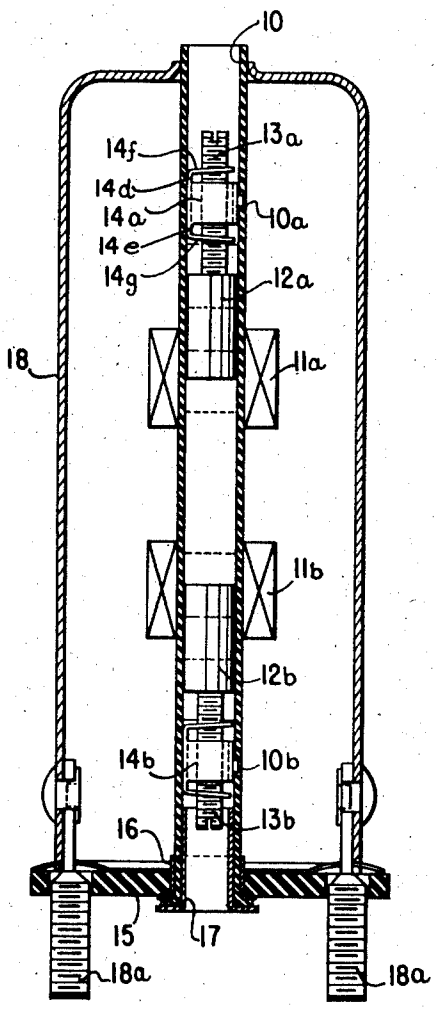
Aug. 31, 1948. A. P. OLESKY 2,448,190

MAGNETIC-CORE INDUCTANCE DEVICE

Filed July 2, 1945

Fig. 1



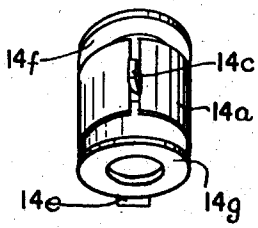


Fig. 2

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MAGNETIC-CORE INDUCTANCE DEVICE

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2 Claims. (Cl. 171—242)

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This invention relates to magnetic-core inductance devices and, while it is of general application, it is particularly suitable for embodiment in radio-frequency and intermediate-frequency transformers having magnetic cores individually associated with the primary and secondary windings thereof and individually adjustable to adjust the primary and secondary self-inductance values.

There are widely used in radio-broadcast receivers intermediate-frequency transformers having magnetic cores individually associated with the primary and secondary windings which are generally components of an intermediate-frequency selector including fixed condensers connected in parallel with the primary and secondary windings. The inductance values of the primary and secondary windings are adjusted to compensate for differences in the inherent inductance and capacitance of the connected circuit to tune the intermediate-frequency selector accurately to the intermediate-frequency of the receiver. The present invention is especially adapted for embodiment in such devices.

It is an object of the invention, therefore, to provide a new and improved magnetic-core inductance device which is extremely simple and economical in construction and which at the same time has a high degree of accuracy and has readily reproducible performance characteristics.

In accordance with the invention, an inductance device comprises a tubular form of insulation material having a positioning aperture therein and an inductance winding disposed on the form. A core of magnetic material is disposed within the form and coupled with the winding and provided with a supporting portion, while an annular resilient expansible member is disposed within and snugly fits the form and is provided with a projecting portion engaging the aperture of the form. This annular member also includes a portion engaging the supporting portion of the core to position and support the same.

For a better understanding of the invention, together with other and further objects thereof, reference is had to the following description taken in connection with the accompanying drawings while its scope will be pointed out in the appended claims.

Referring now to the drawings, Fig. 1 is a longitudinal sectional view of an intermediate-frequency transformer embodying the invention;

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while Fig. 2 is a detailed perspective view of the annular expansible member for positioning and supporting a magnetic core forming a component of the device.

Referring now to the drawings, there is illustrated an adjustable magnetic-core inductance device embodying the invention and comprising a tubular form 10 of insulation material having small, circular positioning apertures 10a and 10b therein. Disposed on the form 10 and in spaced relation to each other are a pair of inductance windings 11a and 11b spaced well away from and between the positioning apertures 10a, 10b. Disposed within the form 10 are a pair of cores 12a and 12b of magnetic material which may be in the form of molded plugs of powdered iron in a cementing binder. The cores 12a and 12b are disposed to be coupled with the windings 11a and 11b, respectively, and are provided with supporting portions, for example with threaded supporting stems 13a and 13b, respectively.

The inductance device also includes a pair of annular resilient expansible members 14a, 14b disposed within and snugly fitting the form 10 and provided with projecting portions engaging the positioning apertures 10a, 10b, respectively, and also including portions engaging and adjustably supporting the cores 12a, 12b, respectively, to position the same. Each of the members 14a, 14b may be in the form of the member 14a shown in detail in Fig. 2, consisting of an integral stamping of resilient sheet metal, such as Phosphor bronze, stamped into the form of a split sleeve and having a projecting lug or ear 14c adapted to engage an aperture in the form 10. From the opposite ends of the sleeve 14a and diametrically opposite to the split thereof are a pair of axially extending strips 14d and 14e from which extend a pair of circular collars 14f and 14g, respectively. The strips 14d and 14e comprise means for resiliently supporting the collars 14f and 14g, respectively, from the sleeve 14a and the unit is so formed that the collars 14f and 14g normally extend at relatively small opposed angles to the normal to the axis of the sleeve 14a and therefore to the axis of the tube 10 when mounted therein. These flared collars 14f and 14g are proportioned to engage one of the threaded stems 13a and 13b of the magnetic cores 12a and 12b, respectively, to grip the stem firmly and to position the respective one of the cores 12a and 12b accurately within the form 10 and and therefore with respect to the windings 11a or 11b.

The form 10 of insulation material may be supported at one end from a suitable base 15 of insulation material, such as "Bakelite," by means of a pair of concentric resilient ferrules 16 and 17 engaging the inner and outer surfaces of the form 10 and cooperating to form an eyelet to secure the form 10 to the base 15. If desired, the inductance device described may be enclosed within a conventional shield can 18 provided with extending lugs 18a for securing the device as a unit to a broadcast receiver chassis in a conventional manner.

In assembly of the inductance device of the invention, the sleeves 14a and 14b consisting of integral sheet metal stampings, as described, are first threaded upon the supporting stems 13a, 13b of the magnetic cores 12a, 12b, respectively. The sleeves are then slightly compressed and slid into opposed ends of the form 10 until the projecting lugs 14c of the sleeves 14a, 14b engage the positioning apertures 10a, 10b, of the form 10, whereupon the cores 12a, 12b are positioned approximately correctly with respect to their respective windings 11a, 11b. The threaded supporting stems 13a, 13b of the magnetic cores 12a, 12b, respectively, may be adjusted by means of the screw-driver slots provided therein to adjust individually the self-inductance values of the windings 11a and 11b. When the device is connected into an intermediate-frequency selector circuit, the inductances of the windings 11a, 11b may be adjusted in a conventional manner to tune the selector to the mean intermediate-frequency of the receiver, that is to align the intermediate-frequency selector, compensating for variations in the inherent inductance and capacitance of the circuits connected to the primary and secondary windings. The cores 12a and 12b are shown in their mean positions in solid lines while their positions of maximum inductance are shown in dotted lines and their positions of minimum inductance in dashed lines.

Thus there is provided by the invention an improved, adjustable magnetic-core inductance device of extreme simplicity in construction and assembly and yet one which at the same time provides a high degree of accuracy and a readily reproducible performance characteristic.

While there has been described what is at present considered to be the preferred embodiment of the invention, it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the spirit or scope of the invention.

What is claimed as new is:

1. An inductance device comprising a tubular form of insulation material having a positioning aperture therein, an inductance winding disposed on said form and spaced from said aperture, a core of magnetic material adapted to be positioned within said form and having a supporting stem thereon, and a resilient member including a portion adapted to receive said supporting stem of said core and a projecting portion, said member being adapted to be compressed and slid in said form while in assembled relation with said core to a position in which said projection on said member engages said positioning aperture in said form to approximately position said core with respect to said winding, said supporting stem of said core being adjustable with respect to said member to accurately position said core with respect to said winding.

2. An inductance device in accordance with claim 1 in which said stem is threaded and said resilient member includes an annular split sleeve adapted to fit snugly within said form and a pair of opposed collars for engaging said threaded stem.

ANTHONY P. OLESKY.

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