

(No Model.)

A. L. RIKER.  
ELECTRICAL CONVERTER.

No. 515,020.

Patented Feb. 20, 1894.

Fig - I.

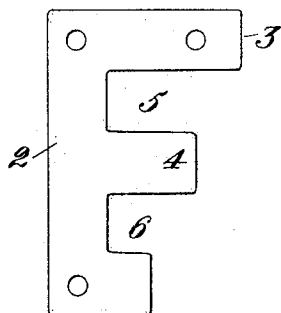


Fig. II.

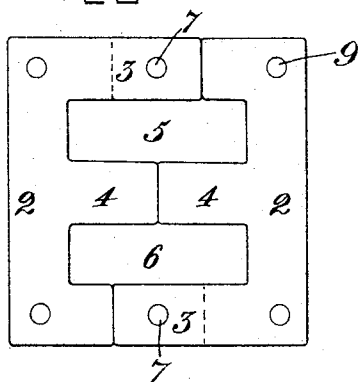


Fig - III.

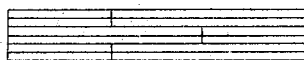


Fig - IV.

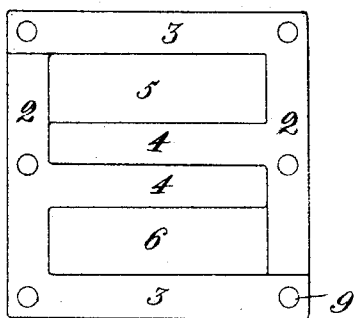
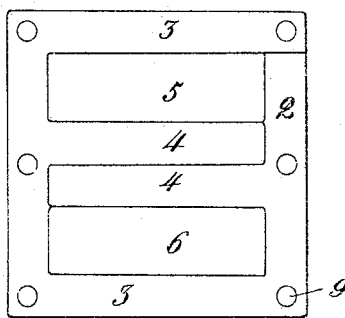


Fig - V.



Attest.

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# UNITED STATES PATENT OFFICE.

ANDREW L. RIKER, OF NEW YORK, N. Y.

## ELECTRICAL CONVERTER.

SPECIFICATION forming part of Letters Patent No. 515,020, dated February 20, 1894.

Application filed July 27, 1893. Serial No. 481,604. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW L. RIKER, of New York city, New York, have invented a new and useful Improvement in Electrical Converters, which is fully set forth in the following specification.

This invention has reference to the construction of the magnetic frame of electrical converters, or transformers, which names are given to the devices employed for the purpose of transforming alternate intermittent currents from a primary alternating generator, into secondary or induced currents.

These converters or transformers are inductories of special construction, experience having determined that their efficiency for the purpose specified is greatly improved by constructing the frame in the form of a closed magnetic ring, and by employing for its construction laminæ or plates of soft wrought iron.

The object of the present invention is to provide for the construction of such magnetic frames cheaply and expeditiously and in such manner that the frame can be quickly separated into two parts for the removal of coils that may have been damaged in use.

The invention possesses other advantages as will be apparent to the skilled electrician from the following description.

In building up the core or frame I use a series of blanks, all of the same pattern, and shaped substantially like the letter F, the parts being so proportioned that when two of these blanks are placed together (one of them being inverted) they form a continuous rectangular frame, with a strip extending centrally across the same from one side to the other, this strip forming the core around which the coils are wound. A second frame, formed in like manner of two similar blanks, is placed upon the first, but is reversed, that is turned bodily upside down, the effect being to bring the joints of one layer opposite continuous portions of the adjacent one, or in other words, to break joints. Instead of reversing alternate layers, a similar effect is produced by reversing alternate groups each composed of three or four layers or plates. This construction is resorted to for the purpose of facilitating the separation of the two parts of the com-

pleted frame and avoiding the great friction which is produced when alternate layers are reversed.

In the accompanying drawings which form part of this specification, Figure I represents the outline of one of the blanks. Fig. II shows two blanks put together to form a complete layer, and Fig. III is a top view of a frame built up according to this invention. Fig. IV is a view of another embodiment of the invention showing two blanks put together, and Fig. V is a similar view of two similar blanks in the reverse position to Fig. IV.

From the drawings the invention will be understood with but little explanation. Each blank is of the general shape of a capital letter F, having a vertical stem 2, a long upper arm 3, and an intermediate shorter arm 4. By inverting one of the blanks and placing it alongside of another as shown in Fig. II, a continuous closed frame is formed, crossed by a strip composed of the arms 4, 4 forming the core. On each side of this core is a coil space 5, 6. The shape of the complete layer is that common in converter frames, the peculiarity so far consisting in the manner in which the layer is composed of two like blanks. It will be observed that no portion of these two blanks overlap, and that they are not fastened together in any way. The next layer is reversed before being placed upon the first, so that the long arms 3 overlap the joints (indicated by dotted lines Fig. II) in the first layer; or preferably (and as shown in Fig. III) several layers are superposed in the same position as in Fig. II, and then a group of equal number reversed, through which pass the holding bolts 7, upon removal of which the frame can be separated into two parts and the cores removed or inserted. Rivets 9 are used to fasten the two parts permanently together.

The construction illustrated in Figs. IV and V differs in detail from that shown in Figs. I and III and mainly in that the middle arm 4 is of sufficient length to reach entirely across and make contact with the vertical stem of the opposite blank. The break between the two arms 4, forming the core, is in this construction longitudinal instead of transverse. This construction is obviously preferable in

that it presents a core extending continuously without break through the coils. In other respects the construction is substantially that illustrated in the other figures.

- 5 The outline of the frame may be curved or of any suitable shape not involving a departure from the spirit of the invention.

Having thus described my invention, what I claim is—

- 10 A magnetic frame for an inductorium or converter, formed of two separable sections, which together compose a frame built up of plates or layers, each plate or layer consisting of two elements, one for each of said sections,  
15 being placed together so as to form a symmetrical closed frame with a cross-strip to consti-

tute a core, adjacent layers or groups being reversed so as to break joints and form overlapping and interlocking portions between the two sections, means for holding the elements of each section together, and holding bolts passing through the overlapping portions of said sections, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ANDREW L. RIKER.

Witnesses:

CORNELIUS J. JORDAN,  
WM. W. RICHARDS.