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[54] **METHOD OF TRANSFORMER CONSTRUCTION
 AND DEVICE**
7 Claims, 3 Drawing Figs.

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 H01f 27/30, H01f 41/00
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 198, 208, 205; 29/602, 606

ABSTRACT: The transformer makes use of a unique cup-shaped fitting which has a central bottom opening defined by a flange made of thinner material so as to grip a primary winding in substantially fluidtight relation so that taunting compound can be effectively introduced into the fitting to complete the transformer.

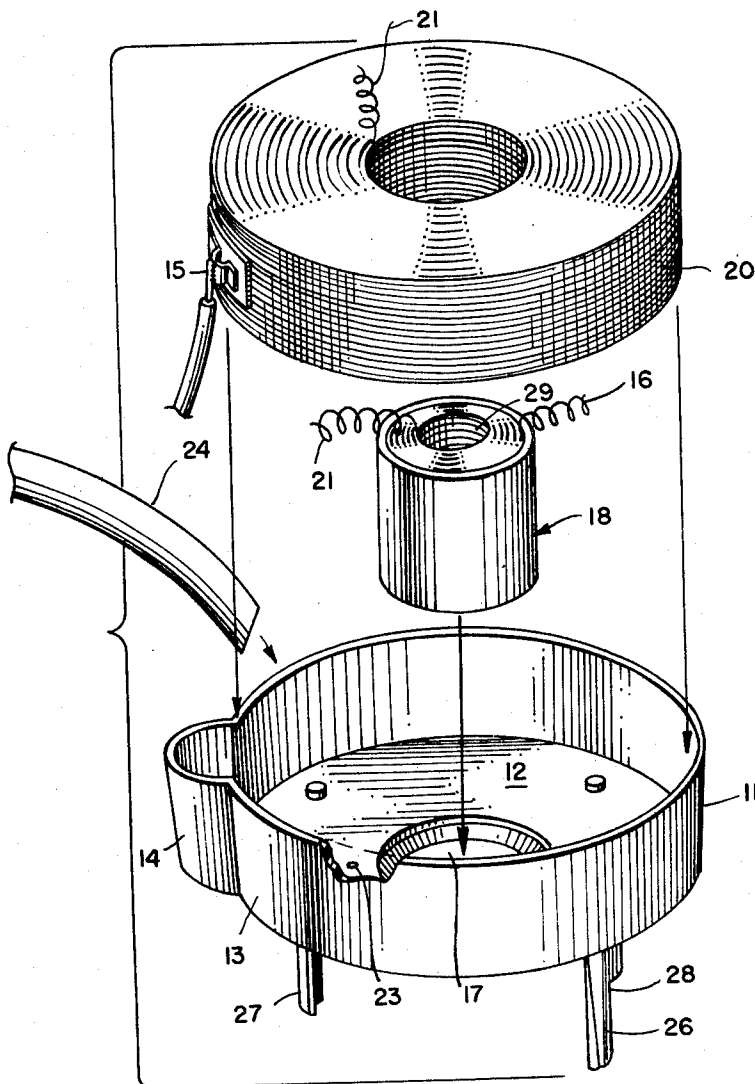


FIG. 1

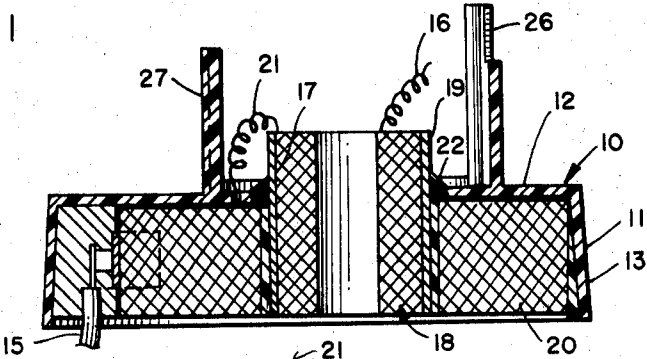


FIG. 2

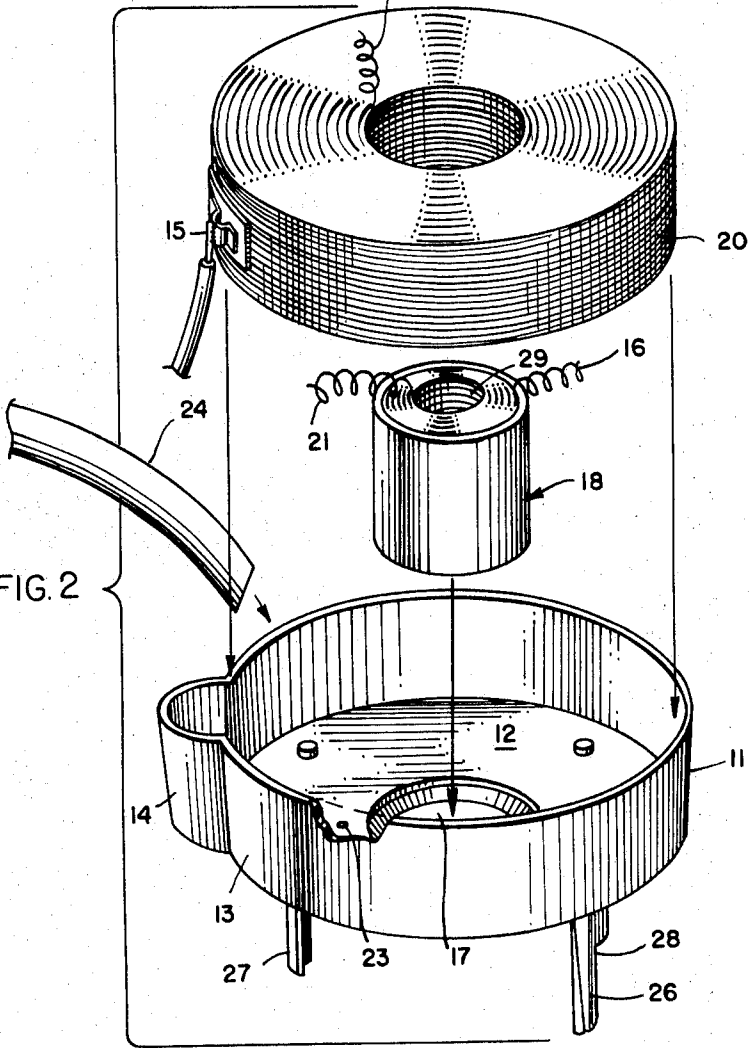
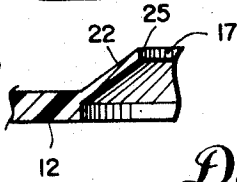


FIG. 3



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METHOD OF TRANSFORMER CONSTRUCTION AND DEVICE

BACKGROUND AND SUMMARY OF INVENTION

The invention finds particular utility in the manufacture of a high voltage transformer for television sets. Such a transformer develops an output of 25,000 volts and it is important that such elements be ruggedly constructed. On the other hand, it is equally important from the standpoint of both the manufacturer and the consumer that these be inexpensively constructed. Through the use of a unique fitting, both ends are achieved, the thinner deformable flange portion positionably gripping the primary winding of the transformer while sealing against loss of potting compound so that a sturdy, rigid construction is achieved.

DETAILED DESCRIPTION

The invention is described in conjunction with the accompanying drawing of an illustrative embodiment, in which:

FIG. 1 is a sectional view of the transformer;

FIG. 2 is an exploded perspective view of the transformer; and

FIG. 3 is an enlarged fragmentary sectional view of the deformable flange of the transformer of FIG. 1.

In the illustration given and with particular reference to FIG. 1, the numeral 10 designates generally a high voltage transformer which is seen to include a generally cup-shaped body 11. In the illustration given, the body is constructed of flame-retardant polypropylene and has a wall thickness of the order of about 0.050 inch. Excellent results are obtainable with wall thicknesses in the range of 0.035—0.075 inch. The fitting 11 includes a general flat bottom wall 12 and a generally cylindrical sidewall 13. As best seen in FIG. 2, the sidewall 13 is interrupted to provide bulge portion 14 which is advantageously employable as a shield for the extension of the high voltage lead 15. A low voltage lead 16 is also seen in FIGS. 1 and 2.

In FIG. 1, it will be noted that the opening 17 in the center of the bottom wall 12 has received a primary winding generally designated 18. The primary winding 18 includes as its outer cover a sheet of dielectric paper as at 19. Also seen in FIG. 1 is a second winding 20 which is generally torodial in shape and is disposed annularly relative to the primary winding 18. In current television parlance, the winding 20 is referred to as a tertiary winding. A lead or connection 21 interconnects the primary with the tertiary winding.

In the process for constructing the transformer 10, the cup-shaped fitting 11 is positioned as seen in FIG. 2. Thereafter, the primary 18 is introduced into the opening 17 where it is gripped by the angularly extending flange 22 in substantially liquidtight relation. Thereafter, the tertiary winding 20 is positioned in annular relation about the primary winding 18 and within the confines of the cup-fitting 11. It will be appreciated that in certain instances, the two windings 18 and 20 may be previously assembled as a single unit before introduction into the fitting 11. The windings are electrically interconnected by means of the lead 21 which extends through an aperture 23 provided in an off-axis portion of the bottom wall 12. The high voltage lead 15 is positioned so as to lie within the bulge portion 14 and thereafter potting compound in liquid form is introduced through the pipe 24 (see FIG. 2). The potting compound flows around the tertiary winding 20 as is seen in FIG. 1 with the flange 22 serving as a barrier against outflow of the liquid compound. After the potting compound effectively envelops the windings within the fitting 11, the same is subjected to curing as by being subjected to oven temperatures of the order of 200° F. for about 15—30 minutes. Typical potting

compounds are made up of either polyesters or silicones which are electrically inert.

The liquid potting compound is effectively restrained against outflow from the fitting 11 by means of the deformable flange 22. The flange 22, as best seen in FIG. 3 is thinner than the remaining portions of the fitting 11 with which it is integral. Optimum results are obtainable with thickness of the order of 0.015—0.030 inch, the flange being molded integrally with the remaining portions of the fitting 11 and having an interior facing surface 25 which is generally parallel with the axis of the cup-fitting. This effects a positionable gripping of the winding 18 while effecting the above mentioned seal.

It will be noted that the bottom 12 is equipped with a pair of postlike projections 26 and 27. The post 26 is notched as at 28 for the receipt of a core piece which extends into the axial center portion of the primary winding 18 as is designated 29 in FIG. 2. The post 27 serves as a seal for the connector 21 and also is advantageously employable as a positioning means during molding.

I claim:

1. A method of constructing a high voltage transformer comprising introducing a primary winding of generally tubular shape into a plastic cup-shaped fitting having a central bottom opening, said opening being defined by a generally circular deformable flange integral with said fitting whereby said flange deforms to positionally grip said winding in substantially liquidtight relation, providing a second winding within said cup-shaped fitting concentric to said primary, electrically interconnecting said primary and secondary winding, and introducing potting compound into said fitting.

2. A high voltage transformer device comprising a cup-shaped fitting having a circular opening in its central bottom, said opening being defined by a deformable flange integral with said fitting and extending angularly relative to said bottom, a generally cylindrical primary winding mounted in said fitting and projecting on each side of said bottom while being gripped in substantially liquidtight relation by said flange, a generally torodial tertiary winding mounted in said fitting about said primary winding and electrically connected thereto, and potting compound filling said fitting about said windings.

3. The device of claim 2 in which said fitting bottom is equipped with an offcenter aperture, an electrical conductor extending through said aperture connecting said primary and tertiary windings.

4. The device of claim 2 in which said fitting has a generally cylindrical sidewall, said sidewall being interrupted by an integral bulge portion, a high voltage lead from said tertiary winding extending out of the bulge portion.

5. The device of claim 2 in which said fitting is equipped with an integral post portion extending outwardly away from said bottom, said post being notched to position a transformer core part.

6. A device for use in a high voltage transformer comprising a unitary cup-shaped fitting constructed of generally resilient thermoplastic material and including a bottom integral with a generally cylindrical sidewall, said bottom having a centrally located circular opening with the opening being defined by a deformable circular flange integral with said bottom and extending in angular relation to said bottom, said flange being thinner than said bottom and sidewall to flex preferentially into gripping relation with a primary winding position therein and prior to potting the same.

7. The device of claim 6 in which the thickness of said bottom and sidewall is of the order of about 0.035 to about 0.075 inch while that of the flange is of the order of about 0.015 to about 0.030 inch, said fitting being constructed of polypropylene.