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A. F. WELCH

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DYNAMO ELECTRIC MACHINE

Filed March 25, 1930

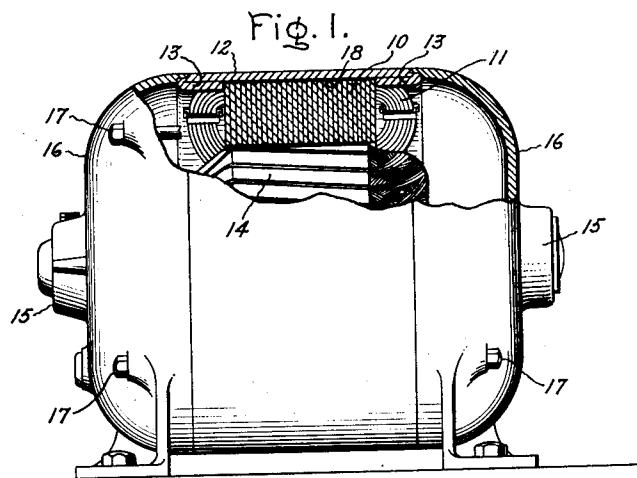
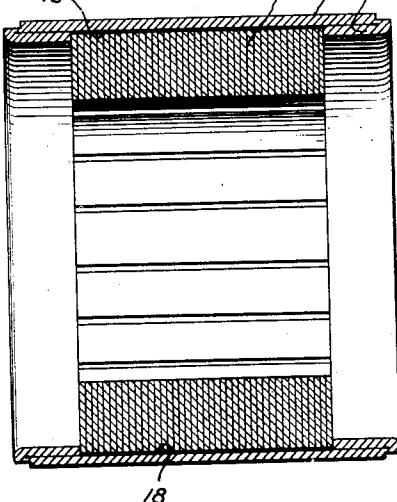


Fig. 2.



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## UNITED STATES PATENT OFFICE

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## DYNAMO ELECTRIC MACHINE

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My invention relates to dynamo-electric machines of small size of the type including a laminated core structure which is secured in a shell.

5 In making small stationary members for dynamo-electric machines of this type heretofore, it was found that a large percentage of the stationary members manufactured have had to be rejected after the machines

10 were completed because of their being noisy in operation. Every possible precaution was taken in the manufacture of these machines to obtain quiet operation such as making the parts accurately to the required dimensions,

15 making the rotor exactly concentric with respect to the stator, and making the air gap uniform, but even with these precautions a large percentage of the stationary members had to be rejected.

20 The object of my invention is to provide a stator construction for small dynamo-electric machines of the type above referred to, which will be quiet in operation. I accomplish this by providing a unitary laminated 25 core structure having a shell secured about the same and united therewith to prevent their vibrating with respect to each other. In this way the stationary member constitutes a solid mass which produces a clear 30 ringing note when struck as compared with a dull clattering sound in a stationary member in which the shell is not united with the core structure, and I have found that this characteristic difference gives a clear 35 indication as to whether or not the stationary member will make the dynamo-electric machine noisy in operation.

40 My invention will be more fully set forth in the following description referring to the accompanying drawings, and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

45 In the drawings Fig. 1 is a side elevation of a small dynamo-electric machine embodying my invention, and Fig. 2 is a longitudinal section of the stationary member of the machine.

50 Referring to the drawings, I have shown

my invention in connection with a small dynamo-electric machine including a slotted core structure 10 having windings 11 arranged thereon. This core structure is supported in a thin cylindrical steel shell 12 which closely fits the outer periphery of the core structure and has its edges folded inwardly as indicated at 13 so as to securely clamp the core structure 10 between the opposing inturned edges of the shell. The rotatable member 14 of the machine includes a shaft which is supported in bearings 15 in the end-heads 16. The end-heads are secured to the shell 12 by bolts 17 which secure the entire structure together.

55 In manufacturing these stationary members it has been found that vibration of the shell 12 with respect to the annular core structure 10 causes the machine to be noisy in operation. When the annular core structure and the shell are not united they do vibrate with respect to each other and this may readily be detected by striking the shell as it then gives a dull clattering sound. In accordance with my invention, therefore, I 60 unite the shell 12 and the annular core structure 10 so that they constitute a solid mass which gives a clear musical note when struck. I prefer to unite the annular core structure and the shell by coating one or the other with 65 a layer of material such as a phenolic condensation product indicated at 18, so that when the shell and core structure are secured together that the layer of material solidifies and unites the core structure 10 and the shell 12, or so completely fills the space between them that the shell and the core structure 70 constitute a solid mass. It will be understood, of course, that if desired the coating 75 18 may be applied after the shell and core structure are assembled by directing it into the space between them under pressure.

80 All though I have shown my invention in connection with a dynamo-electric machine 85 of a particular type, I do not desire to be limited thereto, and I intend in the appended claims to cover all modifications which do not depart from the spirit and scope of my 90 invention.

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What I claim as new and desire to secure by Letters Patent of the United States is:

- 5 1. A stationary member for dynamo-electric machines including a laminated core structure, a thin metal shell secured about said core structure, and means including a layer of phenolic condensation product entirely filling the space between said core structure and said shell for preventing their 10 vibrating with respect to each other.
- 15 2. A stationary member for dynamo-electric machines including a laminated core structure, means including a thin metal shell surrounding the entire periphery of said core structure for supporting the same, and a thin hardened layer of phenolic condensation product between said core structure and said shell and conforming thereto for preventing vibration of said shell and said core structure with respect to each other.
- 20 3. A stationary member for dynamo-electric machines including an annular laminated core structure, a thin metal shell closely fitting the periphery of said core structure, 25 said shell having the edges thereof turned inwardly to secure said core structure between them, and a thin rigid layer of a phenolic condensation product between said core structure and said shell, said layer of material being united to said shell and said core structure to prevent their vibrating with respect to each other.

In witness whereof, I have hereunto set my hand this 21st day of March, 1930.

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ALFRED F. WELCH.

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