March 21, 1933. O. DAHL ET AL 1,902,491

MAGNETIC CORE

Filed Nov. 11, 1932

Fig. 1.

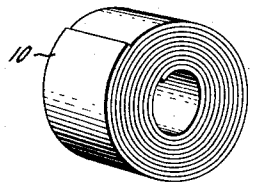
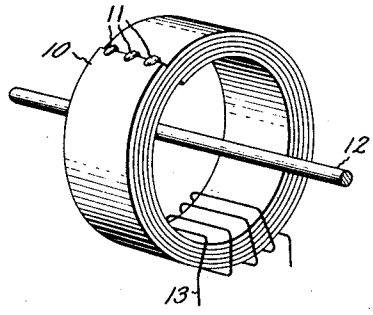


Fig. 2.



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UNITED STATES PATENT OFFICE

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MAGNETIC CORE

Application filed November 11, 1932, Serial No. 642,306, and in Germany November 12, 1931.

Our invention relates to magnetic cores such as are used in small transformers, reactors and the like, and its general object is to provide an improved method for producing a magnetic core of this general type.

Magnetic cores have already been produced by rolling or coiling a strip of magnetic sheet material into annular form. This method of forming a magnetic core is of advantage in that there is little or no waste material and the strip may be easily produced with the grain of the material extending lengthwise of the strip and therefore in the direction of the magnetic flux in the finished core. In forming these strip cores according to the previous practice, however, there has been the disadvantage, particularly in the case of cores of small diameter, that the strips of magnetic material forming the core have been under elastic stresses which affected adversely the magnetic properties of the core and particularly the hysteresis losses.

The present invention provides a process for producing a magnetic core formed by winding or coiling a strip of sheet magnetic material in such manner that the magnetic properties of the core are not affected by any elastic stresses in the core material.

The invention will be better understood from the following description taken in connection with the accompanying drawing in which Fig. 1 is a perspective view of a strip of magnetic sheet material which has been coiled or wound into annular form, and Fig. 2 is a diagrammatic perspective view of a transformer including the finished core and primary and secondary winding. Similar reference characters indicate like parts in both figures of the drawing.

In forming a magnetic core in accordance with the present invention, a strip of magnetic sheet material 10 is first wound into annular form, as shown in Fig. 1, to a diameter considerably smaller than the desired diameter of the finished core. The coiled strip is then permitted to expand to the desired diameter, as shown in Fig. 2. The outer end of the strip 10 may be held in place by small spot welds 11. In some cases it may be desirable to wind the strip 10 and allow it to expand while it is heated to a temperature of from 100° to 350° C. The completed core may be provided with primary and secondary windings 12 and 13 respectively.

The invention has been explained by describing the process of forming the particular magnetic core shown in the drawing, but it will be apparent that changes may be made without departing from the spirit of the invention or the scope of the appended claims.

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

1. A method for making an annular magnetic core, said method including the steps of winding a strip of magnetic sheet material into annular form and to a diameter smaller than the desired diameter of the finished core, and then permitting the wound strip to expand to the desired diameter.

2. A method for making an annular magnetic core, said method including the steps of heating a strip of magnetic sheet material to a temperature between 100° and 350° C., winding the strip of magnetic sheet material into annular form while still heated and to a diameter smaller than the desired diameter of the finished core, and then permitting the wound strip to expand while still heated to the desired diameter.

In witness whereof, we have hereunto set our hands.

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JOACHIM PFAFFENBERGER.