(No Model.)

C. F. BRUSH.

ARMATURE FOR DYNAMO ELECTRIC MACHINES.

No. 312,807. Patented Feb. 24, 1885.

Fig. 1.

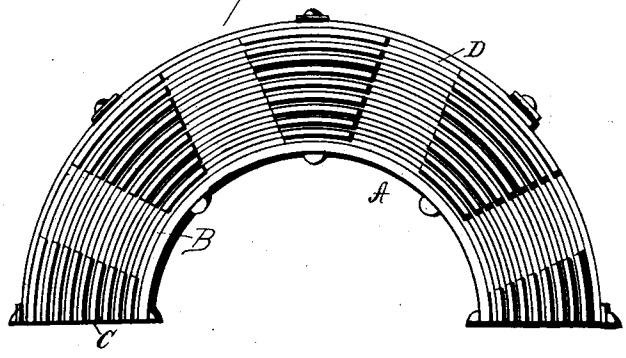


Fig. 2.

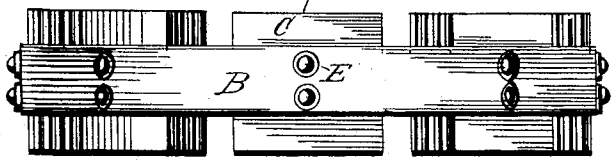


Fig. 3.

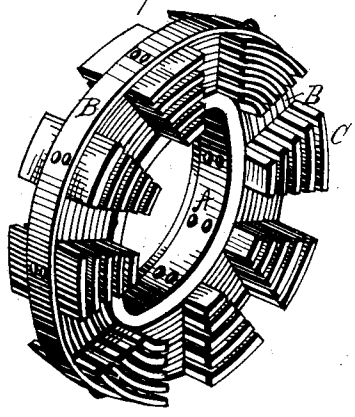


Fig. 4.

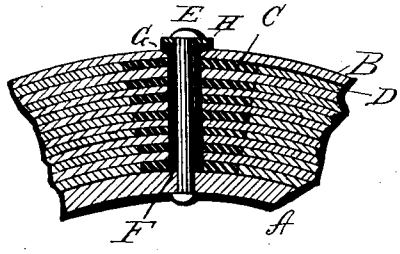
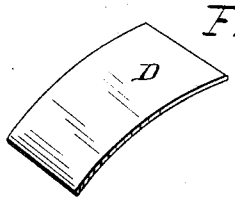


Fig. 5.



WITNESSES

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CHARLES F. BRUSH, OF CLEVELAND, OHIO.

ARMATURE FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 312,807, dated February 24, 1885.

Application filed May 13, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. BRUSH, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Armatures for Dynamo-Electric Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

Figure 1 is a side view of half of the armature-ring as it appears before the wire is wound on. Fig. 2 is a top view of the same. Fig. 3 is a perspective view of the complete ring; and Fig. 4 is a section through the armature, showing one of the rivets. Fig. 5 shows a filling-in strip.

The invention relates to certain improvements upon the armature described in Patent No. 285,457, granted to me September 25, 1883. In the said patent I described an armature-core built up of superposed bands or layers of soft iron, between which were interposed suitable cross pieces, which extended laterally to the full width of the armature, so as to form the projections between which the bobbins are wound. When so constructed, the armature-core is left with air-spaces extending from one cross-piece to another between the layers, and it is the purpose of my present invention to fill up this space with a separate strip of iron, so as to still further add to the capacity of the machine by increasing the amount of magnetic material in the armature-core. In the aforesaid patent I showed how this space might be filled with a strip connecting the two cross-pieces on either side of each bobbin-space, the strip and cross-pieces being stamped or cut out of a piece of sheet-iron in the form of the letter H. In the present construction, however, this cutting is saved, as the filling-in strip is made separate from the cross-pieces, and may be cut from ordinary band-iron.

My present improvement also relates to the rivets or bolts by means of which the layers or bands and the cross-pieces are held together; and it consists in insulating the rivets or bolts, in whole or in part, from the other metallic parts, so as to prevent the same from forming a path for the Foucault currents from one band to another, thereby diminishing the heating and increasing in a corresponding degree the efficiency of the machine.

In the drawings, A represents the base-ring upon which the band-iron is wound.

B indicates the layers of band-iron, and C the interposed cross-pieces. The band-iron may be either wound as a continuous spiral, in the manner of a roll of ribbon, the cross-pieces being interposed during the winding, or the layers may be built up in concentric rings, there being one or more separate pieces of band-iron to each ring. The cross-pieces gradually increase in width from the base-ring outward, so as to render the sides of the bobbin-spaces parallel.

D indicates the filling-in pieces, which are cut from ordinary band-iron, and after being bent, like the cross-pieces C, to correspond with the circular form of the armature, they are interposed, with the cross-pieces, in the winding or building up of the armature, so as to fill the spaces between the bands from one cross-piece to another. The filling-in strips D may be omitted during the winding or building up of the core, and afterward driven into the openings left between the bands. I prefer to coat the cross-pieces C and filling-in strips D with Japan or other insulating varnish before they are put into the armature, for the better security against Foucault currents. The same pieces may be also wrapped with paper, cloth, or other insulating envelope to further secure this object. The bands are secured to each other and to the base-ring by rivets or bolts E. F is an insulating sheath or bushing surrounding the shank of the rivet, and G is an insulating-washer under the outer head of the same. A metallic washer, H, is interposed between the rivet-head and the insulating-washer to give sufficient bearing-surface. One end of the rivet may be left uninsulated, as shown, and, if desired, one rivet only of each pair may be insulated. A suitable insulating material may be made from superposed layers of shellacked paper, the paper being rolled into the shape of a tube of a size to fit closely the rivet and the hole drilled therefor.

It will be noticed that the cross-pieces C

all extend the full distance between the bobbins, this being in some cases preferable.

I claim herein as my invention—

1. An armature formed of superposed layers of band-iron having interposed between them laterally-projecting cross-pieces that form the side walls of the bobbin-spaces, and separable filling-in strips interposed between the cross-pieces, substantially as set forth.

2. An armature-ring formed of superposed layers or convolutions of band-iron, with laterally-projecting cross-pieces interposed between the same, said cross-pieces forming the side walls of the bobbin-spaces, and rivets or bolts extending through both bands and cross-pieces, and insulated in whole or in part therefrom, substantially as set forth.

3. An armature-ring having its central part made up of superposed layers of band-iron, and having lateral extensions forming the bobbin-spaces, said extensions consisting of interposed cross-pieces extending from bobbin to bobbin the full thickness of the ring, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 23d day of April, 1884.

CHARLES F. BRUSH.

Witnesses:
E. B. PHILLIPS,
ALBERT E. LYNCH.