Nov. 2, 1926. 1,605,557

M. OSNOS

INDUCTANCE DEVICE

Filed Oct. 20, 1925

Fig. 1

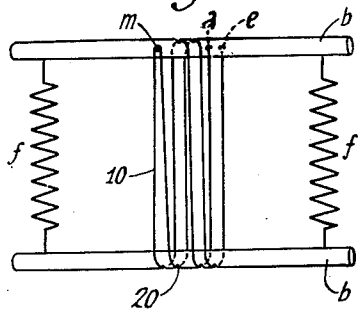


Fig. 2

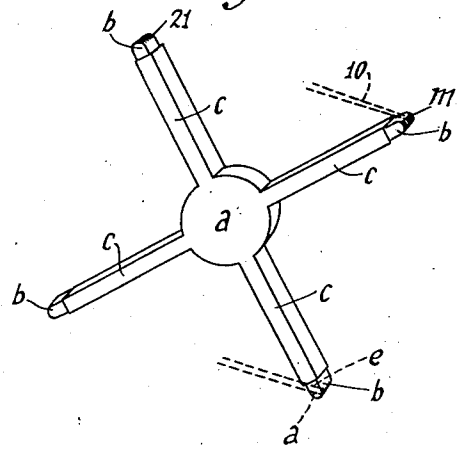


Fig. 3

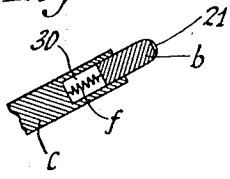
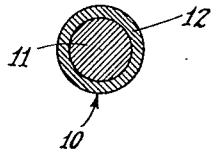


Fig. 4



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UNITED STATES PATENT OFFICE.

MENDEL OSNOS, OF BERLIN, GERMANY, ASSIGNOR TO GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M. B. H. HALLESCHES UFER 12/13, OF BERLIN, GERMANY, A CORPORATION OF GERMANY.

INDUCTANCE DEVICE.

Application filed October 20, 1925, Serial No. 63,616, and in Germany September 17, 1924.

The invention relates to the construction of inductance devices, such as used for choke coils, static frequency changers and the like, and, more particularly, to an inductance device made up of a conductor having a core of conducting material surrounded by a layer of magnetic material such as disclosed in German application No. T-29246 filed in Germany September 5, 1924, corresponding U. S. application being filed under Serial No. 63,617, filed Oct. 20, 1925.

The invention comprises the provision of a frame on which the conductor may be wound in order to allow a desirable length of conductor to be used and yet to prevent adjacent portions of the conductor from touching each other.

An object of the invention is to provide a device of the above indicated construction which will be cheap to make and yet reliable and efficient in operation.

Other objects will be apparent from the following description and appended claims when considered with the accompanying drawing in which,

Fig. 1 represents a device according to the invention,

Fig. 2 represents a different form of construction,

Fig. 3 is a detail of the construction shown in Fig. 2, and,

Fig. 4 is a cross-section of the novel conductor used, greatly exaggerated.

The present invention relates to a particularly convenient constructional formation of the frequency changer according to the parent application. If, in accordance with the parent application the conductor of the frequency changer is disposed bifilar fashion or zig-zag fashion, spreading apart of the parallel portions of the conductor, or, what is worse, their touching possibly produced as a consequence of thermal expansion must be prevented. For this purpose, in conformity with the invention, the conductor is arranged in a way so that it is subject to tension, the force needed therefor being produced by a spring, a pull-off weight, or the like.

Referring to Fig. 1 the conductor 10 which is wound double, the middle being denoted by m, is stretched on two carrier members b, b, which are kept apart, for instance, by two compressed springs f, f, the middle m and the ends a and e of the conductor being fastened to the carriers in any desired manner. The carriers, or at least the portions thereof coming in contact with the conductor are made up of insulating material as, for instance, porcelain, and they are suitably provided with grooves or furrows 20 to preserve proper distance between the conductor turns.

The conductor 10 may be made up of a conducting core 11 such as copper, surrounded by a layer 12 of magnetic material such as iron or some alloy thereof. The layer of magnetic material is preferably quite thin, to provide the necessary magnetization and heat dissipating area per unit of volume. This construction and numerous other conductor constructions are disclosed in detail in prior applications.

Referring now to Fig. 2, the conductor 10 is likewise wound double or bifilar fashion, the middle being denoted by m and the ends by a and e. It is stretched or wound in a number of turns about the arms c of a frame or support a in the grooves 21 of porcelain carriers b, the middle m and the ends a and e of the conductor 10 being again fastened fixedly to the carriers as indicated or at the frame or support.

The turns of the conductor 10 are largely omitted, parts of the turns being shown dotted for the sake of clearness. The frame or support a may be made of any insulating material, such as wood, slate, asbestos, soapstone or the like.

Some or all of the carriers b are disposed in radial passages 30 in the ends of the corresponding arms c, the carriers b being firmly pressed against the conductor 10 by the springs f located between the bottoms of the passages 30 and the adjacent ends of the carriers b.

Having described my invention, I am entitled to all modifications thereof as fall fairly within its spirit and scope as set forth in the following claims:

1. An inductance device, comprising a conductor having a core of conducting material surrounded by a layer of magnetic material, a supporting frame therefor comprising a plurality of carrier members formed of insulating material, said conductor being wound around said carrier members, and means for resiliently holding said

conductor tight, said resilient means being adapted to eliminate any variance of impedance in said conductor due to a change in the cross-section area.

2. An inductance device, comprising a conductor having a core of conducting material surrounded by a layer of magnetic material, a supporting frame comprising a plurality of carriers, said conductor being wound double around said carriers, and means for resiliently holding said conductor tight with respect to said carriers so that there will be no variance of impedance due to a change of shape in the cross-section area of the conductor.

3. An inductance device, comprising a conductor having a core of conducting material surrounded by a layer of magnetic material, a frame having a plurality of carrier members provided with conductor holding grooves, said conductor being wound double around said carriers with its middle fixed to a carrier member and its ends also fixed to a carrier member, and means including springs between said carriers for resiliently holding said conductor tight so that there will be no change in the impedance in the coil due to a varying cross-section area.

4. An inductance device, comprising a conductor, a supporting frame having a plurality of radially extending arms, said arms having carrier holding passages in the ends thereof, carriers in said passages, said carriers having conductor holding grooves, said conductor being disposed in said grooves and wound double around said carriers with its middle fixed to a carrier and its ends also fixed to a carrier, and springs in said passages for resiliently holding said conductor tight so that there will be no impedance change in the bi-filar winding due to a varying cross-section area.

5. An inductance device, comprising a conductor having a core of conducting material surroundded by a layer of magnetic material, a supporting frame having a plurality of radially extending arms, said arms having carrier holding passages in the ends thereof, carriers in said passages, said carriers having conductor-holding grooves, said conductor being disposed in said grooves and wound double around said carriers with its middle fixed to a carrier and its ends also fixed to a carrier, and springs in said passages for resiliently holding said conductor tight so that there will be no impedance change in the bi-filar winding due to a varying cross-section area.

MENDEL OSNOS.