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ARMATURE FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 521,671, dated June 19, 1894.

Application filed April 19, 1894. Serial No. 508,121. (No model.)

To all whom it may concern:

Be it known that I, EDWIN W. RICE, Jr., a citizen of the United States, residing at Schenectady, county of Schenectady, and State of New York, have invented certain new and useful Improvements in Armatures for Dynamo-Electric Machines, of which the following is a specification.

My invention relates to armatures for dynamo-electric machines, more especially to the spiders used in such constructions to support the core disks in place; and has for its object to provide a spider for the modern large direct-driven dynamo-electric machines, which shall be free from some of the disadvantages attending former constructions. To this end I cast the spider of any suitable diamagnetic material in a form substantially as shown in the accompanying drawings, in which—

Figure 1 is a side elevation of the spider and Fig. 2 an end elevation of one of the spider arms.

Spiders as ordinarily constructed are cast in a single piece of solid metal. This has disadvantages on account of the eddy currents which arise in such a construction as it revolves in the field of force, which heat the spider and the armature conductors and impair the efficiency of the machine, as is well understood. Many more or less complicated contrivances have also been devised to secure the core disks firmly in place on the spider, such contrivances being expensive and difficult to adjust so as to fulfill their object. These two disadvantages I obviate in my construction, in which I provide a spider having radial arms provided upon their ends with dovetailed projections adapted to register with corresponding holes in the laminæ; and these arms I also provide with a lug or projection over which the end ring may be slipped, when the whole is compressed by insulated bolts, and a very rigid construction is provided. To obviate the first named objection of eddy currents, I split the mass of the spider arms, they being the parts which revolve in the strong magnetic field, by means of slots interrupting their continuity to such an extent as to greatly prevent the circulation of current, and also insuring, in cases

where proper spacing of the laminæ is made, an efficient ventilation of the armature adapted to carry off any heat which may be generated.

Referring now to the drawings, A is the spider ring to which I have referred; B, B, &c., are the arms projecting therefrom, provided with the dove-tailed ends *b, b'*; the inner surface of the ring has key way slots C, C, formed upon it, adapted to register with slots in the supporting pulley of the armature, and secure the two parts together. Bolt-holes *c, c*, are also provided at one or more points, the bolts inserted through them serving to prevent the spider from creeping longitudinally on the face of the pulley. Through each of the spider arms is an opening *b'*, through which a part of the armature conductors may pass, the problem of passing such conductors around the projecting part of the spider in the large armatures now constructed, being solved by this feature, which however I do not claim as my invention.

Referring now to Fig. 2, the slots in the spider arms are indicated at D, D; the overhanging lug is shown at *d, d*.

Many forms of armature may be used, in which the spider, as above illustrated and described, may be an element. I do not however claim the combination of the spider with any particular form of armature, although I consider it best adapted, as above stated, to the large direct-driven, multi-polar machines in use in central stations; but it may also be employed with smaller machines, and will be found to have the same advantages, to a less degree, in such constructions.

I am also aware that very many forms of armature spider have been invented, and I therefore do not make any claim in this application broader than the structure described, excepting that I aim to include in the scope of the claims any merely formal variations made for the purpose of evading their terms.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. As a new article of manufacture, an armature spider for a dynamo-electric machine, composed of a ring of diamagnetic material, provided with projecting arms having dove-

tailed ends and a lug projecting from each side of the arm adapted to engage with devices for keeping in place the core disks.

2. As a new article of manufacture, an armature spider for dynamo-electric machines, composed of a ring of diamagnetic material having projecting arms, the arms having lugs upon their opposite ends and being cut through with slits interrupting their continuity and preventing the circulation of eddy currents.

3. As a new article of manufacture, an armature spider for a dynamo-electric machine,

composed of a ring of diamagnetic material having projecting arms, the arms having dove-tailed ends, lugs upon opposite ends thereof, an opening through each arm, and cut through with slots interrupting their continuity and adapted to prevent the circulation of eddy currents.

In witness whereof I have hereunto set my hand this 17th day of April, 1894.

EDWIN W. RICE, JR.

Witnesses:

B. B. HULL,

C. L. HAYNES.