M. SANDFIELD.

COIL RETAINING DEVICE.

APPLICATION FILED DEC. 14, 1915.

1,311,466.

Patented July 29, 1919.

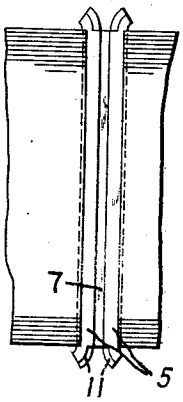


Fig. 3.

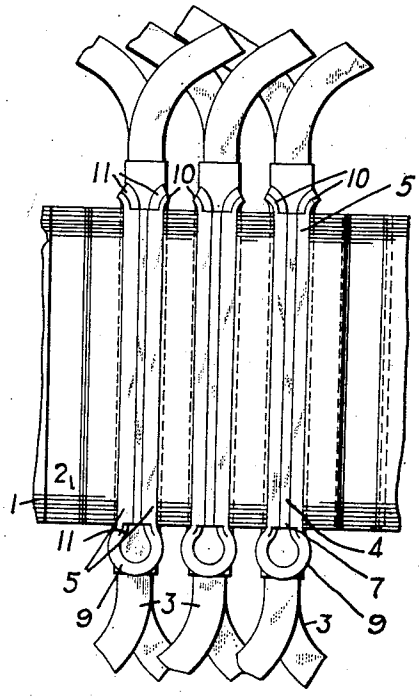


Fig. 1.

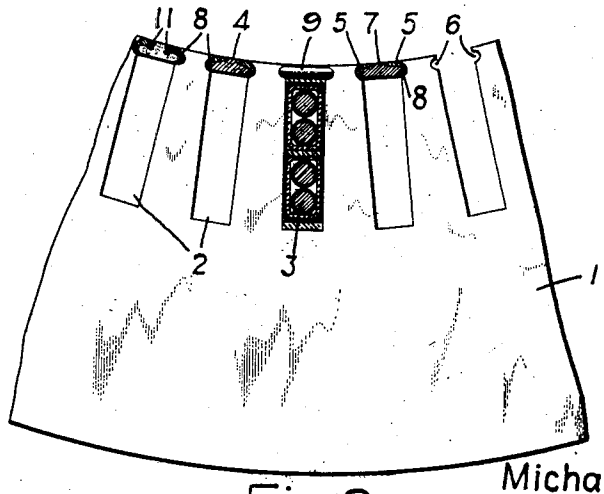


Fig. 2.

WITNESSES:

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UNITED STATES PATENT OFFICE.

MICHAEL SANDFIELD, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

COIL-RETAINING DEVICE.

1,311,466. Specification of Letters Patent. Patented July 29, 1919.

Application filed December 14, 1915. Serial No. 66,748.

To all whom it may concern:

Be it known that I, MICHAEL SANDFIELD, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Coil-Retaining Devices, of which the following is a specification.

My invention relates to dynamo-electric machines and especially to magnetizable core members which are provided with coil-containing slots.

The object of my invention is to provide a simple and durable means for effectually holding the coils of open-slot machines in position against the action of centrifugal, magnetic and other forces tending to displace them and, at the same time, to provide the operating advantages which pertain to machines having partially closed slots.

In Patent No. 1,042,408, granted to the Westinghouse Electric & Manufacturing Company on October 29, 1912, upon an application filed by R. J. Dearborn, is described a general type of coil-retaining device upon which the present invention is an improvement.

According to the present invention, I provide a coil-retaining device that is prevented from longitudinal movement within the core slot by bending portions of the members comprising the device laterally at the ends of the slot. In addition, other portions of the members are interlocked to prevent relative movement thereof.

In the accompanying drawings, Figure 1 is a plan view of a portion of a dynamo-electric machine embodying my invention; Fig. 2 is a view, partially in section and partially in side elevation, of the parts shown in Fig. 1, and Fig. 3 is a fragmentary view similar to Fig. 1, showing a modification of my invention.

A magnetizable core structure 1 is provided with a plurality of peripheral slots 2 in which suitable coils 3 are located and in which they are secured by coil-retaining devices 4. Each coil-retaining device 4 comprises magnetizable side strips 5 having their outer edges provided with longitudinal beads which are adapted to engage semi-cylindrical grooves 6 near the open sides of the slots 2 and a key member 7 of non-magnetizable material which is adapted to fit between adjacent side strips 5 and wedge them closely into the grooves 6 of the slot. Suitable insulating material 8 is located between the devices 4 and the side walls of the slots.

In applying a coil-retaining device 4 to a dynamo-electric machine after the coils are in position, the magnetizable side strips 5 are preferably formed from a single piece of material that is bent at the middle to produce a substantially U-shaped member, as best shown in Fig. 1. Portions of the side strips 5 adjacent to the loop portion 9 are expanded outwardly, so that, when the side strips 5 are inserted in the slots 2, the expanded loop portion 9 prevents the strips 5 from passing through the slot. The strips 5 are so proportioned that equal portions 10 thereof will project beyond one end of the slot when the loop portion 9 abuts the opposite end. The key member 7 is then forced into place so that the side strips 5 are pressed firmly against the side walls of the slot, the length of the key member 7 being substantially the same as that of the slot 2. Relative movement of the side strips 5 and the key member 7 is prevented by depressing portions of the side strips adjacent the ends of the key member by means of a suitable tool, as best shown at 11 in Fig. 2. The straight portions 10 of the strips 5 projecting beyond the end of the slot are then bent around the corners formed by the faces of the core structure and the walls of the slot, thereby clamping the coil-retaining device, as a whole, in position and preventing any longitudinal movement thereof within the slot.

A modification of my invention is shown in Fig. 3 wherein independent side strips 5 are arranged in the slot 2 so that equal portions thereof project beyond the ends of the slot. The projecting portions 10 are then bent as described with reference to Fig. 1.

Since various structural modifications may be effected within the spirit and scope of my invention, I desire that only such limitations shall be imposed thereon as are indicated in the appended claims.

I claim as my invention:

1. In a dynamo-electric machine, the combination with a magnetizable core member having a plurality of coil-containing slots, of devices for holding the coils in position, each of which comprises side members and a key member forced between said side mem-

bers for holding them against the walls of the slot, portions of said side members being bent laterally at the ends of the slot to prevent movement of the device therein, and other portions thereof being bent radially to prevent relative movement between said side members and said key members.

2. In a dynamo-electric machine, the combination with a magnetizable core member having a plurality of coil-containing slots, of devices for holding the coils in position, each of which comprises a continuous strip having a loop portion of greater width than the slot, and a key member for holding parallel portions of said strip against the walls of the slot, other portions of said strip being bent laterally at the ends of the slot to prevent movement of the device therein.

3. In a dynamo-electric machine, the combination with a magnetizable core member having a plurality of coil-containing slots, of devices for holding the coils in position, each of which comprises a continuous magnetizable strip and non-magnetizable key member for holding parallel portions of said strip against the walls of the slot, other portions of said strip being bent laterally at the ends of the slot to prevent movement of the device therein.

4. In a dynamo-electric machine, the combination with a magnetizable core member having a plurality of coil-containing slots, of devices for holding the coils in position, each of which comprises a U-shaped member and a key member forced between the sides of said U-shaped member for holding them against the walls of the slot, portions of the sides of said U-shaped member being bent laterally at the ends of the slot to prevent movement of the coil-retaining device therein.

5. In a dynamo-electric machine, the combination with a magnetizable core member having a plurality of coil-containing slots, of devices for holding the coils in position, each of which comprises side members and a key member forced between said side members for holding them against the walls of the slot, portions of said side members being displaced to prevent relative movement of said side members and said key members.

6. In a dynamo-electric machine, the combination with a magnetizable core member having a plurality of coil-containing slots, of devices for holding the coils in position, each of which comprises side members and a key member forced between said side members for holding them against the walls of the slot, portions of said side members being displaced to prevent relative movement of said side members and said key members and other portions of said side members being bent laterally at the ends of the slot to prevent movement of the device, as a whole, therein.

In testimony whereof I have hereunto subscribed my name this 9th day of Dec., 1915.

MICHAEL SANDFIELD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."