

No. 630,930.

Patented Aug. 15, 1899.

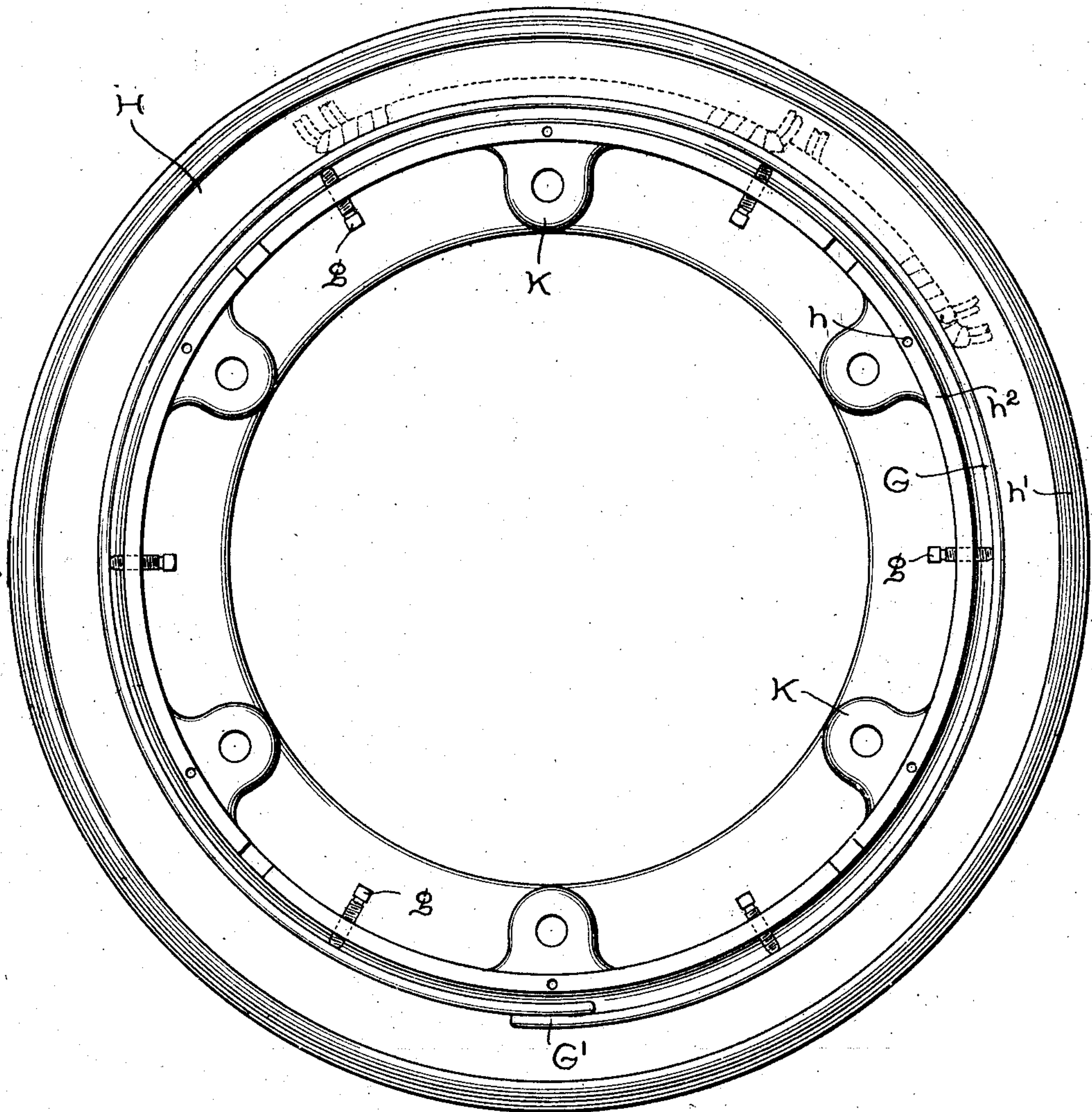
H. G. REIST.
ARMATURE.

(Application filed June 20, 1898.)

(No Model.)

2 Sheets—Sheet 2.

FIG. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

HENRY G. REIST, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE GENERAL ELECTRIC COMPANY, OF NEW YORK.

ARMATURE

SPECIFICATION forming part of Letters Patent No. 630,920, dated August 15, 1899.

Application filed June 20, 1898. Serial No. 688,899. (No model.)

To all whom it may concern:

Be it known that I, HENRY G. REIST, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Armatures, (Case No. 799,) of which the following is a specification.

My invention relates to the construction of the armatures of dynamo-electric machines. It has for its object to improve these devices so that they may be properly ventilated, and this particularly on the ends of the armature, which have not heretofore been efficiently cooled, and to support the end connections in such a way that they do not move one upon the other during rotation, thus eliminating the danger of injuring the insulation.

Another object of the invention is to provide an improved form of space-block to be interposed between the end ring and the armature-iron, although it may of course be used in other relations. This form of these devices is provided with suitable retaining means for preventing displacement under centrifugal strain. Usually this means consists of lugs engaging with the armature-iron or end rings, though other arrangements might be used.

In the annexed drawings, which show an embodiment of my invention, Figure 1 is a section of a part of an armature, showing my improved construction. Fig. 2 is a side elevation of the end ring and support for the end connections. Fig. 3 is a perspective view of the improved space-block, and Fig. 4 is a detail showing a modification.

In Fig. 1, A is the shaft, and B is the armature spider. C C are groups of iron laminæ forming the magnetic circuit of the armature, these in turn being separated by space-blocks D' D', which may be, for instance, like those shown in my Patent No. 508,637. Between the end groups of laminations and the end ring H, I interpose the space-blocks D, which are of the form shown in Fig. 3 and will be more fully described in connection with that figure.

At E is shown one of the coils, of well-known form, resting upon a shelf or flange h' , projecting from the end ring H. To another project-

ing flange h^2 is secured by the screws h a ring I, which forms a protecting-shield for the windings and connections. Holes are tapped through the flange h^2 , in which lag-screws g are placed, which screws (see Figs. 1 and 2) adjust an insulating-ring G, so as to afford a secure support for the end connections e of the armature-coils. This ring is expanded by the lag-screws g after it is put in place, so as to compress the end connections, preferably, to such an extent that they become practically a rigid mass, and thus do not tend to move one upon another under changes of speed and consequent variations of centrifugal force or under the magnetic drag of the stray field. Thus abrasion of insulation and danger to the machine is prevented.

The end ring H shown in section in Fig. 1 is seen also in Fig. 2. In this figure the lugs K K, which secure it to the armature-spider, are shown provided with bolt holes through which pass the bolts J of Fig. 1. The ring G has its ends lapped at G' to allow for expansion.

At the other end of the armature, Fig. 1, is an end ring H', substantially like the first; but as there are in the form shown no connections between the coils at this end the flange h^2 and ring G are omitted.

In Fig. 3 is shown the space-block D, employed between the end ring and the armature-iron. This consists of a number of flat ribs d^3 , having stiffening-flanges d^4 and connected by strips d' d' to form a whole. The parts d' are of course as thin as possible consistent with strength, so as not to impede the circulation of air. At d^2 d^2 are shown rivet-holes by which, if desired, the space-block may be secured to one of the armature-laminations. At d d are toes formed upon the block, designed, as shown in dotted lines in Fig. 1, to project under the armature-iron and secure the block against displacement by centrifugal strains.

In Fig. 4 a portion of a bar-wound armature is shown. In this figure the toe d of Fig. 3 is replaced by lugs d^5 upon the back of the space-block.

Of course either construction could be used

with any type of armature. At *e' e'*, Figs. 1 and 4, are shown the usual binding-wires securing the coils in place.

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

1. In an armature for a dynamo-electric machine, the combination, with the end connections, of a ring supporting the said end connections and pressing outwardly against them, and means for holding the ring in place.

2. In an armature for a dynamo-electric machine, the combination, with the end connections, of an expansible insulated supporting-ring, and means for expanding the ring.

3. In an armature for a dynamo-electric machine, the combination, with the end connections for the coils, of an insulated expansible ring G, an end ring H having a flange, and screws passing through the flange and acting to expand the ring so as to secure the end connections rigidly in place.

4. As a new article of manufacture, a space-block between the armature-laminæ of a dynamo, locked against radial movement by an overlapping edge, to prevent the displace-

ment of the space-block under centrifugal strain.

5. As a new article of manufacture, a space-block having separated ribs and connecting portions, and provided with one or more lugs engaging the armature for preventing displacement of the space-block.

6. The combination with the armature-iron of a dynamo, of an end ring, a space-block between the ring and the armature-iron provided with radial spaces to promote ventilation, and an overlapping edge to prevent radial displacement under centrifugal strain.

7. The combination with the armature-iron of a dynamo, of an end ring, and a space-block between the end ring and the armature-iron provided with integral means preventing its displacement by centrifugal strain.

In witness whereof I have hereunto set my hand this 17th day of June, 1898.

HENRY G. REIST.

Witnesses:

B. B. HULL,

C. L. HAYNES.