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[54] **TOROIDAL YOKE AND CORE ASSEMBLY THEREFOR**

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[52] **U.S. Cl.** **335/210,** 335/213

[51] **Int. Cl.** **H01f 7/00**

[58] **Field of Search** 335/210, 213

[56] **References Cited**

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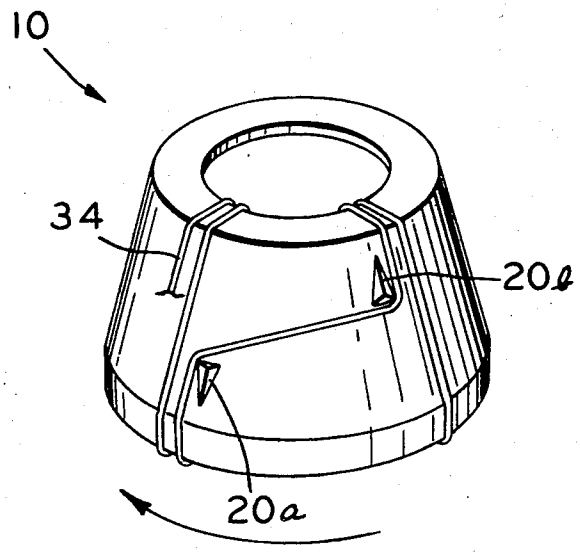
[57] **ABSTRACT**

A toroidal yoke having a modified core which contains projecting slewing points whereby the separate and distinct coils of the yoke can be wound as a single coil, thus eliminating the need for stopping the winding machine periodicaly during manufacture. The single coil is after formed into a plurality of separate coils by cutting the wire in the proper locations.

6 Claims, 3 Drawing Figures



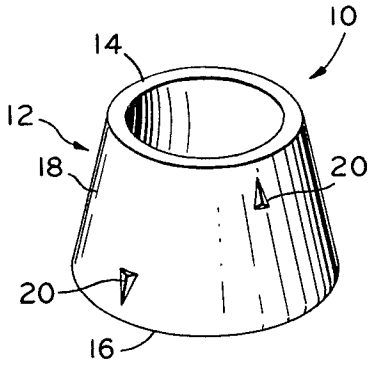


Fig. 1

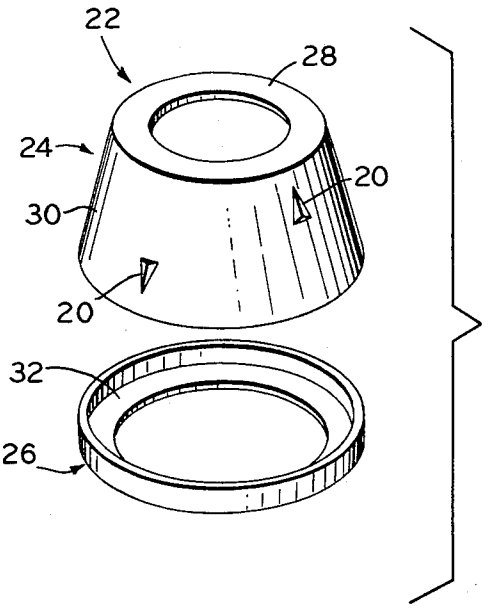


Fig. 2

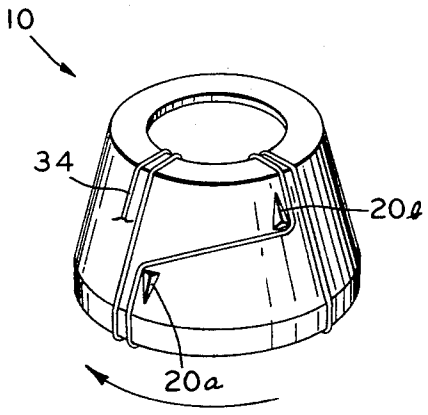


Fig. 3

TOROIDAL YOKE AND CORE ASSEMBLY THEREFOR

BACKGROUND OF THE INVENTION

This invention relates to deflection yokes for cathode ray tubes and more particularly to such yokes which are toroidally wound. Still more particularly, it relates to improvements in the core of the yoke which greatly facilitates winding. It is known to make toroidal deflection yokes for cathode ray tubes; such yokes comprising a hollow, magnetically permeable core having a plurality of coils of wire wound longitudinally thereabout. That is, each of the turns of the coils are substantially parallel to the longitudinal axis of the core. These yokes generally have four distinct and separate coils, two for the horizontal deflection and two for the vertical deflection; however, winding patterns having ten or more coils are known. Such yokes have been semi-automatically wound on a yoke winding machine which basically has a winding head having a closed circular track containing a wire loaded bobbin, the yoke being positioned with the circular track substantially in the center of the core. In operation, the bobbin revolves around the circular track in a vertical plane while the yoke is rotated in a horizontal plane according to a specific wiring or winding pattern. In all prior art devices of this type it was necessary, after the winding of a first one of the coils, for the operator to stop the machine, sever the wire, fix the cut end so that it would not be lost (generally by taping to to the core), index the core to the proper position for the next winding, and restart the machine. As noted above, the procedure had to be repeated for each of the coils and resulted in a time-consuming operation which greatly increased the cost of the yoke.

OBJECTS AND SUMMARY OF THE INVENTION

It is, therefore, an object of this invention to obviate the disadvantages of the prior art.

It is another object of the invention to enhance the winding of toroid yokes.

It is yet another object of the invention to reduce the cost of winding toroid yokes.

Still another object of the invention is to increase the speed of which such yokes can be wound.

These objects are accomplished in one aspect of the invention by the provision of a yoke core or body provided with at least two projecting slewing points strategically placed to enable the winding of the yoke as a single coil which can later be separated by proper cutting of the wire into the necessary number of separate and distinct coils.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of one embodiment of the invention;

FIG. **2** is a perspective view of an alternate embodiment of the invention; and

FIG. **3** is a perspective illustrating the use of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

For a better understanding of the present invention, together with other and further objects, advantages and capabilities thereof, reference is made to the following disclosure and appended claims in conjunction with the above-described drawings.

Referring now to the drawings with greater particularity, there is shown in FIG. **1** a toroidal yoke core **10** of a magnetic permeable material such as ferrite. The yoke core **10** is capable of being wound with a plurality of separate and distinct coils and comprises a frustoconical hollow body **12** having a top **14**, a bottom **16** and an angled wall **18**. The wall **18** is provided with at least two slewing points **20** which are displaced from one another in predetermined locations. The slewing points **20** are preferably constructed from a nonmagnetic material, and can be attached to wall **18** by any suitable method, such as gluing. The configuration of the slewing points shown is substantially triangular; however, other configurations such as cylindrical can be utilized. It is important, however, that the slewing points have no sharp edges in contact with the wire coil which could scrape the insulation therefrom.

In FIG. **2** is shown an alternate embodiment of the invention. Herein there is provided a plastic housing **22** which fits over the body **12** of core **10**. The housing **22** matches in configuration body **10** and is then constructed in two pieces, an upper piece **24** and a lower piece **26**. Upper piece **24** has a flange **28** and an angled wall **30** which fits over wall **18** of body **12**. Lower piece **26** is also provided with a flange **32** which fits over bottom **16** of body **12**. The two pieces are cemented together with any suitable plastic cement. In this embodiment slewing points **20** project from wall **30**. They can be separate pieces cemented into appropriate slots or can be molded as an integral part of the assembly.

In FIG. **3** is shown a diagrammatic representation of the use of the invention during the winding of the yoke. The arrow indicates the direction of rotation of the yoke core **10** for purposes of this illustration, it being obvious that the rotation is not restricted to this direction.

After the winding of a first coil has been initiated, as represented by wires **34**, the winding continues until the necessary number of turns for the first coil has been completed. At this point in the prior art, it would be necessary for the operator to stop the machine, cut the wire, index the yoke core to the position of the next coil, and restart the winding operation. By utilizing this invention a slew point **20*a*** is provided at the termination of the first coil and when this point is reached the winding operation is halted (this can, of course, be automatically controlled) while the yoke core **10** continues being indexed to the start of the next coil. The wire **34** catches on point **20*a*** and slews around the body of the core substantially transverse to the normal winding direction. When the appropriate location is reached, winding again commences with wire **34** being snubbed about a second slew point **20*b*** which is provided at the beginning of the second coil.

While only two slew points have been described herein, it will be obvious that as many as may be necessary can be utilized.

The use of this invention greatly facilitates the winding of toroidal yokes. Eliminating the starting and stopping operations, as well as the cutting and fixing of loose ends by the operator, increases production and reduces the cost.

While there have been shown what are at present the preferred embodiments of the invention, it will be apparent to those skilled in the art that various changes

and modifications can be made herein without departing from the scope of the invention as defined by the appended claims.

What is claimed is:

1. A toroidal yoke core capable of being wound with a plurality of separate and distinct wire coils, said core comprising: a substantially frusto-conical body having an inner surface and an outer surface, said outer surface having at least two displaced slewing points incorporated thereon and projecting therefrom.

2. The yoke core of claim 1 wherein said frusto-conical body comprises a ferrite material of high magnetic permeability and said slewing points are affixed directly thereto.

3. The yoke core of claim 1 wherein said slewing points are affixed to an electrically insulating body of substantially the same configuration as said core, said insulating body fitting over said core.

4. The yoke core of claim 1 wherein said core has a longitudinal axis and said slewing points are displaced from one another both radially and along said longitudinal axis.

5. The yoke core of claim 2 wherein said slewing points are non-magnetic.

6. A toroidal yoke for a cathode ray tube comprising: a frusto-conical magnetic ferrite body; a non-magnetic, similarly shaped covering therefor overlying said body, said covering being provided with at least two displaced apart, projecting slewing points; and a coil formed from a single strand of wire toroidally wound about said covering, said wire at least once contacting a first of said slewing points and radially traversing said covering to a second one of said slewing points.

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