L. ERICSON.

CLAMPING DEVICE FOR ELECTROMAGNETS.

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1,174,484.

Patented Mar. 7, 1916.

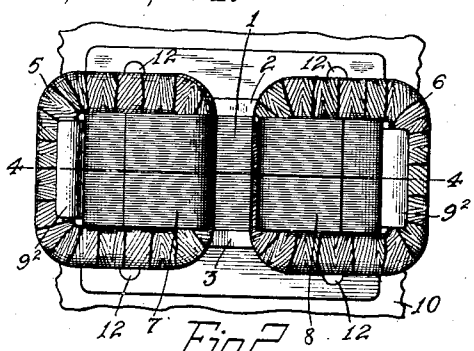


Fig. 2.

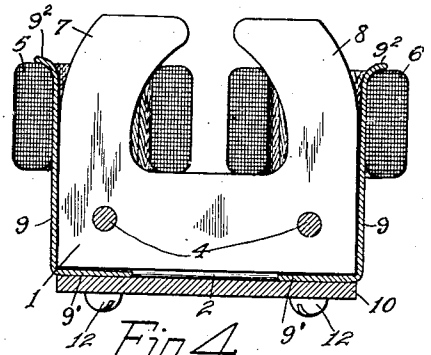


Fig. 4.

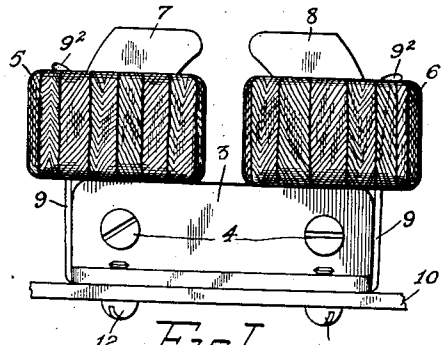


Fig. 1.

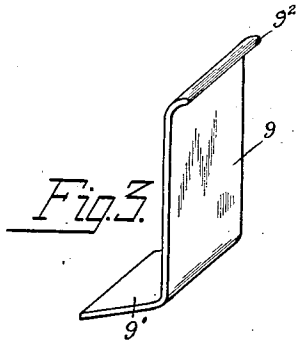


Fig. 3.

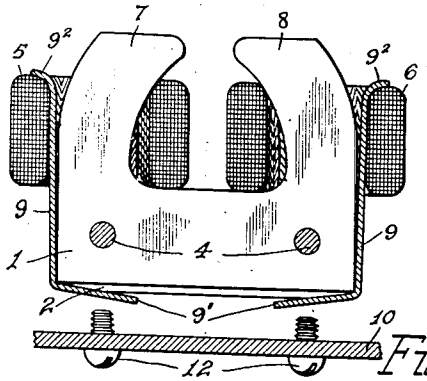


Fig. 5.

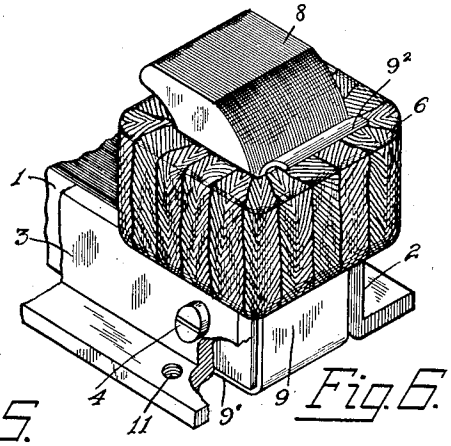


Fig. 6.

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UNITED STATES PATENT OFFICE.

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CLAMPING DEVICE FOR ELECTROMAGNETS.

1,174,484. Specification of Letters Patent. Patented Mar. 7, 1916.

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To all whom it may concern:

Be it known that I, LAWRENCE ERICSON, a citizen of the United States of America, residing in Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Clamping Devices for Electromagnets, of which the following is a specification.

My invention relates to spring clamping devices for electromagnets whereby the winding of helix is securely held upon the core of the electromagnet. In electromagnets where the helix is constructed as a separate element and then slipped upon the core, and more particularly in structures where the central opening of the helix may be loose upon the core, means must be provided to rigidly hold the helix in place and to this end I have provided a spring clamping device which acts upon the helix so as to hold it securely in its proper position upon the core, an object of my invention being to provide a device of the above character which is simple in construction and most positive in action.

For a more complete understanding of my invention reference may be had to the accompanying drawing in which—

Figure 1 is a front elevation of an electromagnet structure embodying a preferred form of my invention. Fig. 2 is a plan view of Fig. 1; Fig. 3 is a perspective view of the spring clamping plate used in holding the coil to the core; Fig. 4 is a sectional view on the line 4, 4, of Fig. 2; Fig. 5 is a sectional view showing the spring clamping plate inserted between the coil and the core but with the supporting plate removed; Fig. 6 is a perspective view illustrating more particularly the manner in which the spring acts upon the coil to hold it upon the core.

Referring now more in detail to my invention as illustrated, it comprises a core 1, the one illustrated being laminated, but I do not wish to be limited to this exact structure of core as any form of core may be used. The core 1 is supported by means of the angular brackets 2 and 3 which are adapted to securely clamp laminations of core 1, by means of the clamping screws 4, the said clamping screws 4 passing through the angular bracket 3, the core 1 and screwing into the angular bracket 2. The coil windings or helixes 5 and 6 are rectangular in shape to conform with the shape of the pole extensions of the core 1, but of course the windings may be of a form adapted to fit the cores used. The core 1 has the pole extensions 7 and 8 over which the coil windings 5 and 6 are placed. To hold the coils 5 and 6 in their proper position upon the pole extensions 7 and 8 of the core 1, I employ a spring clamping member 9 which is angular in shape having its angular portion 9^1 bent at an obtuse angle, on account of the particular magnet construction used. Before the brackets 2 and 3 are screwed down to the supporting plate 10 and preferably after the coils 5 and 6 have been slipped over the pole extensions 7 and 8, two spring clamping plates 9 are used one being placed between the coil 5 and pole extension 7 of core 1 and the other between the coil 6 and the pole extension 8 of core 1. The spring clamping plates 9 are so placed that the angular portions 9^1 extend under the core 1. After the spring clamping plates 9 are placed between the coils 5 and 6 and the pole extensions 7 and 8 respectively as previously described, the angular brackets 2 and 3 are screwed down to the supporting plate 10. The angular brackets 2 and 3 have holes 11 drilled and tapped to receive the screws 12 which pass through the supporting plate 10. As the brackets 2 and 3 are screwed down to the supporting plate 10 by means of the screws 12 the angular portions 9^1 are moved relative to their vertical portions 9^2, this flexure forcing the bent portions 9^2 of the spring clamping plates 9 against the inner surfaces of the coils 5 and 6. It will be seen that as the brackets are screwed against the supporting plate 10, the spring clamping plates 9 are forced against the inner surfaces of the coils 5 and 6, holding them securely in position on the pole pieces.

The coil windings in being manufactured may vary a trifle in size but it can be seen that even though this does occur the spring clamping plate will hold the coils securely to the core.

Although I have illustrated and described a preferred embodiment of my invention, I do not wish to be limited to this exact structure as many changes may be made without departing from the scope of this invention, and therefore I wish to cover all such changes and modifications which come within the spirit and scope of the appended claims.

What I claim as new and desire to secure by United States Letters Patent is:

1. A device of the character described comprising an electromagnet core, a helix encircling said core, a spring clamping plate having a portion positioned between the helix and the core, a supporting member for the electromagnet, and means for fastening another portion of said spring clamping plate between the supporting member and the core to flex said spring clamping plate and cause it to yieldingly hold the helix against the core.

2. An electromagnet comprising a core, a helix upon said core, a supporting plate or member, an angularly disposed clamping plate having one portion inserted between the helix and the core, and means for clamping another portion of the clamping plate to the supporting member whereby the portion between the helix and the core yieldingly acts upon the helix to hold it upon the core.

3. A device of the charcter described comprising a U-shaped converging pole electromagnet core, a helix positioned upon each of the poles, a spring clamping plate positioned between each helix and its pole piece and having angularly disposed portions projecting beneath the yoke of said core, a supporting member for the electromagnet, means for clamping the core to said member whereby said angularly disposed portions are flexed and whereby each clamping plate yieldingly holds its associated helix upon its respective pole piece.

4. A device of the character described comprising an electromagnet core, a helix positioned upon said core, a spring clamping plate positioned between the helix and the core and having an angularly disposed portion projecting beneath an end of said core, a supporting member for the electromagnet, and means for clamping the electromagnet to said member whereby said angularly disposed portion is flexed to cause the clamping plate to yieldingly hold the helix upon the core.

5. A clamping device for electromagnets comprising an angularly disposed flat spring clamping plate adapted to have one portion inserted between the core and the helix, and means whereby another angular portion thereof may be clamped so as to yieldingly hold the helix upon the core.

6. An electric device of the character described comprising a pole piece, a coil thereon and means for holding the coil on the pole piece, the said means comprising an angularly disposed spring clamping plate having one portion thereof between the said pole piece and said coil and the other portion thereof between the said pole piece and the mounting frame upon which said pole piece is mounted.

7. An electric device of the character described comprising a pole piece, a coil mounted thereon, a supporting member for said pole piece, and a clamping member for yieldingly holding the coil on the said pole piece, the said clamping member being secured at one end between the pole piece and the said supporting member.

8. A coil support of the class described for yieldingly holding a helix against a pole piece, said coil support comprising an angularly disposed clamping member having one portion thereof mounted between said helix and said pole piece.

9. A device of the class described comprising a mounting plate, a U-shaped electromagnet having removable windings upon the pole pieces thereof, spring clamping plates for said windings positioned between the windings and the pole pieces, said clamping plates having angularly disposed portions projecting beneath the yoke of said electromagnet, and means for clamping said electromagnet to said mounting plate whereby said spring clamping plates are moved to hold said windings upon their respective pole pieces.

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

LAWRENCE ERICSON.

Witnesses:
G. E. MUELLER,
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