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D. O. SCHWENNESEN

2,782,283

ELECTRICAL WINDING

Filed May 16, 1955

FIG. 1

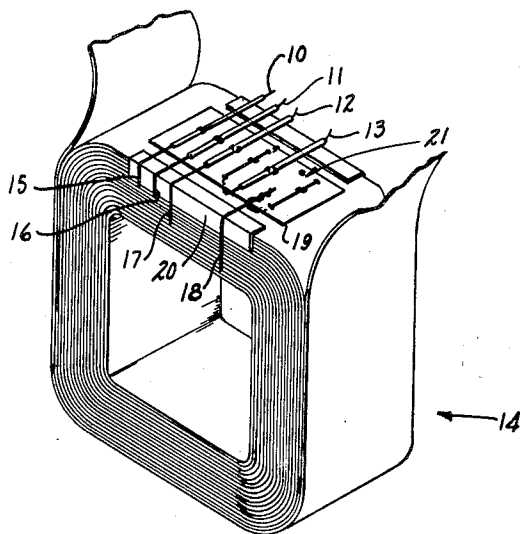


FIG. 2

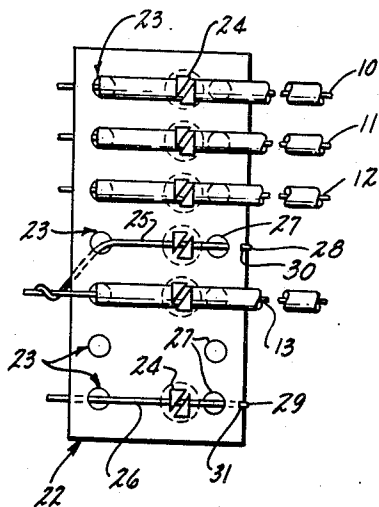
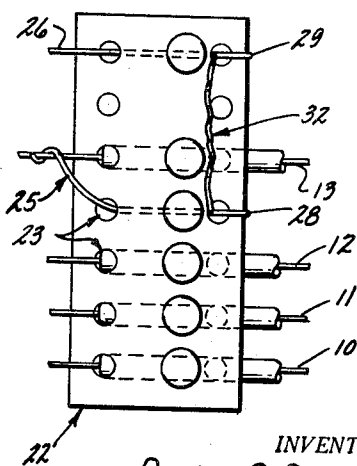


FIG. 3



INVENTOR.
DONALD O. SCHWENNESEN
BY
[Signature]
ATTORNEY

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ELECTRICAL WINDING

Donald O. Schwennesen, Skokie, Ill., assignor to
Essex Wire Corporation

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3 Claims. (Cl. 200—113)

This invention relates to electrical transformers and in particular to the use of a fuse wire with transformers.

It is a generally accepted requirement of power transformers for household appliances that they contain an integral circuit breaker. In the event that the transformer overheats or draws excessive current, it is expected that the circuit breaker will open the primary side. The usual circuit breaker so employed is a fuse wire connected in the primary usually at or associated with the connection of the lead wires and in temperature sensing relation with the transformer winding.

One difficulty with such a connection has been the occurring of "nuisance" circuit breaking due to mechanical stress applied to the fuse wire. In addition, previous connecting systems available have been bulky, and inefficient due to the extra wiring required.

It is an object of this invention to provide a pre-assembled wiring lead-in assembly which contains a fuse wire and which is structurally compact and durable as well as economical.

In the drawings:

Fig. 1 is a perspective view of a complete winding illustrating the application of pre-assembly.

Fig. 2 is a plan view of the pre-assembly.

Fig. 3 is a bottom view of the pre-assembly.

Referring to Fig. 1, the pre-assembly is illustrated with four lead-in wires, however, any number may be employed to accommodate the number of taps on the transformer coil. Quite commonly power transformers for radio and television use have a considerable number of transformer taps to provide different voltages from the same transformer.

In the case of Fig. 1, wires 10 and 11 are secondary leads and wires 12 and 13 are primary leads. All leads are stripped to facilitate splicing. The transformer coil is indicated generally at 14 and is wound in the conventional manner with a layer of insulating material between the convolutions of magnet wire. The taps are brought out in a manner that is well understood in the art and are extended upwardly as at 15, 16, 17, and 18, to engage the lead-in wires.

The base piece 19 is an insulating member separating the pre-assembly 21 from the coil proper. The edge piece 20 serves as a support piece for the take-outs to prevent any cutting action by the take-out wires against the edge of the coil.

The pre-assembly is indicated in Figs. 2 and 3. The fuse wire construction is associated with lead-in wire 13. Leads 10, 11, and 12, or, as indicated previously any number of wires corresponding to the taps on the coil, are connected directly to the take-out leads.

The panel 22 is constructed of insulating paper board or the like and has a series of apertures 23 and staples 24 for securing the individual leads. The insulated leads 10, 11, and 12 are individually threaded through the apertures 23 and secured by staples 24. The stripped ends of leads 10, 11, and 12 are spliced to take-out leads 15, 16, and 17 and folded back on the panel 22 or deposited in

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any suitable manner which will avoid shorting contact between adjacent leads. Lead 13 is similarly threaded through an aperture 23 and stapled. The lead 13 is not, however, connected to a coil tap. Instead it is spliced to jumper 25. The jumper wires 25 and 26 parallel lead 13 and are firmly anchored in place by the construction at features employed. The jumpers are similarly threaded through apertures 23 and 27 so that both free ends 28 and 29 are on the underside of the panel 22. The free ends of the jumpers are sufficiently long to permit crimping over the panel edge as at 30 and 31 and the wires are seized by stapling as at 24. The other end of the wire 26 is spliced to the coil take-out lead 18.

Fig. 3 shows the bottom view of the pre-assembly and the exposed free ends 23 and 29 of the wires 25 and 26. The fuse wire 32 is soldered across the wire jumpers to complete an electrical circuit through lead 13, jumper 25, fuse 32, jumper 26, and coil tap 18. Due to the series connection of the fuse wire in the primary circuit, abnormal transformer temperature or excessive primary circuit voltage will cause the fuse to open the primary circuit.

It is to be particularly noted that the construction of the pre-assembly minimizes the mechanical stress on the soft fuse wire due to stresses applied to any of the pre-assembly lead wires.

Having thus described my invention, I claim:

1. A pre-assembly of connection leads for multitap electrical transformers consisting of a plurality of insulated wires including two primary leads all with stripped ends, an insulating panel having a number of apertures at least equal to the number of insulating leads, said insulating wires lying upon the outermost surface of said panel and stapled thereto, said stripped ends threaded through said apertures for connection to transformer take-out leads, two jumper wires positioned adjacently parallel one of said primary leads, one jumper spliced to said primary lead, the other jumper fused to the transformer primary take-out tap, and a fuse wire joining the remote ends of said jumper wires.

2. A pre-assembly of connection leads for multitap electrical transformers consisting of a plurality of insulated wires including two primary leads all with stripped ends, an insulating panel having a number of apertures at least equal to the number of insulating leads, said insulating wires lying upon the outermost surface of said panel and stapled thereto, said stripped ends threaded through said apertures, two jumper wires positioned adjacently parallel one of said primary leads, additional panel apertures through which both ends of the jumper wires are threaded, one jumper spliced to said primary lead, the remaining jumper spliced to the transformer primary takeout tap, and a fuse wire joining the remote ends of said jumper wires on the undermost side of said panel.

3. A pre-assembly of connection leads for electrical coil windings consisting of a plurality of insulated lead wires all with stripped ends, an insulating panel having a number of apertures at least equal to the number of insulated lead wires, said insulated lead wires lying upon said panel and stapled thereto, said stripped ends threaded through said apertures for connection to coil take-out lead wires, a fuse wire electrically connected between one of said insulated lead wires and a coil take-out lead wire, and the other insulated lead wires electrically connected to their corresponding coil take-out lead wires.

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