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F. A. WOOD

3,092,797

TELEVISION SWEEP TRANSFORMER WITH FILAMENT WINDING INSULATOR

Filed May 24, 1961

FIG. 1

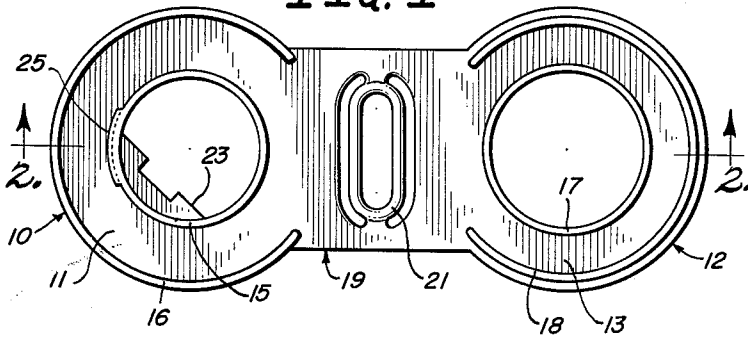


FIG. 2

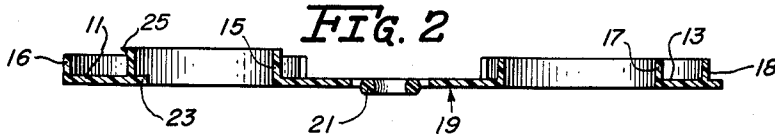


FIG. 3

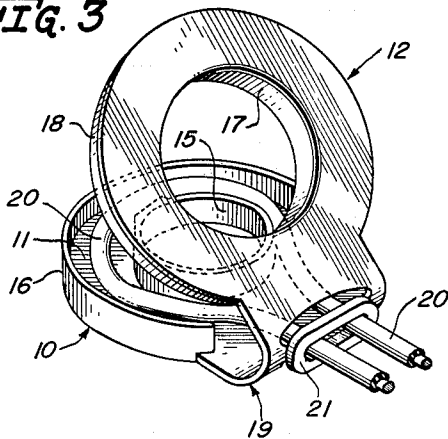


FIG. 4

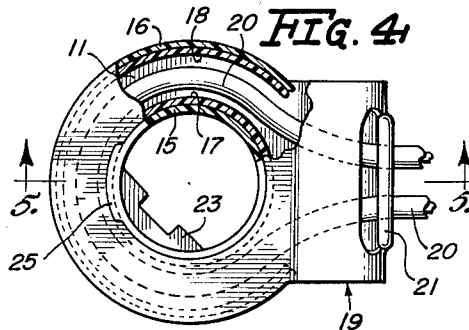


FIG. 6

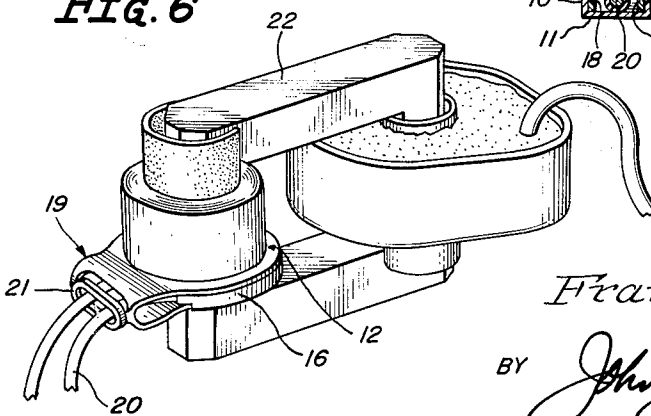
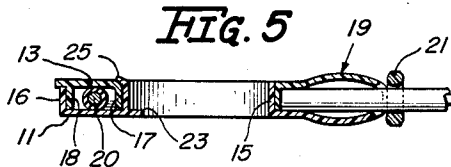


FIG. 5



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TELEVISION SWEEP TRANSFORMER WITH FILAMENT WINDING INSULATOR

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This invention is specifically directed to an improved insulator for the filament winding of the horizontal sweep transformer of a television receiver.

In the past the filament winding of the horizontal sweep transformer has been insulated from high voltages by only partially covering a single loop or single turn filament winding with a disk of insulation. Another method was to provide an extra thick insulation covering on the lead portion that was around the core of the sweep transformer but this was disadvantageous in that the insulator tended to crack under high ambient temperatures present in the television receiver. Such insulators have also been expensive to produce and to assemble on a filament winding.

Accordingly, it is an object of this invention to provide an improved filament winding insulator for a horizontal sweep transformer of a television receiver.

It is another object of this invention to provide an insulator which is inexpensive to manufacture.

It is still another object of this invention to provide a filament winding insulator which is easily installed.

It is a further object of this invention to provide a filament winding insulator with improved insulating qualities.

In furtherance of the objectives of this invention, an improved horizontal sweep transformer of a television receiver of the type having a core and a filament winding consisting of at least a single turn wound around the core comprises a one piece insulator for the filament winding including a first annular form having an internal bore dimensioned to accommodate the core and further having a first annular channel. A second annular form has an internal bore dimensioned to accommodate the core and further has a second annular channel of substantially the same configuration and dimension as the first annular channel. The first and second forms are nested together to define a double-walled raceway captiv- ating the filament winding and to define a channel through which the core extends. The first and second annular forms are linked by a flexible coupling.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The organization and manner of operation of the invention, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawing, in the several figures of which like reference numerals identify like elements, and in which:

FIGURE 1 is a plan view of an insulator embodying the present invention;

FIGURE 2 is a sectional view taken along lines 2—2 of FIGURE 1;

FIGURE 3 is a perspective view of the insulator of FIGURE 1 showing the placement of the filament winding in the insulator and the insulator itself in a partially assembled state;

FIGURE 4 is a plan view, in partial section, of the assembly of FIGURE 3 in its completely assembled condition;

FIGURE 5 is a sectional view taken along line 5—5 of FIGURE 4; and

FIGURE 6 is a perspective view showing the insulator

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in place on the horizontal sweep transformer of a television receiver.

A one piece insulator is shown in FIGURE 1 in its extended or developed position and includes a first annular form 10 having a first annular channel 11 and a second annular form 12 having a second annular channel 13. Channel 11 includes a first normally extending wall 15 along the inner edge of the annular form 10 and a second normally extending wall 16 along the outer edge as best shown in FIGURE 2. Form 12 has generally similar walls 17 and 18 similarly placed.

A flexible coupling 19 between annular forms 10 and 12, allows annular channels 11 and 13 to be placed in mating engagement to form a double-walled race-way captiv- ating a filament winding 20 as best shown in FIGURES 4 and 5.

A reinforced rigid grommet 21, as best shown in FIGURE 3, is included in flexible coupling 19 to confine the leads for winding 20.

Means are included in the first form 10 for indexing the form with a core 22 of the horizontal sweep transformer of a television receiver shown in FIGURE 6. The indexing means includes a flat keying portion 23 extending from the inner edge of annular form 10 and having a configuration which is adapted to key with part of the periphery of core 22.

Forms 10 and 12 are held in mating engagement as shown in FIGURES 4, 5 and 6 by means of a locking ridge 25 extending from the top of normally extending wall 15 and extends over wall 17 of form 12 biasing it against form 10 as best shown in FIGURE 5.

A major advantage of the one piece insulator is the ease of assembling and placing the winding 20 in the insulator and placing the insulator on the core 22. Initially the insulator is as shown in FIGURES 1 and 2. The winding 20 is then placed in one of the channels as shown in FIGURE 3 and one annular form is mated with the other and snapped together, as shown in FIGURES 4 and 5. The entire assembly is then mounted upon core 22 where the indexing means 23 lines up the insulator in a predetermined orientation and the installation of the filament winding on core 22 has been completed.

From an electrical standpoint the filament winding is totally captivated by mating channels 11 and 13 with walls 15 through 18 forming a race-way having a double-walled insulation barrier.

A final advantage is the single piece construction of the insulator which is inexpensive to manufacture and less costly to install on the transformer as compared to multiple piece insulators.

Thus, a one piece insulator for a filament winding of a horizontal sweep transformer for a television receiver has been provided which is inexpensive in construction, economical to install, and more effective in its insulating electrical characteristics.

While a particular embodiment of the present invention has been shown and described, it is apparent that changes and modifications may be made therein without departing from the invention in its broader aspects. The aim of the appended claims, therefore, is to cover all such changes and modifications as fall within the true spirit and scope of the invention.

I claim:

1. In a horizontal sweep transformer of a television receiver of the type having a core and a filament winding consisting of at least a single turn wound around the core, the improvement comprising, a one piece insulator for the filament winding including a first annular form having an internal bore dimensioned to accommodate said core and further having a first annular channel, a second annular form having an internal bore dimensioned

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to accommodate said core and further having a second annular channel of substantially the same configuration and dimension as said first annular channel, said first and second forms being nested together to define a double-walled raceway captivating said filament winding and to define a channel through which said core extends, and a flexible coupling between said first and second annular forms.

2. In a horizontal sweep transformer according to claim 1, a reinforced rigid grommet in said flexible coupling to confine leads extending from said winding.

3. In a horizontal sweep transformer according to claim 1, means included in said first form for indexing said form with said core.

4. In a horizontal sweep transformer according to

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claim 1, a snap lock for releasably retaining said forms in said nested relationship.

References Cited in the file of this patent

UNITED STATES PATENTS

2,333,266	Miller	Nov. 2, 1943
2,687,157	Cowan	Aug. 24, 1954
2,723,302	Cresson	Nov. 8, 1955
3,018,883	Wohlforth	Jan. 30, 1962

FOREIGN PATENTS

232,071	Great Britain	Apr. 16, 1925
272,988	Great Britain	June 20, 1927
69,836	Sweden	July 22, 1930
548,332	Germany	Apr. 9, 1932