Feb. 14, 1928.

1,659,062

R. VARLEY

COIL MOUNTING

Filed Nov. 15, 1926

Fig 2

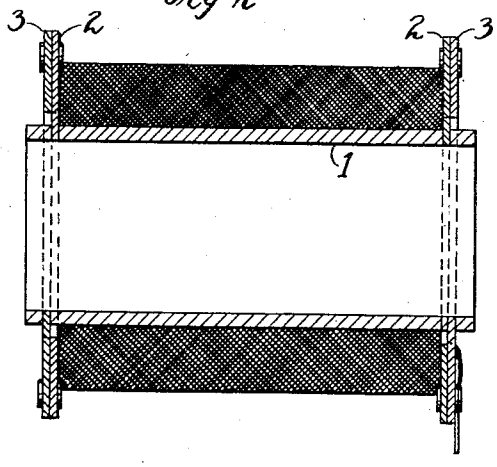


Fig 1

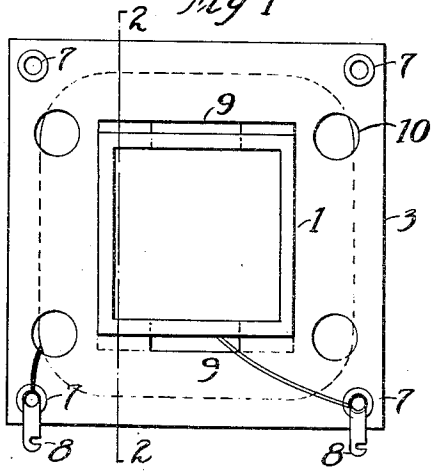


Fig 3

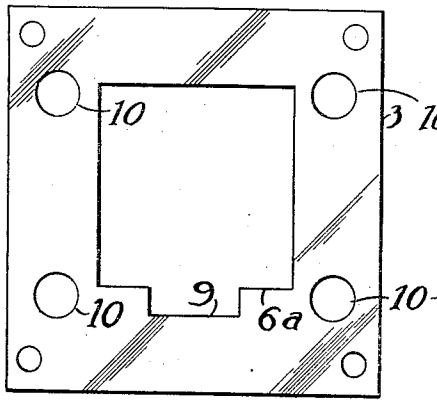


Fig 4

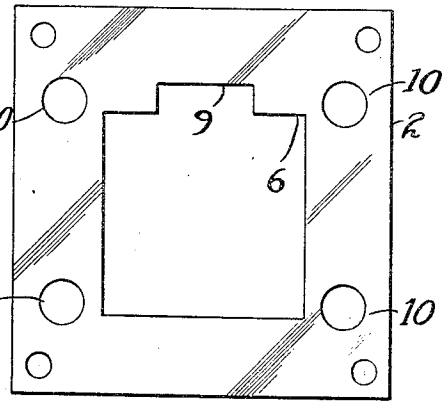
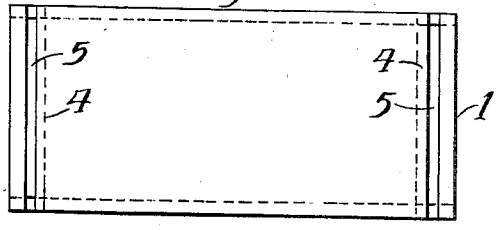


Fig 5



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UNITED STATES PATENT OFFICE.

RICHARD VARLEY, OF ENGLEWOOD, NEW JERSEY, ASSIGNOR TO VARLEY DUPLEX MAGNET COMPANY, A CORPORATION OF NEW JERSEY.

COIL MOUNTING.

Application filed November 15, 1926. Serial No. 148,439.

This invention relates to coil mountings and is well adapted to the mounting of small coils such as are used in the smaller type of transformers. Transformers are usually built up by winding each of the coils directly upon each iron or magnetic circuit. With this practice it is necessary to wind each coil separately upon the core and it becomes rigidly secured thereto and to all practical purposes integral with the magnetic circuit.

It is the purpose of this invention to provide a means and method whereby a machine-wound coil as a unit may be wound upon an auxiliary core such as a tube and later be assembled by applying end pieces or cheeks to the tube and subsequently inserting the iron. In this manner a transformer or other apparatus may be constructed using a machine-wound coil and a mounting which obviously results in a more compact and carefully constructed article than could otherwise be made.

To achieve this purpose a novel means of mounting the coil is provided comprising a tube with removable and interlocking cheeks which may be removably locked to the tube.

It has been found convenient to accomplish this by providing a tube having openings therein into which an end plate may be inserted to prevent its moving upon said tube and to provide means to lock the plate in its secured position.

A more detailed description will be given in connection with the drawings, in which:

Fig. 1 is an end elevation of a coil mounting and coil mounted thereon in accordance with this invention;

Fig. 2 is a longitudinal section taken on line 2—2 of Fig. 1;

Fig. 3 is an elevation of one of a pair of end plates;

Fig. 4 is an elevation of the other of a pair of end plates, and

Fig. 5 is an elevation of the tube used in accordance with this invention.

In the embodiment shown herein by way of example, the coil mounting comprises a tube 1 and thin disk-like end plates or cheeks 2 and 3, one of each of which fits upon each end of the tube, the plates having openings or apertures the size of the tube cut therein for this purpose. In order to attach the end plates securely to the tube and prevent them from moving lengthwise thereof, the tube 1 has slots 4 and 5 of a width equal to the thickness of plates 2 and 3 cut into opposite sides adjacent each end of the tube, the slot 4 being further in from the end than the slot 5 by exactly the thickness of plates 2 and 3.

The end plates 2 and 3 are formed of relatively thin material, preferably some insulating material such as fiber, are similar in their external dimensions and have apertures cut intermediate their edges to permit the plates being slid over the tube 1. The apertures are cut off center in one direction by a distance equal to the thickness of the wall of the tube, that is the aperture is eccentric with respect to the periphery of the plates. Furthermore, the eccentricity of the apertures in the two plates is reversed with respect to a relatively similar edge of each plate.

In mounting the end plates upon the tube, plate 2 is placed over an end of the tube and moved so that its inner edge 6 most distant from its outer edge engages in opening 4, then plate 3 is placed over the end of the tube and brought into engagement with opening 5 with its inner edge 6^a engaged therein. Thus with the two plates engaged within the openings on alternate sides of the tube they may be secured together by any suitable means to prevent relative movement therebetween and the plates will not only be locked to the tube but interlocked themselves.

It has been found desirable to use a tubular rivet 7 having a tab 8 extending therefrom to secure the two plates together, tab 8 acting as a terminal for an end of the winding. It has also been found convenient to cut recesses 9 in the inner edge 6 and 6^a engaged within the openings in the core so that when the plates are in position access may be had into the center to enable lead wires to be brought out if so desired. Additional holes 10 are cut in the plates to allow the outer ends of the coil to be brought through and attached to the tabs 8.

In assembling the mounting and coil, two plates are first placed upon a tube so as to engage within the openings upon that end and riveted together, then a pre-wound winding or coil C is placed upon the tube and finally two more end plates are placed upon the tube and interlocked therewith. If it is desired to place an iron circuit within the tube it may be done after the coil and mount-

ing is assembled. Also if it is desirable to have the side arms of a magnetic circuit lying close to the ends of the coil, one of the projecting walls of the tube at each end may be cut away to allow the iron circuit to lie in close proximity to the end of the coil. It is advisable for this purpose to cut away the walls on the sides having no slots therein as the structure is not then weakened.

From the foregoing it is apparent that by following the method described and using the mounting shown a pre-wound machine-made coil may be assembled upon a mounting and adapted for many uses.

It is obvious that many changes may be made without departing from the spirit and scope of this invention as defined in the claims appended hereto.

I claim:

1. A coil mounting, including a tube having openings on opposite sides of each end thereof, a pair of disks having apertures therein to permit passage of the tube therethrough forming cheeks at each end of the tube, said disks being adapted to engage in said openings, and means for securing said disks together when so engaged, said securing means comprising terminals for electrical connections.

2. A coil mounting, comprising the combination of a tube with a pair of disks for each end of the tube, said disks having apertures therein eccentrically disposed in relation to their peripheries, and said tube having slots on alternate sides adjacent each end thereof adapted to cooperate with said disks to lock them to said tube, and means for securing each pair of disks together.

3. A coil mounting, comprising the combination of a rectangular tube with a pair of disks for each end of the tube, said disks having rectangular apertures therein eccentrically disposed in relation to their peripheries, and said tube having slots on alternate sides adjacent each end thereof adapted to cooperate with said disks to lock them to said tube, and means for securing each pair of disks together.

4. A coil mounting, comprising the combination of a core with a pair of disks for each end of the core, said disks having apertures therein eccentrically disposed in relation to their peripheries, and said core having slots on alternate sides adjacent each end thereof adapted to cooperate with said disks to lock them to said core, the slots at each end being unequally distant from the end, and means for securing each pair of disks together.

5. A coil mounting, comprising the combination of a tube with a pair of disks for each end of the tube, said disks having apertures therein eccentrically disposed in relation to their peripheries, said apertures having a portion thereof larger in one dimension than the tube, and said tube having slots on alternate sides adjacent each end thereof adapted to cooperate with said disks to lock them to said core, the slots at each end being unequally distant from the end, and means for securing each pair of disks together.

6. A coil mounting, including a tube, a pair of disks having apertures therein to permit free passage of the tube therethrough, openings in the sides of the tube at each end thereof and unequally disposed from the ends adapted to permit entry of a portion of each disk upon transverse movement of said disks, and means for securing said disks together when engaged in said openings.

7. A coil mounting, including a tube, having openings on opposite sides of each end thereof, a pair of disks having apertures therein to permit free passage of the tube therethrough adapted to form cheeks at each end of the tube, said disks being adapted to engage in said openings when moved transversely to said tube. and means for securing said disks together when so engaged.

8. A coil mounting, including a tube and end pieces therefor, said end pieces having apertures therein through which the tube may be freely passed, openings in the side walls of said tube to permit entry of said end pieces to prevent relative axial movement therebetween, and means for securing said end pieces when engaged in said openings.

In witness whereof, I hereunto subscribe my signature.

RICHARD VARLEY.