

(No Model.)

H. G. REIST.

ARMATURE FOR DYNAMO ELECTRIC MACHINES.

No. 559,910.

Patented May 12, 1896.

FIG. 1.

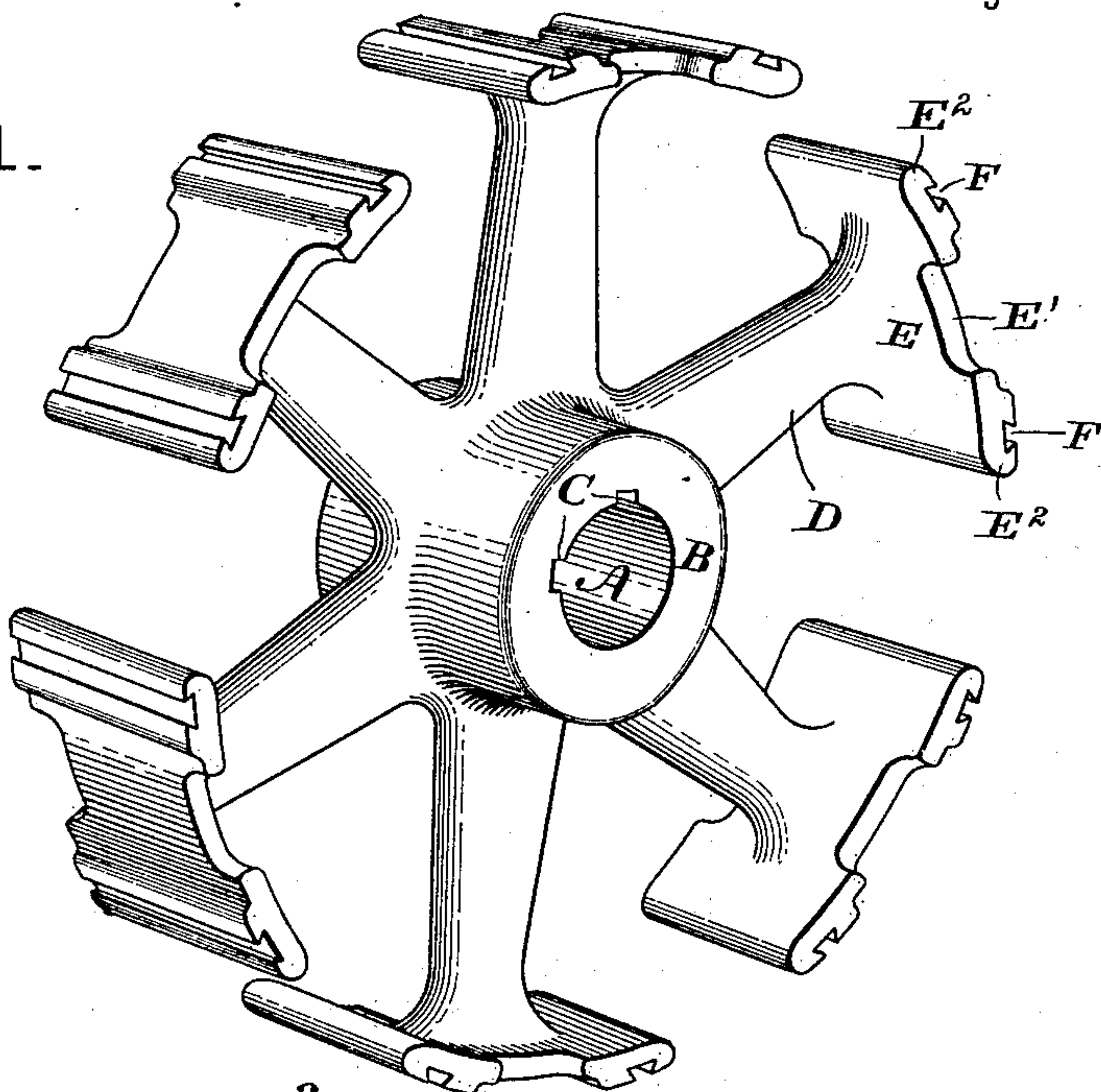


FIG. 2.

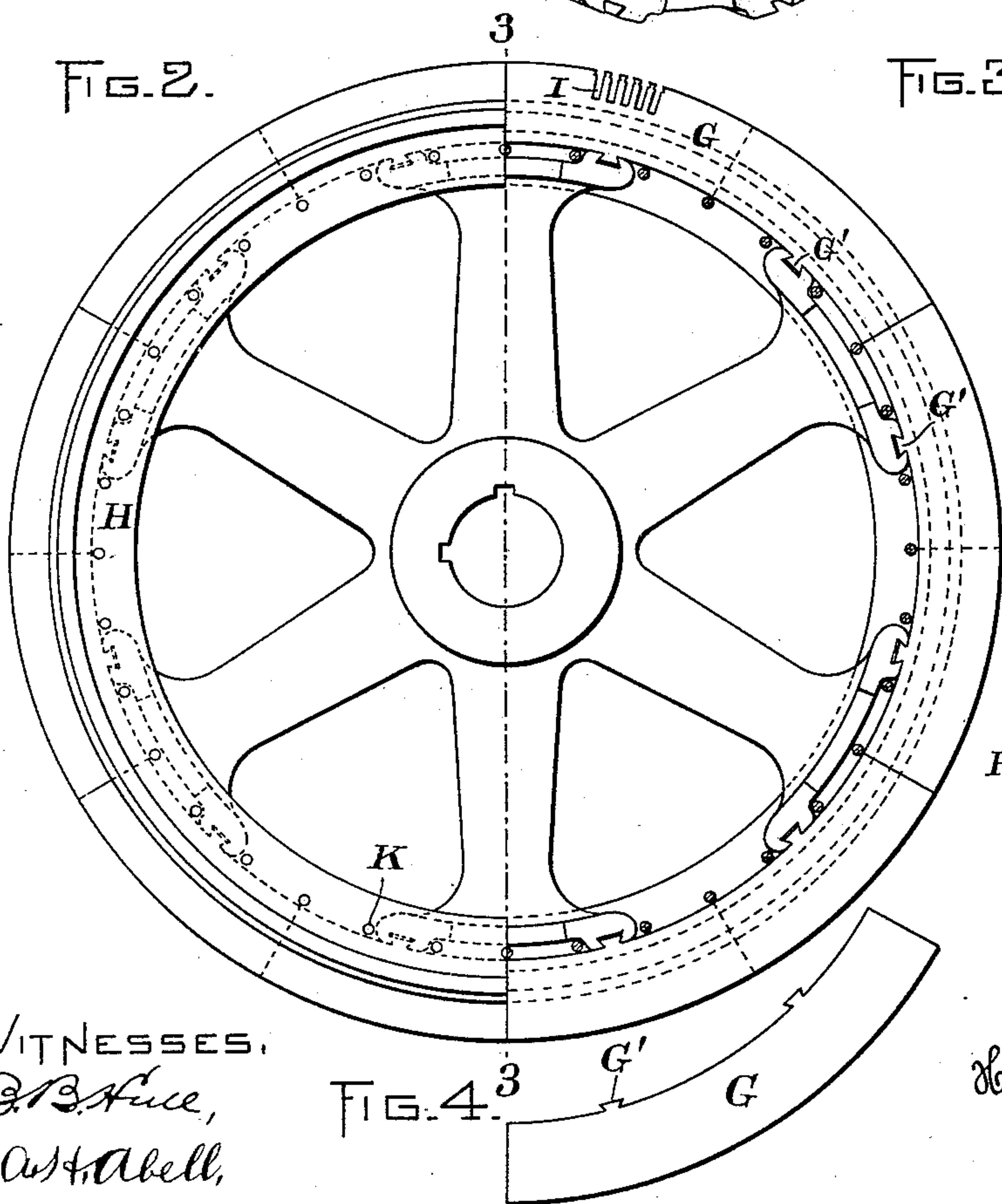


FIG. 3.

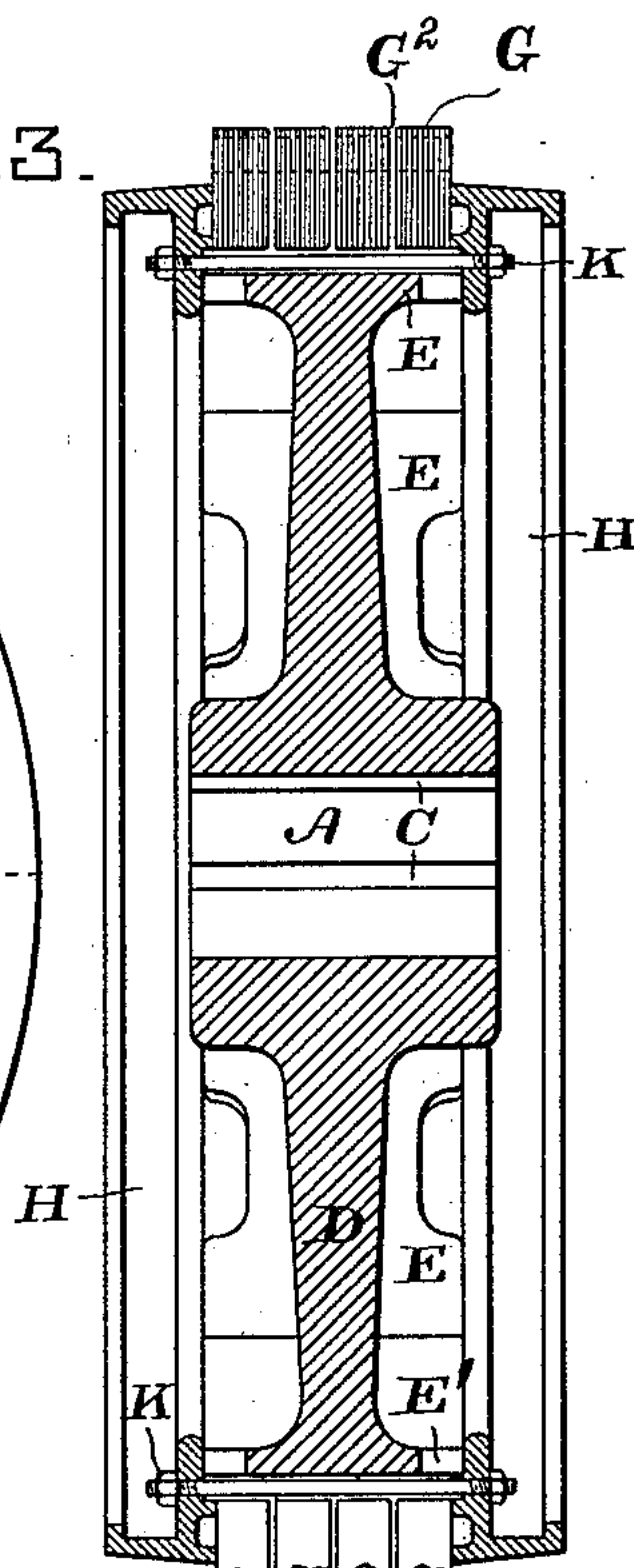
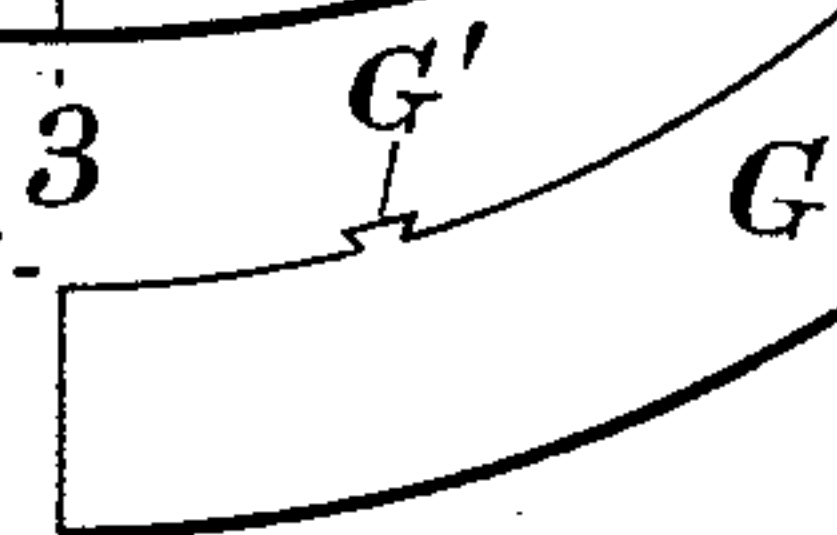


FIG. 4.



WITNESSES.

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*att'y.*



# UNITED STATES PATENT OFFICE.

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

## ARMATURE FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 559,910, dated May 12, 1896.

Application filed January 31, 1896. Serial No. 577,599. (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 for Dynamo-Electric Machines, (Case No. 360,) of which the following is a specification.

My invention relates to dynamo-electric armatures; and has for its object to provide a construction by which such armatures may be thoroughly ventilated, and also to so arrange the construction of the supporting structure or "spider," as it is commonly called, that it may be cast or otherwise formed in a single piece without strains and without distortion.

My invention further consists in the details of the construction by which I accomplish the purposes herein pointed out.

In armature-spiders as commonly constructed heretofore a number of radiating arms have been combined with a central body or hub and a rim connecting the arms. Where such structures have been cast in a single piece of large diameter, the rim and the portions adjacent thereto would cool first and take a permanent set, the arms would then cool, and later the hub, which is the largest mass of metal, would cool. The result of this has been that strains were set up in the parts of the structure, mainly in the rim and in the arms, so that in some cases it would be distorted; and it has even been known to split either in cooling or in the process of manufacture, when the outer skin would be turned off. This could be remedied by annealing, but this is an expensive and tedious process. I have therefore devised the construction herein set out. The arms being unconnected at their outer ends, except by the laminæ of the armature, as pointed out herein, are free to move under strain set up in casting, and the position of the connecting means between the laminæ and the arms might be adjusted in the course of manufacture to conform to any trifling inequalities.

The accompanying drawings show embodiments of my invention, Figure 1 being a perspective view of my improved armature-spi-

der; Fig. 2, a side elevation, partly broken away, of an armature-spider assembled, except the coils. Fig. 3 is a section upon the line 3 3 of Fig. 2, and Fig. 4 a detail.

Referring by letter, A is the bore for the shaft in the armature-spider of Fig. 1.

B is the central boss or hub.

C C are the keyways, of which two are shown.

D is one of the arms of the spider. As the six arms illustrated are alike, a description of one suffices for the others. The arm D is expanded at its outer end into a head or face E. The face of this head is cut away at E', and two enlargements E<sup>2</sup> E<sup>2</sup> are shown, in each of which is a dovetail groove or mortise F, serving to hold the laminæ of the armature in place.

The general construction of the armature is illustrated in Figs. 2 and 3 more particularly. In these figures the spider is shown with the same parts having like letters, but the laminæ are also illustrated in place. These laminæ are of the usual form, except that they are provided with projecting tongues G' G' of dovetail shape in the case illustrated, by means of which the arms of the spider are connected. The laminæ are also provided with the usual slots I for the coils of the armature. A sectional cast ring H is also used, and may be either made in several sections or may be a split ring, according to the size of the armature. Bolts K K, passing through the rings, hold the laminæ together. As best shown in Fig. 3, ventilating-spaces G<sup>2</sup> are left between the several groups of the laminæ, this being a well-known construction.

Fig. 4 shows in a separate view one of the laminæ adapted for use with my invention. It consists of a body part curved to conform to the shape of the core, having projecting tongues G', of which there may be any number, suited to the number of dovetails in which the individual lamina is designed to be placed. As shown in Fig. 2, it is intended that these laminæ shall break joints, the dotted and full lines indicating, respectively, the ends of the different laminæ.

The construction which I have briefly outlined is exceedingly efficient, in that any inequalities occurring from heating in the ar-

mature are taken up without causing undue strain, and the parts are free to move within reasonable limits, as will be readily apparent.

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

1. In combination, an armature-spider having a central boss or hub, separate arms radiating therefrom, the arms being provided upon their outer ends with dovetail grooves,  
10 and laminæ having dovetail projections fitting in the grooves, thus connecting the arms.

2. In combination, an armature-spider having a central boss or hub and separate radiating arms, the arms having dovetail  
15 grooves upon their outer ends, laminæ ar-

ranged in groups and having dovetail projections fitting in the grooves, and clamping-rings for holding the laminæ in position.

3. As a new article of manufacture, an armature-spider for a dynamo-electric machine, 20 comprising a central boss or hub, separate arms radiating therefrom, the arms having expanded faces, and dovetail grooves in the expanded faces.

In witness whereof I have hereunto set my  
hand this 29th day of January, 1896.

HENRY G. REIST.

Witnesses:

B. B. HULL,

C. L. HAYNES.