Nov. 25, 1930. P. TROMBETTA 1,782,521

MAGNETIC CORE

Filed Nov. 26, 1929

Fig. 1.

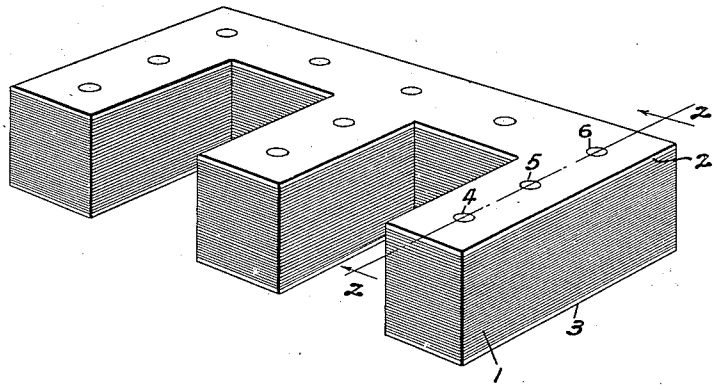
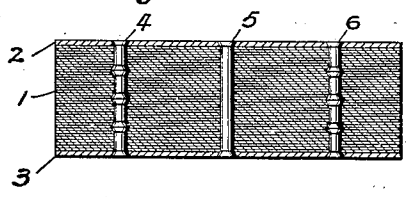


Fig. 2.



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UNITED STATES PATENT OFFICE

PANFILO TROMBETTA, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK

MAGNETIC CORE

Application filed November 26, 1929. Serial No. 409,971.

My invention relates to construction of cores for alternating current apparatus, particularly to the construction of cores for solenoids, magnets, transformers, reactors and the like made up of a plurality of laminations.

In the present cores built up of laminations it is difficult, particularly in the case of high silicon steel, to rivet a thick stack of laminations tightly.

Loosely riveted laminations, the result of thick stacks, have the objection of humming and this defeats the construction of quiet laminated solenoids and magnets.

Further, due to the fact that the rivets of necessity extend clear through all the laminations, the thicker the stack of laminations, the higher is the induced voltage in the rivets.

It is an object of my invention to produce a thick stack of laminations and to have such stacks consisting of tightly bound laminations.

It is a further object of my invention to reduce the length of the majority of the rivets by my particular construction, thus reducing the induced voltage in the rivets of thick stacks.

A further object of my invention is the provision of a thick stack in which noise and humming is eliminated.

My invention will be better understood from the following description when considered in connection with the accompanying drawing and its scope will be pointed out in the appended claims.

In the accompanying drawing, Fig. 1 represents a magnetic core embodying my invention. Fig. 2 represents a section taken along the line of 2—2 of Fig. 1 showing the peculiar construction embodied in my invention.

In the preferred embodiment of my invention, separate sections of a given thickness of laminations are riveted together to make thin stacks necessitating the use of only short rivets. These sections are then riveted together by means of longer rivets to form the desired thickness. Thus, a majority of the rivets are short and the laminations are tightly riveted together. This simple construction results in a very effective finished product.

Referring specifically to the drawings, Fig. 1 shows a core made up of a plurality of laminations designated by the numeral 1. The method of building up the stack is shown more clearly in Fig. 2 which will be discussed later. The laminations are then clamped between two thicker laminations of the same shape designated by the numerals 2 and 3. The rivets 4, 5 and 6 bind the sections together to form the finished stack as shown in Fig. 1.

Referring to Fig. 2, it will be seen that the rivets such as 4 and 6 do not extend clear through the entire stack of laminations. These rivets are short and clamp together only a few of the laminations. This, of course, results in a tightly clamped section. If desired, each section could have clamped thicker laminations on the outside thereof. After these sections have been assembled the sections are placed one upon the other to form a core of a desired thickness. These sections are then clamped together by means of the upper and the lower plates 3 and 4 and the long rivets such as 5.

It will thus be seen that in the construction disclosed in my invention, the core will be made up of a number of tightly clamped together laminations. This construction eliminates humming and noise as well as reduces the induced voltage in the rivets.

The embodiment of the invention illustrated and described herein has been selected for the purpose of clearly setting forth the principles involved. It will be apparent, however, that the invention is susceptible of being modified to meet different conditions encountered in its use and I, therefore, aim to cover by the appended claims all modifications within the true spirit and scope of my invention.

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

1. A magnetic core comprising a stack of laminations, means for tightly fastening said laminations into separate groups to prevent humming of the laminations in each group

and means for tightly fastening said groups together to prevent humming of the stack.

2. A tightly riveted magnetic core for electrical apparatus comprising a stack of laminations, rivets for tightly fastening the laminations into separate groups to prevent humming and separate means for clamping the separate groups together to form a single stack.

3. A magnetic core comprising a number of groups of laminations, rivets for tightly riveting said laminations together into a group said groups placed together to form a single stack, and a thick lamination on each side of the stack between which said groups are tightly clamped to form a tight laminated core.

In witness whereof, I have hereunto set my hand this 23rd day of November, 1929.

PANFILO TROMBETTA.