Jan. 5, 1926. 1,568,871

T. H. BRENNAN

CONSTRUCTION FOR INDUCTANCES

Filed August 17, 1925

Fig. 1.

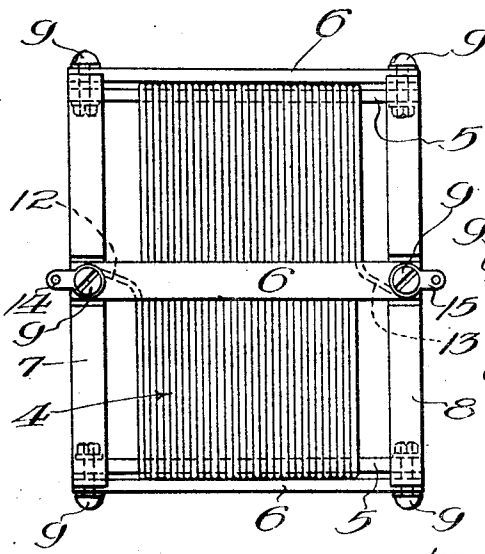


Fig. 2.

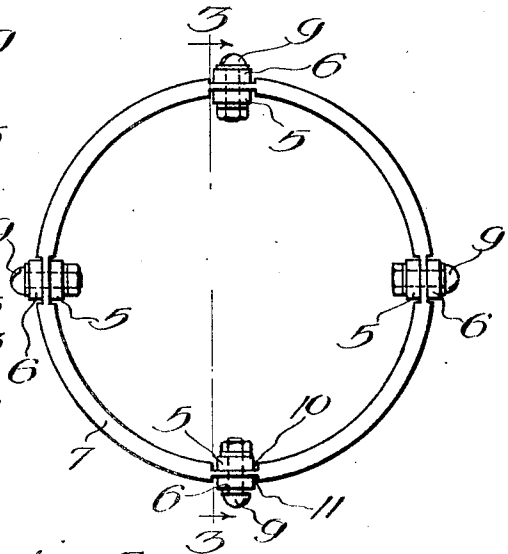
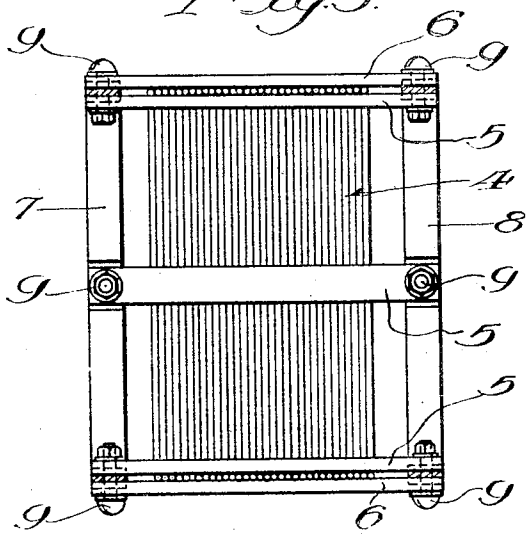


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS H. BRENNAN, OF CHICAGO, ILLINOIS.

CONSTRUCTION FOR INDUCTANCES.

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To all whom it may concern:

Be it known that I, THOMAS H. BRENNAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Construction for Inductances, of which the following is a specification.

This invention has to do with improvements in inductance coils and the like. It has to do particularly with improvements in inductance coils for use in connection with radio and other very high-frequency current work. More particularly the features of the invention are intended for use in connection with radio reception, but further useful applications of the invention will appear to those skilled in the art.

One of the objects of the invention is to provide a coil which is substantially an air dielectric coil, that is, a coil having substantially the characteristics of a pure air dielectric. For this purpose, it is an object of the invention to reduce the amount of dielectric material other than air in contact with the coil or in close relation thereto.

At the same time, it is a further object of the invention to provide a support for the coil which will hold the convolutions thereof firmly in the cylindrical form and condition. At the same time, it is a further object to provide a frame or support which will be readily adapted for mounting the coil in position on the panel or base board and will also be adapted for supporting other inductive or control elements which may be used in association with the coil.

Another object of the invention is to provide a coil support of very simple form, one which can be very cheaply manufactured from simple parts, and one which will have great rigidly and permanence.

Other objects and uses of the invention will appear from a detailed description of the same, which consists in the features of construction and combinations of parts hereinafter described and claimed.

In the drawing:

Figure 1 shows a side elevation of an inductance unit embodying the features of the present invention;

Fig. 2 shows an end view corresponding to Fig. 1; and

Fig. 3 shows a cross section taken on the line 3—3 of Fig. 2, looking in the direction of the arrows.

The coil itself is designated by the numeral 4. It is preferably composed of a number of convolutions of wire placed closely together and is preferably made of perfectly cylindrical form. The coil support comprises pairs of relatively thin and narrow bars 5 and 6 which are placed against the inner and outer faces of the convolutions in pairs, so that each pair of bars 5 and 6 may firmly grip the convolutions of the coil between the opposing faces of said bars and thus retain the convolutions at all times in proper position.

On account of the relatively thin and narrow shape and size of the bars, their points of contact with the convolutions are reduced to an absolute minimum with the result that the dielectric capacity of the coil is only very slightly affected by the presence of these supporting bars.

At its ends the coil support is provided with end rings 7 and 8 respectively. The end portions of the bars are secured to the respective rings, clamping the rings between them. For this purpose, there are provided suitable clamping means such as through bolts 9, as indicated in the different figures.

Ordinarily the end rings will be thicker than the convolutions of wire, so that without special provision it would be impossible to draw the pairs of bars together sufficiently close to grip the convolutions of the coil. This is particularly true in the case of end rings made of bakelite, hard rubber, fiber, or other similar composition.

In order to allow the pairs of bars to be drawn sufficiently close together, I notch the end rings at the positions of the bars. This notching may be performed entirely on the inside faces of the end rings or entirely on their outside faces, or partially on both faces, as indicated in the drawing. The main desirable requirement is that the ring notches be sufficient to allow the end portions of the bars to approach together sufficiently close to permit the convolutions of wire to be firmly gripped.

In the particular construction illustrated, there are provided the notches 10 on the inside faces of the rings at the position of the inside bars 5 and the notches 11 on the out-

side faces of the rings at the positions of the bars 6. The through bolts 9 are passed through both of the bars and the material of the ring.

Preferably the terminal ends of the coil 12 and 13 are carried out to a pair of terminal clips 14 and 15 mounted on the respective end rings and secured in place by the corresponding through bolts 9.

While I have herein shown and described only a single embodiment of the features of my present invention, still I do not intend to limit myself to the same, except as I may do so in the claims.

I claim:

1. A coil support comprising a plurality of relatively thin and narrow bars of dielectric material on which the coil is mounted, a pair of rings of dielectric material of substantially the same diameter as the coil, said rings being mounted on said bars adjacent to each end of the coil, a plurality of bars of dielectric material positioned on said coil opposite said first mentioned bars, notches formed in the inner and outer faces of the end rings at the positions of the end portions of the bars permitting the opposing faces of the bars to approach sufficiently close together to compress the convolutions of the coil between them, and bolts extending through said bars and rings, whereby the coil is compressed between the bars and the latter are held in true circular form, substantially as described.

2. A coil support comprising a plurality of relatively thin and narrow bars of dielectric material on which the coil is mounted, a ring of dielectric material of substantially the same diameter as the coil, said ring being mounted on said bars adjacent to one end of the coil, a plurality of bars of dielectric material positioned on said coil opposite to said first mentioned bars, recesses in the ring permitting the opposing faces of the bars to approach sufficiently close together to firmly clamp the convolutions of the coil between them, and means for drawing the bars together in pairs, substantially as described.

THOMAS H. BRENNAN.