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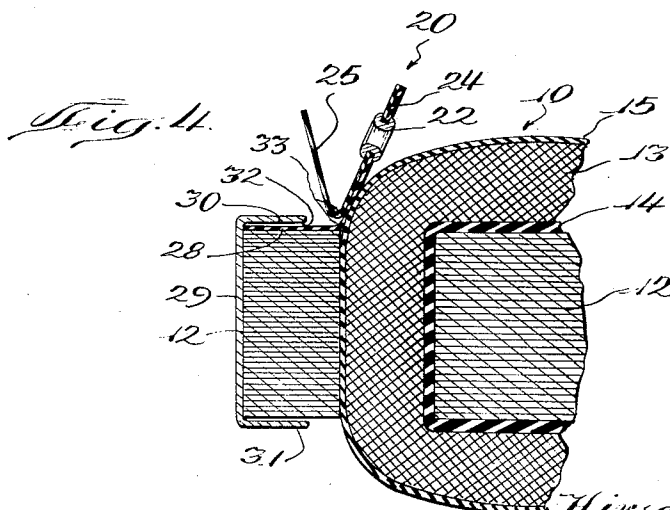
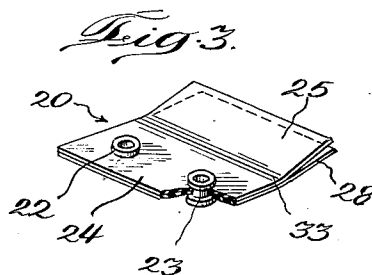
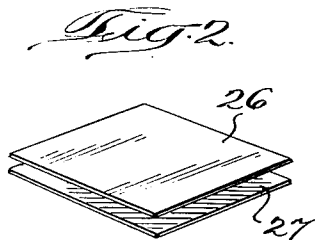
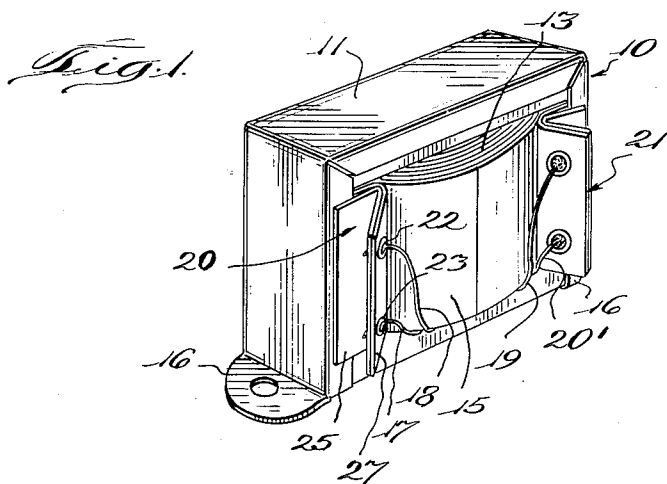
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2,529,653

TERMINAL STRIP FOR ELECTROMAGNETS

Filed June 11, 1947

2 Sheets-Sheet 1



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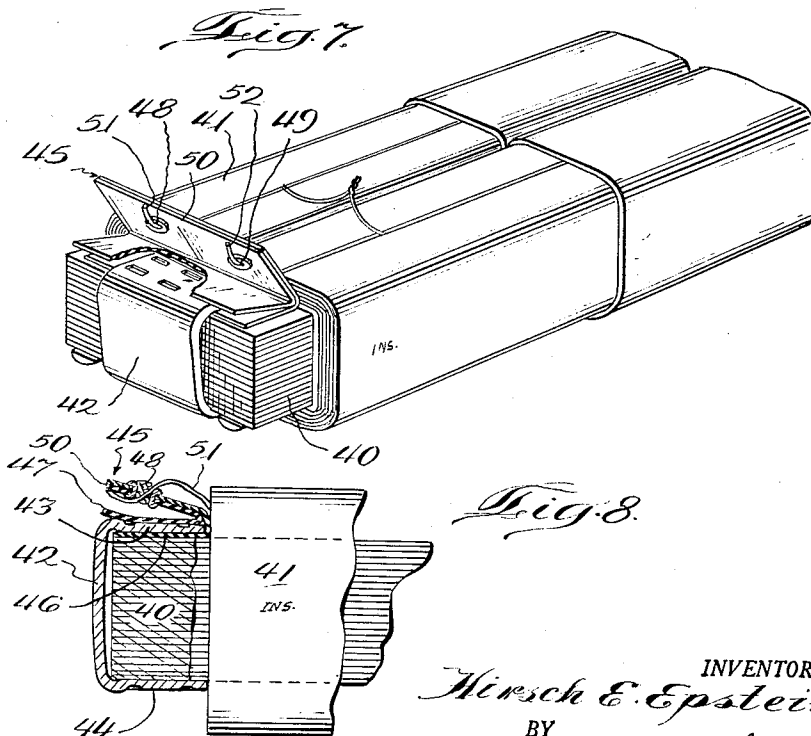
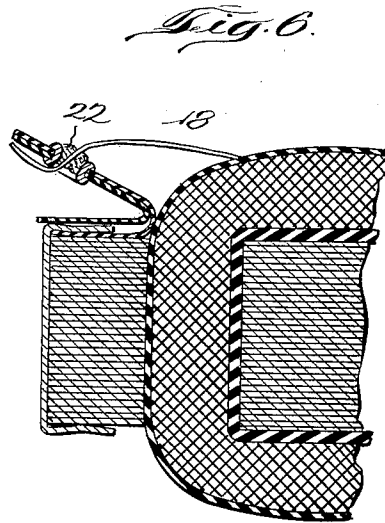
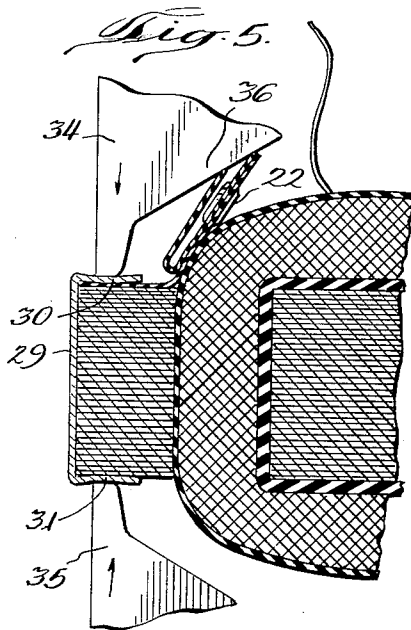
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TERMINAL STRIP FOR ELECTROMAGNETS

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2 Sheets-Sheet 2



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TERMINAL STRIP FOR ELECTROMAGNETS

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3 Claims. (Cl. 175-21)

1

This invention relates to the construction of electrical circuit components such as chokes and transformers and more particularly to a terminal strip for such devices.

The invention contemplates an extremely simple and effective terminal strip especially suitable for use with small reactances or transformers such as used for components of electronic circuits whereby the cost of manufacturing is considerably decreased at the same time that a more efficient product is produced.

The primary object of the invention is to provide a new and improved terminal strip which will enable the attachment of wires thereto in a manner more efficient than heretofore, and which will at the same time insulate the wires from the adjacent metal parts of the circuit component with which said terminal is associated.

Other objects of the invention are to provide a novel terminal strip which is made of pliable material so that the circuit component carrying same is readily adaptable for any manner of attachment; to provide a terminal strip which will require no means for attaching same to a circuit component other than already is used in assembling said component; to provide a strip which is extremely simple to manufacture and attach to the circuit component while at the same time being economical; to provide a terminal strip which will serve to protect and insulate the wires attached thereto.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel features of construction hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportion, size and minor details of the structure may be made without departing from the spirit of sacrificing any of the advantages of the invention.

For the purpose of facilitating an understanding of the invention, there are illustrated in the accompanying drawings preferred embodiments of the structure and assembly thereof together with certain progressive views showing the manner of attaching the terminal strip, from an inspection of which, when considered in connection with the following description, the invention, its mode of construction, assembly and operation, and many of its advantages should be readily understood and appreciated.

Referring to the drawings in which the same characters of reference are employed to indicate

2

corresponding or similar parts throughout the several figures of the drawings:

Fig. 1 is a perspective view of a simple transformer having terminal strips applied thereto in accordance with my new invention.

Fig. 2 is a perspective view of a pair of flexible sheet members arranged to be fastened together in the formation of my new terminal strip.

Fig. 3 is a perspective view showing the two flexible sheets of Fig. 2 fastened together, a portion of the sheets being broken away to show the construction.

Fig. 4 is a sectional view taken through the transformer of Fig. 1 showing a step in the attachment of my terminal strip thereto.

Fig. 5 is a view similar to Fig. 4 but showing another step in the attachment of the terminal strips.

Fig. 6 is a view similar to Figs. 4 and 5 but showing the completed transformer.

Fig. 7 is a perspective view of a portion of a different type transformer showing a terminal strip associated therewith in accordance with my new invention.

Fig. 8 is a fragmentary sectional view through same.

The reference character 10 designates generally a small transformer or choke having an outer shell 11 of metal which clamps together an assembly of laminations comprising the core 12, a winding 13 having inner and outer insulating and protective layers 14 and 15, respectively. The shell 11 includes ears 16 for fastening the transformer 10 in place. The winding 13 is shown as composed of primary and secondary windings and hence there are four wire ends which lead out of the winding. These are designated 17, 18, 19, and 20'. It should be understood that there may be more or less wire ends, depending upon the type of winding, and that the invention is not limited thereby.

In my invention terminal strips 20 and 21 are attached at opposite ends of the transformer, in a manner to be described, and the wire ends are connected therewith, the pair 17 and 18 being attached to the strip 20 while the pair 19 and 20 are attached to the strip 21. Both strips 20 and 21 are identical and hence the description of one will suffice for the both.

The wires 17 and 18 are inserted in the eyelets 22 and 23, respectively, and soldered therein. These eyelets 22 and 23 are now the terminals for the portion of the winding 13 connected to the wires 17 and 18 and external leads may be soldered thereto. The eyelets are carried by a

flexible strip 24 which extends outwardly from the side of the transformer, said eyelets being insulated from the shell 11 by means of the member 25.

Referring now to Figs. 2 and 3, it will be seen that in forming the terminal strip 20, two sheet members 26 and 27 of fibre board or other flexible insulating material are juxtaposed as shown and then fastened together on one end thereof by means of the eyelets or grommets 22 and 23. The end portions which have been fastened together have been collectively designated 24 since same act as a single member carrying the eyelets. The free portions are 25 and 28 each of which serves a different purpose.

Normally when manufacturing chokes or transformers of this type, the shell 11 is in the form of a large U into the open end of which the assembled core and winding is inserted. Each of the arms of the shell has a channelled cross section and comprises a base portion 29, and side portions 30 and 31. When the assembled core 12 and winding 13 is inserted into the shell 11, the side portions 30 and 31 are crimped into engagement with the sides of the core 12 and the entire circuit component is held together. Certain lugs are turned over upon the open side of the U, but these are inconsequential insofar as the invention herein is concerned.

In installing a terminal strip upon such a device in accordance with my invention, the portions 25 and 28 are separated, the one being bent back as shown in Fig. 4. The portion 28 is now inserted under the side portion 30 in the space 32 formed between itself and the outer lamination of the core 12. This is done after the assembled core and winding have been inserted in the shell, but before the shell has been crimped as described. A crease or fold is formed in the terminal strip at 33. Note that prior to crimping, the terminal strip is a tripartite member of three flaps attached on a common axis.

With the entire device assembled as shown in Fig. 4, the transformer is inserted in a die or other tool which will serve to crimp the portions 30 and 31 together. Such a tool may be conventional and comprises upper and lower jaws 34 and 35, respectively. It should be noted that the portion of the jaw 34 which is normally intended to clear the winding as shown at 36 will engage the strip 24 and flap 25 during this operation thereby holding same out of the path of the jaw 34. The crimping operation causes the shell 11 to be securely fastened to the core 12 and obviously the portion 28 being caught between portion 30 and the core, the terminal strip 20 is permanently held on one side of the transformer 10.

Following the crimping operation, the flap 25 is bent downwardly to overlie the top of the portion 30. The strip 24 is also bent in generally the same direction as shown in Fig. 6. The flap 25 now insulates the eyelets 22 and 23 together with any wires which may be fastened thereto from the top of the side portion 30. The wires 17 and 18 are now threaded through the eyelets 22 and 23, respectively, soldered, and the excess trimmed.

It will be seen that the resulting device is provided with a generous terminal strip 20 as opposed to the small metallic lugs usually attached to such devices. The terminal strip of my invention is likewise flexible, will not readily break or tear and can be moved to assume any desirable position in accordance with the manner of

connecting same into a circuit. Not only are these advantages achieved, but the addition of the flap 25 prevents the possibility of shorts and protects the wires attached to the terminal strip. By the use of the novel method of attaching my terminal strip, no drilling or tapping or additional stamping of the shell 11 or the core 12 is required. The method is economical, and efficient and can speedily be done by the same tools used to produce the ordinary choke or transformer.

In Figs. 7 and 8, I have shown my invention as applied to a different type of transformer. An elongated core 40 carries a plurality of coils or windings 41 and is held in assembly by a clamp member 42 which has a U-shaped formation, including portions 43 and 44. In assembly, the terminal strip 45, which has been assembled from a pair of sheets in the manner shown in Figs. 2 and 3 is associated with the clamp member 42 by inserting the portion 46 between the portion 43 and the core 40, and then crimping the clamp member 42 as described in connection with Fig. 5. The flap 47 corresponding to flap 25 now insulates the grommets or eyelets 48 and 49 carried by the strip 50 from the clamp 42. Wires 51 and 52 are soldered to said eyelets. The advantages enumerated in connection with the application of the invention to transformer 10 apply equally as well to this structure.

It is believed that my invention, its construction and assembly, and many of the advantages thereof should readily be understood from the foregoing without further description, and it should also be manifest that the details of the preferred embodiments described are capable of wide variations within the purview of the invention as described in the appended claims.

What is claimed and desired to secure by Letters Patent of the United States is:

1. In an electromagnetic member which consists of a core having an electrical winding thereon and being formed of a stack of laminations, there being a metal clamping member having jaws secured to an exposed end of the stack to hold same in assembly, a terminal strip of said winding and comprising a pair of flexible insulating sheet members, means fastening same face to face at an end thereof comprising at least one metal grommet member serving as an electrical terminal, the opposite ends of the sheet member being free, one of said free ends being securely engaged against the surface of said exposed stack end by a jaw of the metal clamp member and the other free end being arranged to overlie the said jaw to insulate the metal grommet member from the jaw.

2. In an electromagnetic member which consists of a core having an electrical winding thereon and being formed of a stack of laminations, there being a metal clamping member having jaws secured to an exposed end of the stack to hold same in assembly, a terminal strip comprising a tri-partite member having flaps of insulating material commonly joined along an axis, the outer flaps forming an angle of less than 180° one with the other, one of the outer flaps being secured between one of said jaws and a surface of the exposed stack end, the other outer flap having wire terminal means, and the third flap being interposed between the outer flaps for insulating the second one from the said jaw.

3. The combination with an electromagnetic circuit element having a laminated core, an exposed core end, a clamp engaged upon said exposed end and having opposed jaws gripping the

surfaces of the core to hold same in assembly, of a terminal member comprising a tri-partite flat member, one flap of which is engaged between a jaw and a core surface, another of which is free and carries metallic terminal means mounted thereon and a third flap disposed between the jaw and the second flap as an insulation shield, all three flaps having substantially a common hinge axis.

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