

United States Patent

Tsutsumi

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[54] DEFLECTING COILS

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[58] Field of Search.....335/210, 213; 336/200; 313/75

[56]

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Primary Examiner—G. Harris

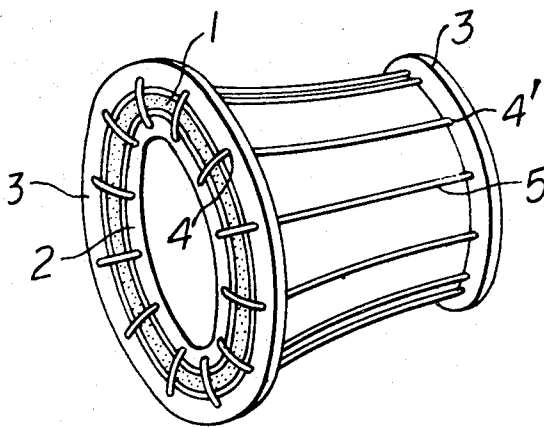
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ABSTRACT

A deflecting coil in which, instead of winding a coil on a core, conductive wires are directly provided on a sheet of insulating material and the sheet is combined with the core or both the sheet of insulating material and the conductive wires are directly provided on the surface of the core, and which, therefore, is adapted to mass production possessing uniform characteristic.

4 Claims, 3 Drawing Figures



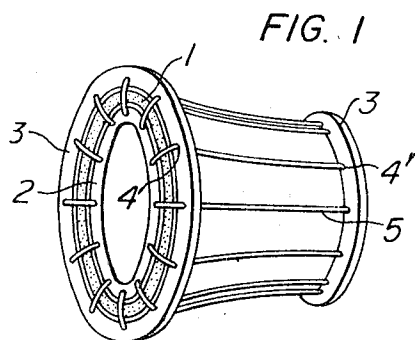


FIG. 2

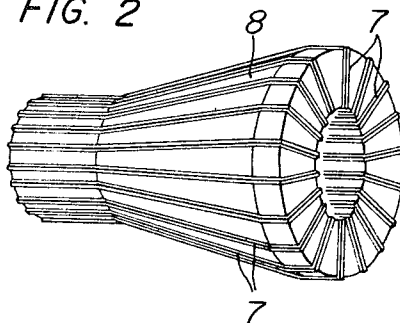
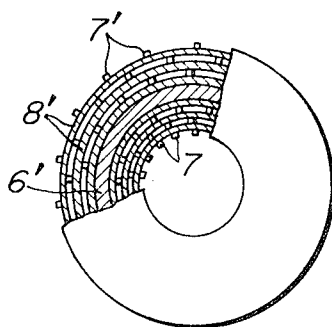


FIG. 3

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1

DEFLECTING COILS

The present invention relates to a deflecting coil to be fitted around the neck of a picture tube of a television receiver.

In the past, a deflecting coil of the type described has been manufactured by continuously winding a coil for vertical deflection and a coil for horizontal deflection around a ferrite core. Namely, a coil wire is provided beforehand and said coil wire is wound on the core in a predetermined state of distribution while unwinding the same. Such a practice has made the production technique complicated since the position of the coil wire must be regulated in the process of winding the core wire on the core. In addition, with such prior art deflecting coils it has occasionally been impossible to obtain a desired distribution of magnetic field due to displacement of the coil wire after manufacture of the coil.

In view of the above, the present invention proposes a deflecting coil which is constructed by covering a core with insulating plates having a group of coil wires previously formed thereon or by forming a coil on the surface of a core by plating or vacuum evaporation, and which, therefore, can be produced easily at high yield and is rigid and easy to maintain.

The object of the present invention is to provide a deflecting coil comprising a core and an insulating overlay having conductive wires directly secured thereon by vacuum evaporation, printing or plating and overlying said core in firm contact therewith.

The present invention will be described by way of example hereinafter with reference to the accompanying drawings, in which:

FIG. 1 is a perspective view of one embodiment of the deflecting coil according to the present invention;

FIG. 2 is a perspective view of another embodiment of the deflecting coil of this invention; and

FIG. 3 is a front elevation, partially in section, of the deflecting coil shown in FIG. 2.

The deflecting coil shown in FIG. 1 is of the type which is constructed by only composing a coil element at first and then combining the coil element with a core. In FIG. 1, reference numeral 1 designates a ferrite core which is sandwiched between insulating overlays 2, 3 each having a coil formed thereon. The insulating overlays 2, 3 overlying on the outer and inner surfaces of the core 1 each consist of a thin sheet of insulating material subjected to a conducting treatment, with conductive wires formed thereon by photoetching, electrolytic plating or printing. Describing more practically, a sheet of insulating material, such as bakelite, is provided at the opposite ends thereof with terminals 4, 4' with a predetermined interval between each other and coil wires 5 are fixedly provided on the surface of the sheet in such a manner that each of the coil wires is connected to the opposed terminals 4, 4' at its opposite ends. Thereafter, the sheet is shaped into a cylindrical shape to be fitted in or on the core 1. The insulating overlays 2, 3 thus produced are mounted on the inner and outer surfaces of the ring core 1 respectively and the opposed terminals 4 at the same ends of the inner and outer overlays are connected with each other and similarly the opposed terminals 4' at the other ends of the same are connected with each other, whereby the same effect as obtainable from a se-

2

ries of coil wires wound around the ring core 1 can be obtained.

Although in the embodiment described above the coil is formed by mounting the conductive wire-carrying insulating overlays on the inner and outer surfaces of the ring core and connecting the terminal ends of the conductive wires with each other at each ends of said insulating overlays, it is to be understood that the coil may be formed by making the insulating overlays of a flexible material and connecting the terminal ends of the conductive wires on the respective overlays with each other by flexing the end of one overlay into a U-shape around the edge of the core.

FIG. 2 shows another embodiment of the present invention. In FIG. 2, reference numeral 7 designates conductive wires formed on an insulating layer secured to a cylindrical core. These conductive wires 7 correspond to the coil wire of the conventional deflecting coil, and are formed in the following manner: Namely, the insulating layer 8 is formed on the surface of the core by vacuum evaporation and then the conductive wires 7 are formed on top of said insulating layer 8 with a suitable interval between each other by vacuum evaporation. Thereafter, the insulating layer and the conductive wire layer are formed alternately one on another in similar manner and then the rear ends of the conductive wires are connected with each other to form a deflecting coil.

In case of a deflecting coil of multiplex winding, it may be formed, as shown in FIG. 3, by laminating a plurality of insulating overlays 8' each having conductive wires 7' provided thereon, on a core 6' and connecting the rear ends of the conductive wires with each other so as to form a coil or by forming an insulating layer and a conductive wire layer alternately on the surface of a core by vacuum evaporation, plating, etc.

I claim:

1. A deflecting coil comprising a cylindrical core and insulating overlays provided on both the inner and outer surfaces of said core, said overlays having a plurality of conductive wires directly formed thereon in firm contact therewith, each of said wires being of substantially the same length as said core and having open end portions, each inner wire and its associated outer wire being connected with each other at the respective end portions thereof.

2. A deflecting coil comprising a cylindrical core and insulating layers formed on both the inner and outer surfaces of said core, said layers having a plurality of conductive wires directly formed thereon in firm contact therewith, each of said wires being of substantially the same length as said core and having open end portions, each inner wire and its associated outer wire being connected with each other at the respective end portions thereof.

3. A deflecting coil as defined in claim 1, wherein a plurality of said insulating overlays each having conductive wires directly secured thereon are laminated and said conductive wires are connected with each other at the ends of the insulating overlays to form a coil.

4. A deflecting coil as defined in claim 2, wherein a plurality of said insulating layers each having conductive wires provided thereon are superposed on top of another and said conductive wires of the respective layers are connected with each other at the ends of said layers to form a coil.

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