(No Model.)

A. SCHMID & H. M. BYLLESBY.

ARMATURE FOR DYNAMOS.

No. 383,659. Patented May 29, 1888.

Fig. 2.

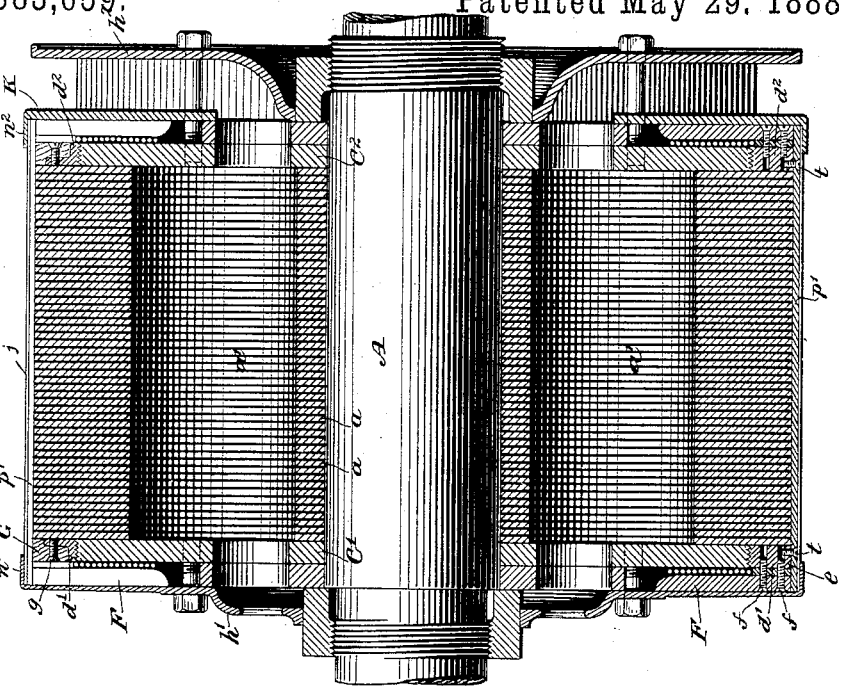
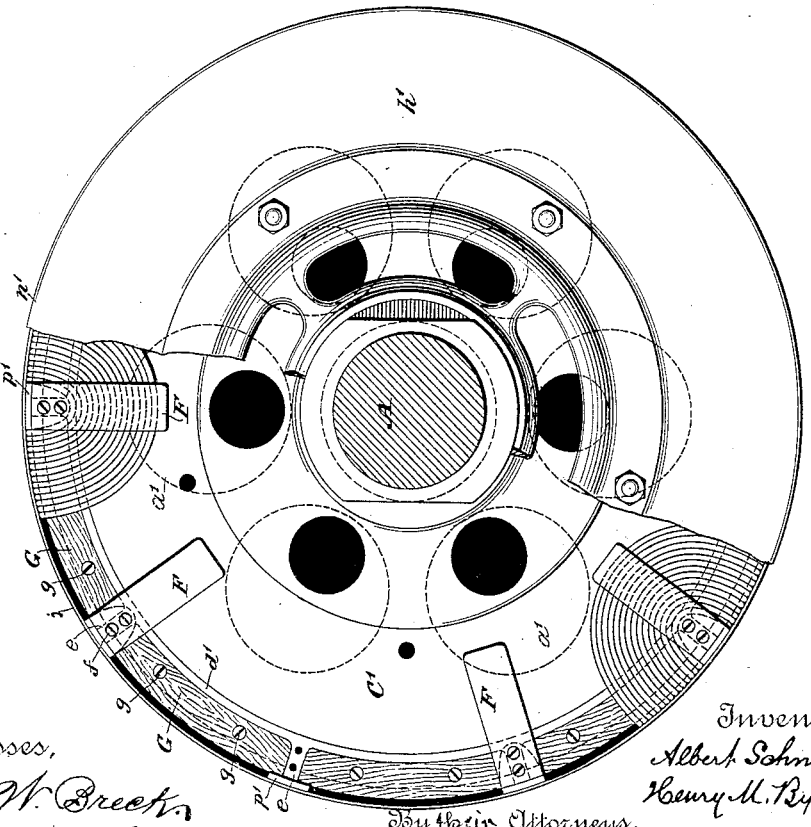


Fig. 1.



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UNITED STATES PATENT OFFICE.

ALBERT SCHMID, OF ALLEGHENY, AND HENRY M. BYLLESBY, OF PITTSBURG, ASSIGNORS TO THE WESTINGHOUSE ELECTRIC COMPANY, OF PITTSBURG, PENNSYLVANIA.

ARMATURE FOR DYNAMOS.

SPECIFICATION forming part of Letters Patent No. 383,659, dated May 29, 1888.

Application filed September 9, 1887. Serial No. 249,271. (No model.)

To all whom it may concern:

Be it known that we, ALBERT SCHMID, a citizen of the Republic of Switzerland, residing in Allegheny, and HENRY M. BYLLESBY, a citizen of the United States, residing in Pittsburg, both in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Armatures for Electric Machines, of which the following is a specification.

The invention relates to the construction of armatures for electric machines, and especially to those employed in the class known as "alternate-current" electric generators; but the improvements are also applicable to other forms of machines.

The object of the invention is to provide means for securely holding the several parts in position, providing an insulating material at such points as may be required, which will not be injuriously affected by the warmth developed in the armature, and to protect portions of the armature which have hitherto been exposed.

The invention consists, generally, in providing an armature, which is built up of insulated laminæ of soft iron, with end plates for holding the parts in position, and with a rim of brass or other suitable metal near the edges of its respective ends, which in turn holds or receives insulating-strips of wood, over which are wound the wires applied to the exterior of the armature. After the wires are applied end plates are fastened to the armature, and these are provided with flanges projecting over the faces of the armature, covering the edges and the wire as it passes over them.

The invention will be described in detail in connection with the accompanying drawings, in which—

Figure 1 is an end view of the armature, partly in section; and Fig. 2 is a transverse section of the armature provided with the improvements.

Referring to the figures, A represents the armature-shaft, and *a a* plates of soft iron mounted upon the same in the general manner described in an application for Letters Patent, Serial No. 223,099. The plates are constructed with holes *a'*, and they are bound in position by end plates, C' C^2. These plates have, also, openings through them, preferably of less size than the openings *a'*.

Upon the plates C' and C^2, respectively, there are screwed rings, preferably of brass, as shown at *d'* and d^2, respectively. These rings each consist of metallic pieces of L-shaped cross-section, in size somewhat less than the extreme diameter of the armature. They are provided at intervals with lugs extending outward to the periphery of the armature, as shown at *e*. These lugs serve to receive the screws *f*, which bind in position plates or overhanging clips F, of non-conducting material. The end clips, F, extend down upon the ends of the armature, and the wire which is wound upon the face of the armature is passed around beneath them. It has been heretofore proposed to employ such end clips; but the manner of securing them was open to the objection that they were liable to become loosened by constant use. This present improvement avoids this difficulty, as they are now secured directly to the brass ring. The wire as it is wound across the face of the armature and down beneath the clips must pass over the edges, and it is desirable that insulating material be placed along these edges or corners. For this reason strips G, of wood, are placed against the rings. These strips are bound in position by screws *g*, entering the inner portions of the rings, as shown, and the strips extend through the spaces between the lugs *e* upon the ring. It is found in practice that wood is much better in this particular portion of the machine than vulcanized fiber, which has heretofore been employed, as it is less liable to crack and become injured by the changes in temperature and atmosphere. The wire, after it has been wound in position, is preferably covered by mica, *j*, which serves to insulate it from outside objects. This insulation of mica is carried to the edges of the armature, and unless protected is liable to be broken off. For this reason it is desirable to extend over the corners or edges a metallic covering in the following manner: The armature is provided with ventilating-plates *h' h²* at its respective ends. The plate *h'* is carried upon the shaft and secured to the correspond-

ing end plate of the machine by bolts. The edge of the plate h' is then provided with an inwardly-projecting flange, n', which laps over the corner of the armature, as shown in Fig. 2, fitting tightly upon the mica insulation covering the wire. The opposite end of the armature is provided with a ventilating-plate, h^2, which is required to be open at its periphery or separated from the end of the armature, and it cannot therefore carry the flange. An inner plate, K, however, is fastened against this end of the armature. This plate is annular in form, and its inner edge is outside of the openings through the armature. It is provided with a flange, n^2, similar to the flange n' upon the plate at the opposite end of the armature, and this flange protects the edge.

In winding the coils upon the armature it is preferred to place strips of insulating material along the face parallel with the axis, as shown at p'. These strips serve to hold the convolutions apart. The ends of the strips extend beneath the flanges at the respective ends of the armature, and are thus held down. They are also secured in position by screws t, entering the brass lugs of the ring F, and thus they are prevented from becoming loosened by the jar of the machine.

We claim as our invention—

1. The combination, with the armature of an electric machine, of a ring of metal at the end of the same, lugs projecting from the ring to the periphery of the armature, and blocks of insulating material—such as wood—secured to said rim between said lugs.

2. In an armature for electric machines, composed of insulated plates of soft iron, end plates applied thereto, rings of brass or similar material screwed upon said end plates, and strips of insulating material fastened to said ring flush with the periphery of the armature.

3. In an electric machine, an armature consisting of plates of soft iron bound together, sections of insulating material secured at the respective ends and flush therewith, constituting corners for the armature over which the wire is wound, and metallic rings to which said insulating material is secured.

4. The combination, with the armature-core, of the ring d', having the lugs e, the clips secured to said lugs, and the longitudinal strips p', also secured to said lugs.

5. In an armature for electric machines, a core, inductive wire wound upon the face thereof, a layer of insulating material covering said wire, plates secured to the respective ends of the armature, and flanges upon said plates projecting over the wire and its insulation.

In testimony whereof we have hereunto subscribed our names this 1st day of July, A. D. 1887.

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