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HISAO MAEDA

3,060,394

RADIO TRANSFORMER

Filed Dec. 16, 1959

Fig. 1

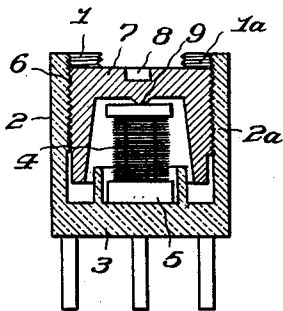


Fig. 2

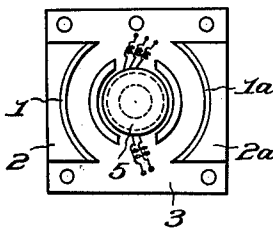


Fig. 3

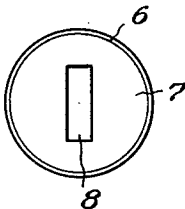


Fig. 4

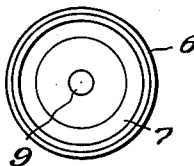


Fig. 5

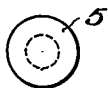
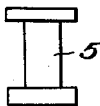


Fig. 6



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3,060,394

RADIO TRANSFORMER

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1 Claim. (Cl. 336—136)

This invention relates to radio transformers and more particularly to the construction of an improved radio transformer with a variable-inductance coil.

It is an essential object of this invention to provide such a radio transformer of simple, compact, strong, and rigid construction, by which the vital, yet relatively delicate, parts and their adjusted settings are fully protected by a substantially complete enclosure.

Said object and other objects have been achieved in the radio transformer of this invention, the details of which will be more clearly apparent by reference to the following detailed description of one representative embodiment of the invention when taken in connection with the accompanying drawing, in which the same parts are designated by the same numerals, and in which:

FIG. 1 is a front elevational view, in section, of one embodiment of this invention, in assembled form;

FIG. 2 is a plan view of the integrally fastened base and side posts with the ferromagnetic cylinder removed;

FIG. 3 is a top plan view of the magnetic cylinder of the embodiment of FIG. 1;

FIG. 4 is a rear plan view of the magnetic cylinder of the embodiment of FIG. 1;

FIG. 5 is a top plan view of the magnetic core of the embodiment of FIG. 1;

FIG. 6 is a front elevational view of the ferromagnetic core of the embodiment of FIG. 1.

Referring to the drawing, the basic structure of the illustrated embodiment comprises a base 3, fabricated from an electrical insulation material, for example, synthetic phenol resin, onto which has been integrally or rigidly affixed two supporting posts 2 and 2a, which stand symmetrically on diametrically opposite sides of the center of said base 3, and which have inner surfaces mutually opposed and threaded with female screw threads 1 and 1a so formed as to receive and engage with the male screw threads 6 on the upper head portion of an inverted ferromagnetic cylinder 7. The base 3 centrally supports and partially encloses a drum-shaped, ferromagnetic core 5, about which is wound a coil 4. The aforesaid cylinder 7 is screwed down by means of a screw driver inserted into the slot 8 on the top of the cylinder 7, in between said posts 2 and 2a, to cover the core 5 and coil 4 and to contact with said core 5 centrally through a protruding pivotal point 9 disposed centrally

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on the lower, internal surface of the head portion of said cylinder 7.

The inductance of the aforesaid coil 4 may be varied by turning the magnetic cylinder 7, thereby raising or lowering said cylinder and its pivotal point 9 which is a unique feature provided so as to afford extremely low frictional resistance between said point 9 and said core 5 against rotation relative to one another, thereby enabling the cylinder 7 to be turned at will for the purpose of adjusting the coil inductance as described above without causing the rotation of the core 5 through frictional contact, and thereby preventing breakage of the lead-out wires of the coil 4.

The pivot 9 is made of the same ferromagnetic material as the cup core 7. When the pivot 9 is in contact with the upper surface of the drum core 5 as shown in FIG. 1 the inductance is practically the same as when the cup core provided with no such pivot is made in contact with the drum core.

It is desirable to obtain the maximum possible inductance in order to achieve the maximum range.

While I have described one particular embodiment of my invention, it will, of course, be understood that I do not wish my invention to be limited thereto, since many modifications may be made and I, therefore, contemplate by the appended claim to cover all such modifications as may fall within the true spirit and scope of my invention:

What I claim is:

A radio transformer, comprising a base made from an electrical insulation material; supporting posts rigidly affixed thereto, symmetrically disposed thereon in diametrically opposed juxtaposition, and constructed so as to receive and support a magnetic cylinder; a drum-shaped, high-frequency, ferromagnetic core disposed centrally on said base; a coil wound about said ferromagnetic core; and said magnetic cylinder which substantially envelopes said coil and said core in the assembled state, and which has a central protruding pivotal point for contacting the top of said magnetic core and, by the raising and lowering of said magnetic cylinder with respect to its said supporting posts, for varying the inductance of the said coil, the point contact of said protruding pivotal point preventing any rotational torque from being transmitted, by friction, from any rotational motion of said magnetic cylinder to said magnetic core.

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