Dec. 19, 1961 M. ANDRES 3,014,146

SUPPORT FOR ROTOR COIL ENDS IN DYNAMOELECTRIC MACHINES

Filed March 17, 1958

Fig. 1.

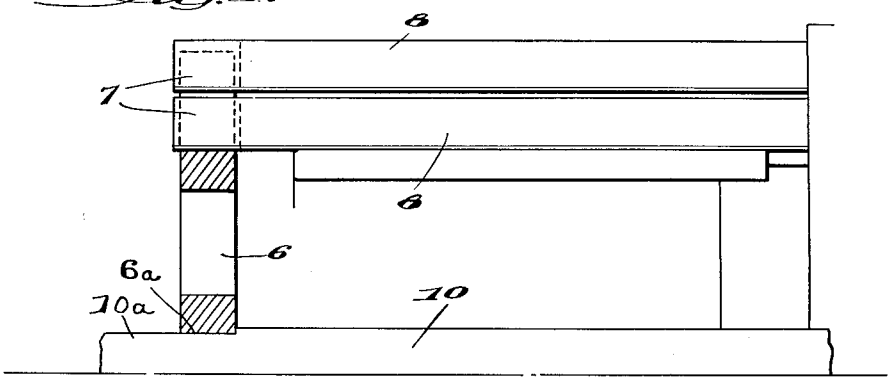


Fig. 2.

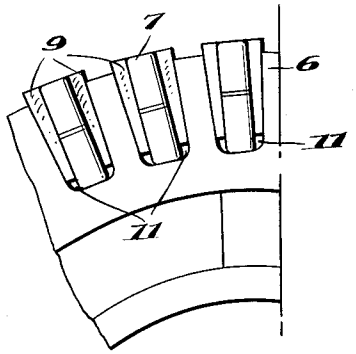


Fig. 3.

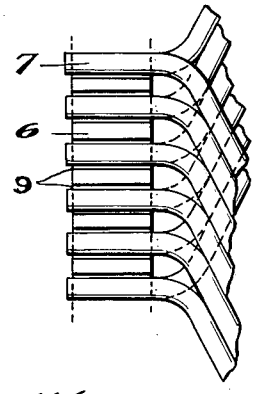


Fig. 4.

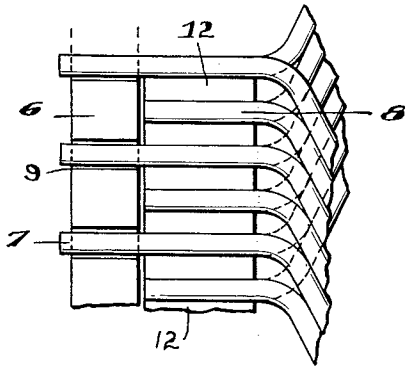
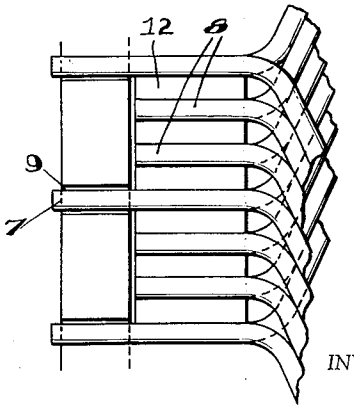


Fig. 5.



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United States Patent Office

3,014,146

Patented Dec. 19, 1961

3,014,146

SUPPORT FOR ROTOR COIL ENDS IN DYNAMOELECTRIC MACHINES

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Filed Mar. 17, 1958, Ser. No. 721,814
Claims priority, application Switzerland Mar. 18, 1957
4 Claims. (Cl. 310—270)

The present invention relates to the construction of dynamoelectric machines and more particularly to an improved construction for supporting the end portions of the coils which are wound upon the rotor element of the machine.

In conventional construction, the ends of the coils are secured upon a cylindrical winding support surface at the rotor ends by means of bandages. The pressure exerted by the bandages upon the coil ends offers security against any tangential displacement of the coil ends under normal conditions of operation, that is, normal running speed or normal changes in acceleration or deceleration of the rotor when stopping or starting in either direction. However, in cases where the rotor operates at a compartively high speed or is subject to abrupt and frequent changes in angular velocity in either direction of rotation, or the rotor has an unusually long length, the use of bandages alone to bind the ends of the rotor coils in place on the rotor ends does not offer adequate security against the relative great forces which tend to displace the coil ends tangentially.

The object of the present invention is, therefore, to provide an improved means for securing the rotor coil ends in place. In particular, this objective is attained by means of a slotted disc made of insulating material which is pushed onto each end of the rotor shaft, the slots extending radially at the periphery of the disc, and the ends of the coils being embedded in the slots by means of wedges.

The invention will become more understandable from the following detailed description of several typical embodiments in conjunction with the appertaining drawings illustrating these embodiments.

In the drawings,

FIG. 1 is a longitudinal sectional view taken at one end of the rotor showing the coil ends secured in the disc slots;

FIG. 2 is a fragmentary end elevation showing the end of the rotor and coil ends wedged into the disc slots;

FIG. 3 is a fragmentary plan view showing the end of portion of the rotor with the coil ends in the disc slots;

FIG. 4 is a view similar to FIG. 3 illustrating a modified embodiment wherein every other coil end is secured in a slot of the disc, the intermediate coil end terminating short of the disc; and

FIG. 5 is a view similar to FIG. 4, illustrating a further embodiment wherein every fourth coil is secured in a slot in the disc, the two coil ends between adjacent wedged-in coil ends terminating short of the disc.

With reference now to the drawings, the end portion of the rotor is indicated at **10** and the end portion of the rotor shaft is indicated at **10***a*. An annular disc **6** having a central opening **6***a* of substantially the same diameter as the rotor shaft, is pushed onto the end portion **10***a* of the shaft and secured thereto such as by wedging or keying so as to prevent any relative rotation between the two. The peripheral portion of the disc **6**, which is made of insulating material, is provided with a plurality of radially extending, circumferentially spaced, open-ended slots **11** which are aligned with the end portions **7** of the coils which are wound upon the rotor in conventional manner. The end portions **7** of the coils are located in the slots **11**, respectively, and secured tightly therein by any suitable means such as the wedge pieces **9** which fit between each side of the coil end **7** and the adjacent wall of the slot **11**.

In the modified embodiment illustrated in FIG. 4, every other coil end **7** on the rotor is wedged in a slot **11** in the periphery of the disc **6** and the end portions **8** of the intermediate coils which terminate short of the inner face of the disc **6** are held in place between those coil ends **7** which are wedged into the slots **11** by means of wedges **12**.

In the other modified embodiment illustrated in FIG. 5, every fourth coil end **7** on the rotor is wedged in a slot **11** in the periphery of the disc **6** and the end portions **8** of the intermediate coils which terminate short of the inner face of the disc **6** are held in place between those coil ends **7** which are wedged in the slots **11** by means of wedges **12**.

In conclusion, it is to be understood that the foregoing embodiments which have been described are to be considered typical rather than limitative of the inventive concept as defined in the appended claims.

I claim:

1. In a rotor construction for a dynamoelectric machine of the type wherein the rotor winding is composed of insulated coils having their end portions electrically interconnected, a slotted disc of insulating material secured upon the rotor shaft at the end portions of the rotor coils, said slots in said disc extending radially at the periphery and being circumferentially spaced, and the end portions of said coils being secured tightly in said disc slots.

2. A rotor construction as defined in claim 1 and wherein wedges are inserted between the sides of the coil ends and the side walls of the disc slots to secure the coil ends tightly in place in said slots.

3. A rotor construction as defined in claim 1 wherein said disc includes a slot individual to each coil end.

4. A rotor construction as defined in claim 1 wherein said disc is provided with slots for and receiving less than the total number of coil ends, the ends of the other coils between the coil ends secured in said slots terminating short of the inner side of said disc, and wedge means inserted between said other coil ends and the coil ends secured in said disc slots.

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