H. D. CURRIER.

REPEATING COIL.

APPLICATION FILED SEPT. 19, 1914.

1,209,266.

Patented Dec. 19, 1916.

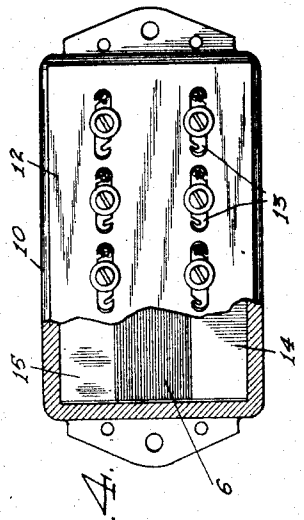


Fig. 4.

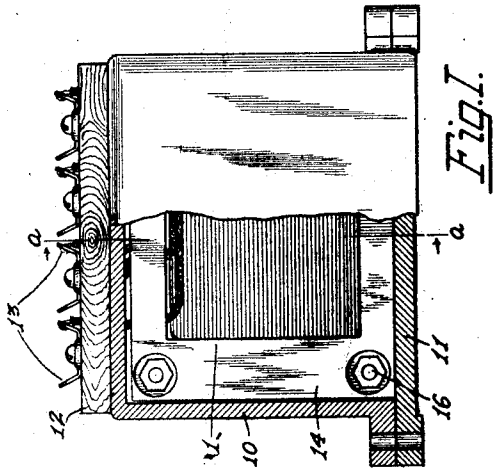


Fig. 1.

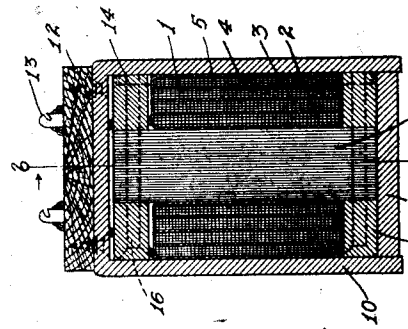


Fig. 2.

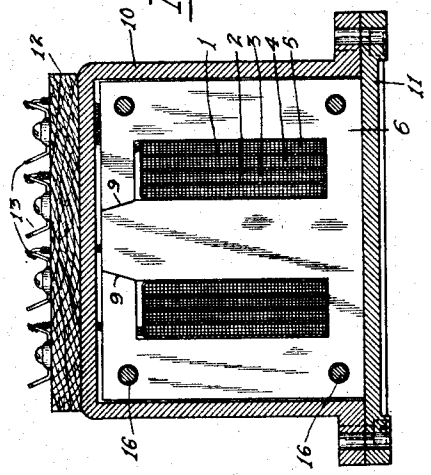


Fig. 3.

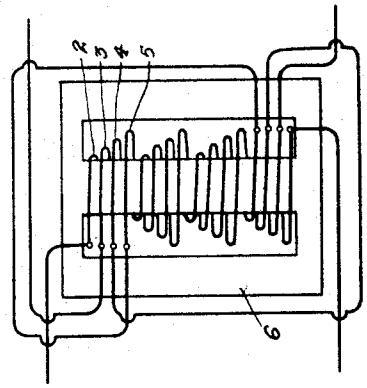


Fig. 5.

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REPEATING COIL.

1,209,266. Specification of Letters Patent. Patented Dec. 19, 1916.

Application filed September 19, 1914. Serial No. 862,466.

To all whom it may concern:

Be it known that I, HIRAM D. CURRIER, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Repeating Coils, of which the following is a specification.

My invention relates to repeating coils and is more particularly an improvement over the repeating coil disclosed in my copending application Serial No. 830,581, filed April 9, 1914.

My present invention is designed to minimize the effect of leakage lines of force which in general are found in repeating coils of this type. The lines of force very frequently find a path through the coils of the winding itself without passing through a portion of the magnetic circuit to be rendered effective.

In accordance with my invention, I provide what I may call a hood or ring or similar structure of magnetic material which may encircle or be in close proximity to the protruding portions of the winding so as to direct lines of force leaking through the winding to the actual core upon which said winding is wound.

I will explain one form of carrying out my invention more in detail by referring to the accompanying drawing setting forth this embodiment of my invention in which—

Figure 1 is a side view of my invention, the cover plate being broken away more clearly to reveal features of construction; Fig. 2 is a sectional view on line *a*—*a* of Fig. 1; Fig. 3 is sectional view on line *b*—*b* of Fig. 2; Fig. 4 is a top view of the repeating coil, a portion of the cover being broken away to reveal features of construction, and Fig. 5 shows the wiring diagram which I may employ in connection with this coil.

My improved repeating coil consists of the winding 1 divided into a number of coils respectively 2, 3, 4 and 5 wound as shown more clearly in Fig. 5. A tape of fabric material is wound over the coils of wire in a well-known manner, thus forming the coils into a unitary structure. The winding is carried by a core which is made of what might be called 8-shaped laminations 6. These laminations are split as shown at 9 so they may be inserted into the winding after the winding has been properly formed into shape. The structure is carried within a casing 10 having a cover plate 11 and surmounted by an insulating terminal carrying strip 12 having the terminals 13, 13.

My invention is intended to prevent loss of lines of force which might ordinarily thread the winding without passing through the effective core space consisting of the laminations 6. To this end I provide two rectangular rings respectively 14 and 15 which abut the opposite faces of the laminations 6. These rings it will be seen are preferably of a width corresponding to the width of the protruding coils. These rings are likewise fastened in position by means of the bolts 16 which at the same time serve to hold the laminations together, the holes through the laminations being preferably larger than the bolts in order to prevent mechanical contact as much as possible so as not to increase the loss of efficiency through eddy currents. These rings 14 and 15 it will be seen, passing as they do about the exposed periphery of the winding, serve to catch or deflect the lines of force threading the winding which may otherwise leak away from the laminated core toward the said core so as to increase the magnetic efficiency of the structure.

From what has been described the nature of my invention will be clear. The specific illustration herein of one form of the invention is not intended to limit the broad features thereof, but

Having thus described one form for illustrative purposes, what I claim as new and desire to secure by Letters Patent is:

1. A transformer having a winding, a core of magnetic material for said winding and forming a complete magnetic circuit for said winding, a ring of magnetic material extending out from each of the opposite sides of said core and encircling the protruding portions of said windings, fastening members for securing the said rings in position, and a receptacle for holding said structure.

2. An inductorium provided with primary and secondary coils, a core of soft iron plates extending through and about said winding to form a complete magnetic path for the lines of force, a ring of magnetic material extending out from each of the opposite sides of said core and encircling the protruding portions of said coils, and fas-

tening members extending through apertures in said plates for holding said rings in position.

3. An electrical converter provided with primary and secondary coils, a core composed of thin plates forming a complete magnetic circuit for the coils, magnetic rings mounted adjacent the opposite faces of the core of said converter and encircling the protruding ends of said coils, and fastening members extending through circular orifices in said plates and said magnetic rings for holding the same in position.

4. An electrical converter provided with primary and secondary coils, a core of soft iron plates extending through and about said winding to form a complete magnetic circuit for the lines of force, a member of magnetic material mounted adjacent each of the sides of said core and extending out over the protruding portions of said coil, and fastening means extending through apertures in said members for holding said members in position.

5. A transformer provided with a winding, a laminated core of magnetic material for said winding forming a magnetic circuit therefor, a pair of members of magnetic material mounted adjacent the opposite sides of said core and encircling the protruding portions of said winding, and fastening means extending through orifices in said members and said core for securing said members to said core thereby forming a unitary structure.

6. An inductorium provided with primary and secondary windings, a laminated core of soft iron plates for said windings forming a magnetic circuit therefor, magnetic side pieces mounted adjacent the opposite sides of said core and extending out over the protruding portions of said windings, and fastening means for securing said side pieces to said core.

Signed by me at Chicago, county of Cook and State of Illinois, in the presence of two witnesses.

HIRAM D. CURRIER.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."