June 27, 1933. J. J. FRANK 1,915,988

METHOD OF PRODUCING MAGNETIC CORE PUNCHINGS

Filed March 16, 1932

Fig. 1.

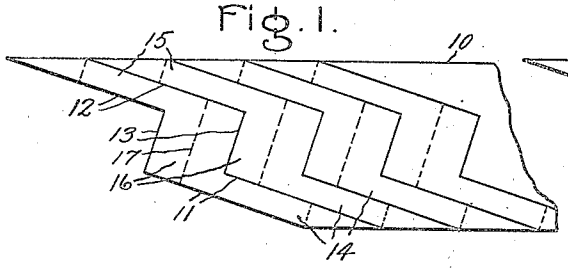


Fig. 2.

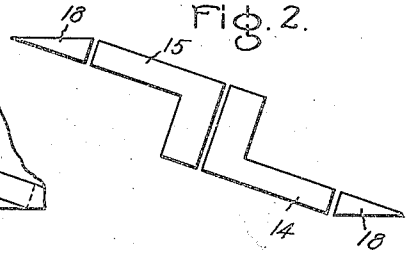


Fig. 3.

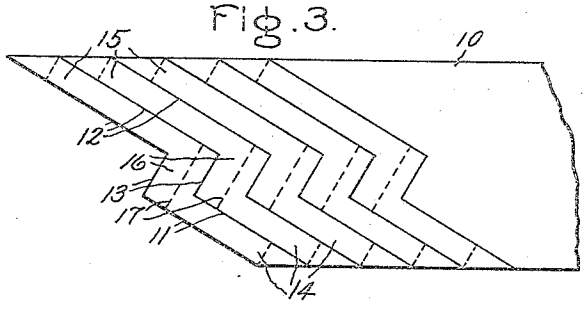


Fig. 4.

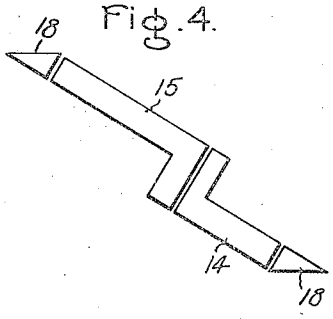


Fig. 5.

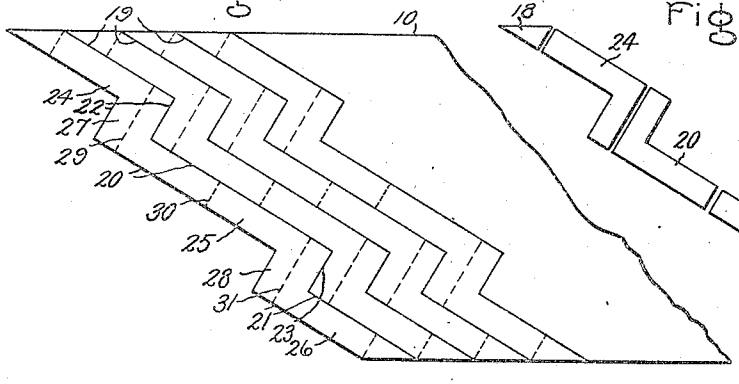
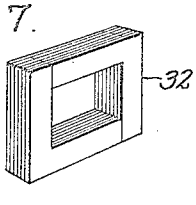


Fig. 6.

Fig. 7.



Inventor:
John J. Frank,
by Charles W. Mullen
His Attorney.

Patented June 27, 1933 1,915,988

UNITED STATES PATENT OFFICE

JOHN J. FRANK, OF PITTSFIELD, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK

METHOD OF PRODUCING MAGNETIC CORE PUNCHINGS

Application filed March 16, 1932. Serial No. 599,108.

My invention relates to a method of producing magnetic core punchings such as are used in cores for transformers and reactors and more particularly to a method of producing L-shaped punchings which may be used in cores of this character. The general object of the invention is to provide an improved method by which magnetic L-shaped punchings may be formed rapidly and with little waste of material and which may be practiced with simple and inexpensive machines or tools.

The invention will be explained in the following description taken in connection with the accompanying drawing in which Fig. 1 indicates how L-shaped punchings may be cut or punched from a strip of magnetic sheet material in accordance with the invention; Fig. 2 shows a pair of the L-shaped punchings of Fig. 1 after they have been cut from the strip; Fig. 3 indicates how L-shaped punchings having other dimensions and proportions from those of Fig. 1 may be cut or punched from a strip of material in accordance with the invention; Fig. 4 shows a pair of the punchings of Fig. 3 after they have been cut from the strip; Fig. 5 indicates how L-shaped punchings may be cut or punched from a strip of material in accordance with a modification of the invention; Fig. 6 shows a set of the punchings of Fig. 5 after they have been cut from the strip; and Fig. 7 shows a magnetic core formed of punchings which have been produced in accordance with the invention.

Like reference characters indicate similar parts in the different figures of the drawing.

The punchings produced by the invention are cut or punched from a strip of magnetic sheet material 10. As indicated in Figs. 1 and 3, the strip 10 is severed into sections by successive cuts, each cut being made along two parallel spaced lines 11 and 12 extending obliquely inwardly from the sides of the strip and another line 13 joining the inner ends of the lines 11 and 12 and perpendicular to them. Each cut thus removes from the strip 10 a section comprising two straight oppositely extending parallel portions 14 and 15 and an intermediate portion 16 connecting the adjacent inner ends of the portions 14 and 15 and perpendicular to them. After each section comprising the portions 14, 15 and 16 is severed from the strip 10, it is cut into two parts along a line 17 parallel to the lines 13 and thus between and parallel to the sides of the intermediate portion 16 of the section. This cut 17 divides each section of the strip 10 into two L-shaped sections or punchings as indicated in Figs. 2 and 4. By this method, L-shaped punchings of infinite variety of dimensions and proportions of parts may be produced rapidly and with very simple machines or tools. Any change in the width of the strip 10 from which the punchings are produced and any change in the angle between the sides of the strip and the cuts which sever the sections from the strip will change the dimensions of the punchings or the proportions of their parts or both. After the L-shaped punchings are formed, the pointed tips 18 of the portions 14 and 15 may be cut off if desired and these small tips will be waste material.

The method which has been described may be modified by cutting or punching sections from a wider strip 10 of material as indicated in Fig. 5, each section being severed from the strip by a cut made along three parallel lines 19, 20 and 21 and two intermediate lines 22 and 23 connecting adjacent ends of the lines 19, 20 and 21 and perpendicular to them. Each section severed from the strip 10 then includes three straight parallel portions 24, 25 and 26 connected by intermediate portions 27 and 28. Each of these sections is then cut along lines 29, 30 and 31 to form four L-shaped punchings as shown in Fig. 6. This avoids any waste except two small pointed tips which may be cut away if desired at the outer ends of the two outer L-shaped sections.

The invention provides a simple, rapid and inexpensive method for producing an infinite variety of L-shaped punchings from which magnetic cores, such as the core 32 shown in Fig. 7, may be built up for transformers and other similar electrical apparatus.

The invention has been explained by de-

scribing certain details of how L-shaped magnetic core punchings may be produced in accordance with the invention, but it will be apparent that changes may be made without departing from the spirit of the invention and the scope of the appended claims.

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

1. The method of forming L-shaped magnetic punchings from a strip of magnetic sheet material, said method including the steps of severing sections from said strip by successive cuts, each cut being made along two parallel spaced lines extending obliquely inwardly from the sides of the strip and another line joining the inner ends of said parallel lines and perpendicular thereto, whereby each section comprises two oppositely extending parallel portions and an intermediate connecting portion, and subsequently severing each section along a line between and parallel to the sides of said intermediate portion to form two L-shaped punchings.

2. The method of forming L-shaped magnetic punchings from a strip of magnetic sheet material, said method including the steps of severing sections from said strip by successive cuts, each cut including portions made along a plurality of spaced parallel lines oblique to the sides of said strip, and each cut further connecting adjacent ends of its said parallel portions at right angles thereto, whereby each section includes a plurality of parallel portions and at least one intermediate connecting portion, and subsequently severing each intermediate portion along a line between and parallel to its sides to form a plurality of L-shaped punchings.

In witness whereof I have hereunto set my hand.

JOHN J. FRANK.