April 1, 1941. E. C. HAGEMANN 2,236,684

INDUCTIVE DEVICE

Filed Oct. 7, 1939

FIG. 1

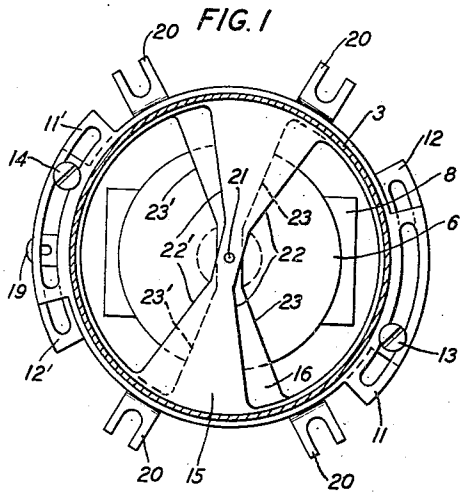


FIG. 2

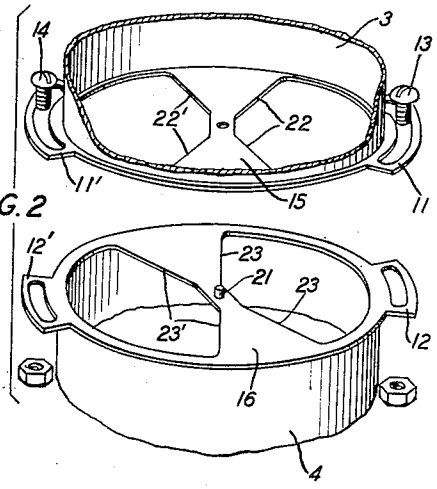
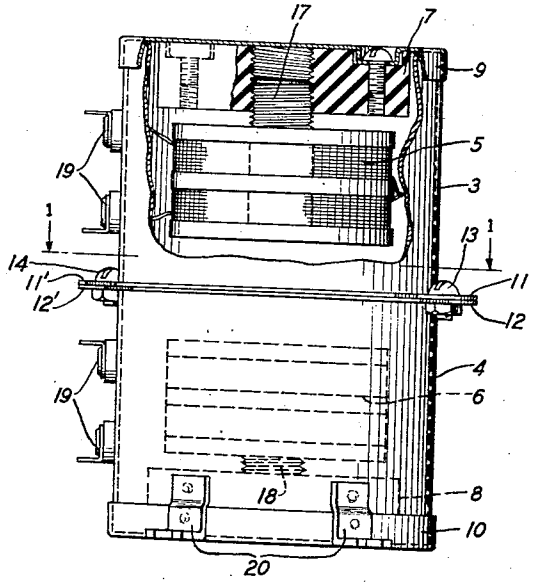


FIG. 3



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INDUCTIVE DEVICE

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5 Claims. (Cl. 171—119)

This invention relates to inductance devices and, more particularly, to inductance devices for use in electric wave filters where inductance adjustments may be required after installation of the apparatus.

In electric wave filters it is essential for high quality transmission that the elements making up the filter be accurately adjusted to their individual electrical requirements. Particularly, with inductance elements, it has been found that after installation a slight change in the inductance of the element may be required due to variations in other elements of the filter and in order to maintain the over-all quality of the filter some means of inductance adjustment is necessary.

An object of this invention is to improve the quality of an electric wave filter.

Another object of the invention is an inductance device the inductance value of which may be adjusted after installation.

A further object of the invention is an inductance device comprising two coils in which the mutual inductance between the coils may be varied with only a slight variation in the self-inductance of the individual coils.

In one embodiment of the invention the device comprises two coils wound on sectionalized insulating spools, each coil having an individual container and the containers joined so that the axes thereof are in a straight line. The adjacent faces of the containers are apertured and the containers are provided with flanged means whereby the amount of overlapping of the apertures may be varied to vary the mutual inductance between the coils.

The invention will be better understood from the following description and attached drawing, in which:

Fig. 1 is a top section of the device taken on line 1—1 of Fig. 3;

Fig. 2 is a perspective of the adjacent faces of the containers; and

Fig. 3 is a front elevation, partly in section and with a part of the container cut away.

Referring to the drawing, the coils 5 and 6, between which the mutual inductance may be varied, are enclosed in two metal containers 3 and 4. Coils 5 and 6 comprise sectionalized windings on cores which may be of insulating or magnetic material. These coils are mounted in insulating material blocks 7 and 8 which are fastened to the container covers 9 and 10 by screws or equivalent means, as indicated in Fig. 3. Coils 5 and 6 are held in position in the containers by studs 17 and 18 screw-threaded into blocks 7 and 8.

Containers 3 and 4 are held together as a unit by means of slotted flanges 11, 11' and 12, 12' through the slots of which extend bolts 13 and 14 and by an axial pin 21 in container 4 passing through a hole in container 3. The adjacent faces 15 and 16 of the containers, of which flanges 11, 11' and 12, 12' are respective extensions, have sections removed to form apertures which overlap, as shown in Fig. 1. The lower face 15 of upper container 3 and the upper face 16 of lower container 4 are shown in Fig. 2. In Fig. 1 the edges of the apertures are indicated at 22, 22' for the lower face 15 of the upper container 3 and at 23, 23' for the upper face 16 of the lower container 4.

During manufacture, the mutual inductance between coils 5 and 6 may be adjusted by changing the positions of the coils relatively to each other. This may be done by means of threaded studs 17 and 18 the ends of which may be slotted to receive the blade of a screw-driver.

The final adjustment of the mutual inductance after the unit has been installed is done by loosening bolts 13 and 14 and rotating container 3 relative to container 4, thereby varying the overlapping of the apertures in the adjacent faces 15 and 16 to vary the shielding between the coils.

To facilitate connections to outside apparatus terminals 19 are provided to which the leads of coils 5 and 6 are connected. The unit is also equipped with mounting lugs 20 for attaching the unit to a base.

It is obvious that many variations may be made in the structure just described and the invention is not to be limited to this one embodiment but only by the scope of the attached claims.

What is claimed is:

1. An inductance device comprising a plurality of coils and a metal container for each coil, said containers being joined so that their axes are in a straight line characterized in that the adjacent ends of said containers are non-centrally apertured.

2. An inductance device in accordance with claim 1 characterized in that one container may be turned about its axis relatively to the other while maintaining the respective axes in the same straight line.

3. An inductance device comprising sectionalized winding spools, windings on said spools in said sections, the windings on each spool con-

stituting an individual coil, a metallic container for each coil, means for joining said containers so that their axes are in a straight line, the adjacent ends of said containers being provided with non-central apertures, and means to vary the overlapping of said apertures.

4. An inductance device comprising winding spools of insulating material, windings on said spools, an individual container for each spool and winding, the adjacent end plates of said containers being provided with non-central apertures, flanges extending from said adjacent end plates, each of said flanges being provided with a slot, and screw means which extend through the slots of associated flanges whereby said containers may be joined with their axes in a straight line and with varying amounts of overlapping of said apertures.

5. In an inductance device, a pair of inductance coils, an apertured shield associated with each coil, and means for securing said shields adjacent each other and in positions of varying amounts of overlapping of said apertures.

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