No. 784,032. PATENTED MAR. 7, 1905.

J. BURKE.

LAMINATED CORE FOR DYNAMO ELECTRIC MACHINES.

APPLICATION FILED MAR. 9, 1904.

Fig. 1

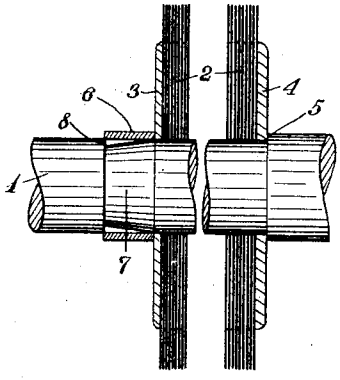


Fig. 2

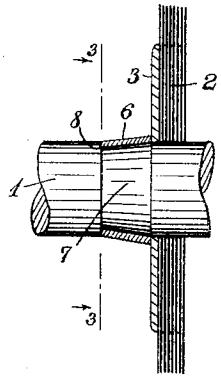


Fig. 3

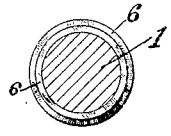


Fig. 4

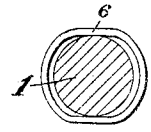


Fig. 8

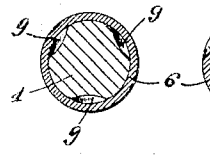


Fig. 9

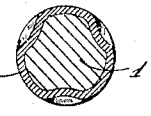


Fig. 5

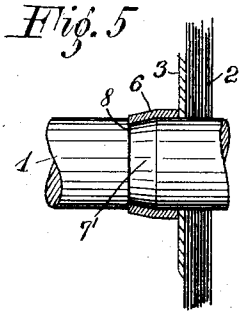


Fig. 6

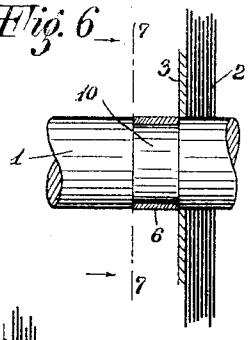


Fig. 7

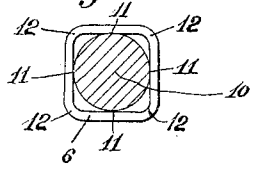


Fig. 10

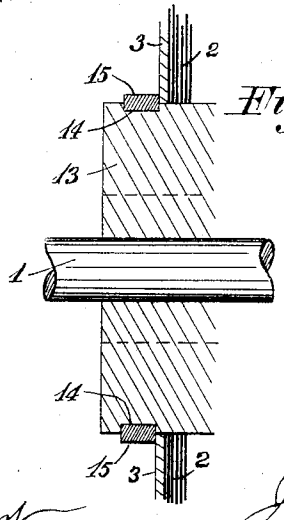
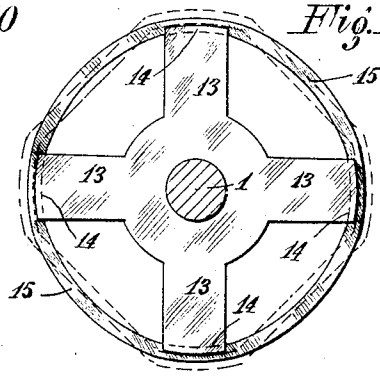


Fig. 11



Witnesses
Anthony J. Ernest,
George N. Kerr.

James Burke Inventor
By his Attorney C. V. Edwards.

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No. 784,032. Patented March 7, 1905.

UNITED STATES PATENT OFFICE.

JAMES BURKE, OF NEW YORK, N. Y., ASSIGNOR TO BURKE ELECTRIC COMPANY, A CORPORATION OF NEW JERSEY.

LAMINATED CORE FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 784,032, dated March 7, 1905.

Application filed March 9, 1904. Serial No. 197,230.

To all whom it may concern:

Be it known that I, JAMES BURKE, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Laminated Cores for Dynamo-Electric Machines, of which the following is a full, clear, and exact specification.

My invention relates to dynamo-electric machinery, and particularly to the construction of the laminated cores and the means for retaining the laminæ in place.

The object of my invention is to provide a construction in which the cost of labor and materials is reduced to a minimum, the construction being one of great simplicity and in which the parts may be easily and quickly assembled.

In general the means consists of a support upon which the laminæ are assembled and a collar or ring adapted to be slipped upon said support and to be wholly or partially forced into recesses in the support while the laminæ are being pressed together by some temporary means.

The details of my invention will be understood from the following description and accompanying drawings, and the novelty thereof will be more definitely set forth in the claims.

In the drawings, Figure 1 is a longitudinal section of part of an armature-core embodying my invention and showing the condition before the retaining-collar is forced in final position. Fig. 2 is a similar section showing the retaining-collar in final position. Fig. 3 is a section on line 3 3 of Fig. 2. Fig. 4 is a section similar to that of Fig. 3, showing a modification. Figs. 5 and 6 are sections similar to Fig. 2, showing modified forms of construction. Fig. 7 is a section on line 7 7 of Fig. 6. Figs. 8 and 9 are similar sections showing another modification, Fig. 8 showing the parts before the collar is forced into place. Fig. 10 is a longitudinal section of a part of an armature-core, showing one form in which my invention may be applied to large machines. Fig. 11 is an end view of Fig. 10.

Referring to the construction shown in Figs. 1 to 4, inclusive, the shaft of the rotating element is shown at 1, upon which is assembled the laminæ 2 of the core of the rotating element. The laminæ are clamped between the end plates 3 and 4. The shaft is shown in Fig. 1 as having the shoulder 5, against which the end plate 4 seats. The end plate 3 is retained in position after the laminæ have been forced together by the ring or collar 6. This ring or collar is made of malleable metal or alloy—such as wrought-iron, soft steel, brass, &c.—depending upon the size of the machine and the degree of strength required. The collar is made circular in form and of a diameter sufficiently large to permit the collar to be slipped over the shaft. Adjacent to the end plate 3 the shaft is partly cut away, as shown at 7, the groove formed being angular, tapering from the full size of the shaft at the end plate and forming the shoulder 8.

In assembling, the plate 4 and laminæ are first placed on the shaft and afterward plate 3. When the laminæ are pressed together by temporary external means, the collar 6 is slipped over the shaft, as shown in Fig. 1. The outer edge of the collar may then be forced into the groove 7 and seat against the shoulder 8, as shown in Figs. 2 and 3. Instead of forcing the entire outer edge into the groove only portions thereof may be forced inwardly. Such a construction is shown in Fig. 4, where diametrically opposite portions of the collar are forced toward each other; but it is evident that other parts might also be forced inwardly, if desired.

Fig. 5 illustrates a modified arrangement in which the groove 7′ instead of tapering from the plate 3 begins to taper a short distance away.

Figs. 6 and 7 illustrate a construction in which the groove 10 instead of being tapering is of the same diameter at all parts. The collar is forced into the groove at a plurality of points, as shown at 11, and the projecting parts 12 engage the end plate.

Figs. 8 and 9 illustrate a construction in which instead of using a continuous groove there are small cut-away portions 9, into which parts of the collar 6 are turned, as shown in Fig. 9.

Figs. 10 and 11 show a construction in which the shaft 1 carries a spider, having the arms 13, on which are assembled the laminæ and the end plates. The arms are grooved adjacent to the end plates, as shown at 14. The collar 15 is first shaped into the form shown in dotted lines in Fig. 11 and slipped over the arms, and the parts opposite the arms are then forced into the grooves and the collar made to assume a circular form, as shown. If desired, however, the parts intermediate the arms, may be forced inwardly, and the collar 15 thus does not necessarily assume a circular form.

The simplicity of my construction is apparent, and no additional means is necessary to retain the collar in place. It is evident that instead of providing the shoulder 5 on the shaft, as shown in Fig. 1, the collar may be used as the retaining means, the construction then being the same at each end of the core, and the diameter of the shaft is uniform throughout its length. This has the advantage of allowing the bearings to be made of the same size. Moreover, the strength of the shaft is not seriously decreased by the slight cut-away portions.

My invention may be applied to external stationary cores, as well as to those mounted on rotating shafts, the parts being simply inverted, and I consider such a construction to be within the scope of the claims. The retaining means may also be applied to any part of the machine where a fastening of this nature is required, and where more than one support is used, as in cases of machines of larger diameter, each support may be provided with the fastening means herein described.

Obviously various other changes may be made in the form of construction without departing from the spirit of my invention, and I wish it understood that the scope thereof is not confined to the particular constructions shown.

Having thus described my invention, I declare that what I claim as new, and desire to secure by Letters Patent, is—

1. In a dynamo-electric machine, the combination with the laminated core and support therefor, said support having a grooved portion, of a collar or closed ring adapted to be forced into said grooved portion for retaining the laminæ in place, substantially as described.

2. In a dynamo-electric machine, the combination with the laminated core and support therefor, said support having a grooved portion, of a collar of malleable material adapted to be forced into said grooved portion for retaining the laminæ in place, substantially as described.

3. In a dynamo-electric machine, the combination with the laminated core and support therefor, said support having a grooved portion, of a yieldable collar adapted to be forced into said grooved portion for retaining the laminæ in place, substantially as described.

4. In a dynamo-electric machine, the combination with the laminated core and support therefor, said support having a grooved portion, of a yieldable collar, said collar being adapted to be partially forced into said grooved portion, for retaining the laminæ in place, substantially as described.

5. In a dynamo-electric machine, the combination with the laminated core and support therefor, said support having a grooved portion, of a collar of malleable material, said collar being adapted to be partially forced into said grooved portion, the remaining portion engaging the core for retaining the laminæ in place, substantially as described.

6. In a dynamo-electric machine, the combination of a support having a grooved portion, a laminated core thereon, an end plate, and a collar of yieldable material adapted to be partially forced into said grooved portion in said support for retaining the laminæ in place, substantially as described.

7. In a dynamo-electric machine, the combination of a support having a grooved portion, a laminated core thereon, and means for retaining the laminæ in place comprising a malleable collar located in said grooved portion, substantially as described.

8. In a dynamo-electric machine, the combination of a support having a cut-away portion, a laminated core thereon, and means for retaining the laminæ in place comprising a malleable collar adapted to be partially forced into said cut-away portion, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES BURKE.

Witnesses:
ANTHONY J. ERNEST,
GEORGE N. KERR.