

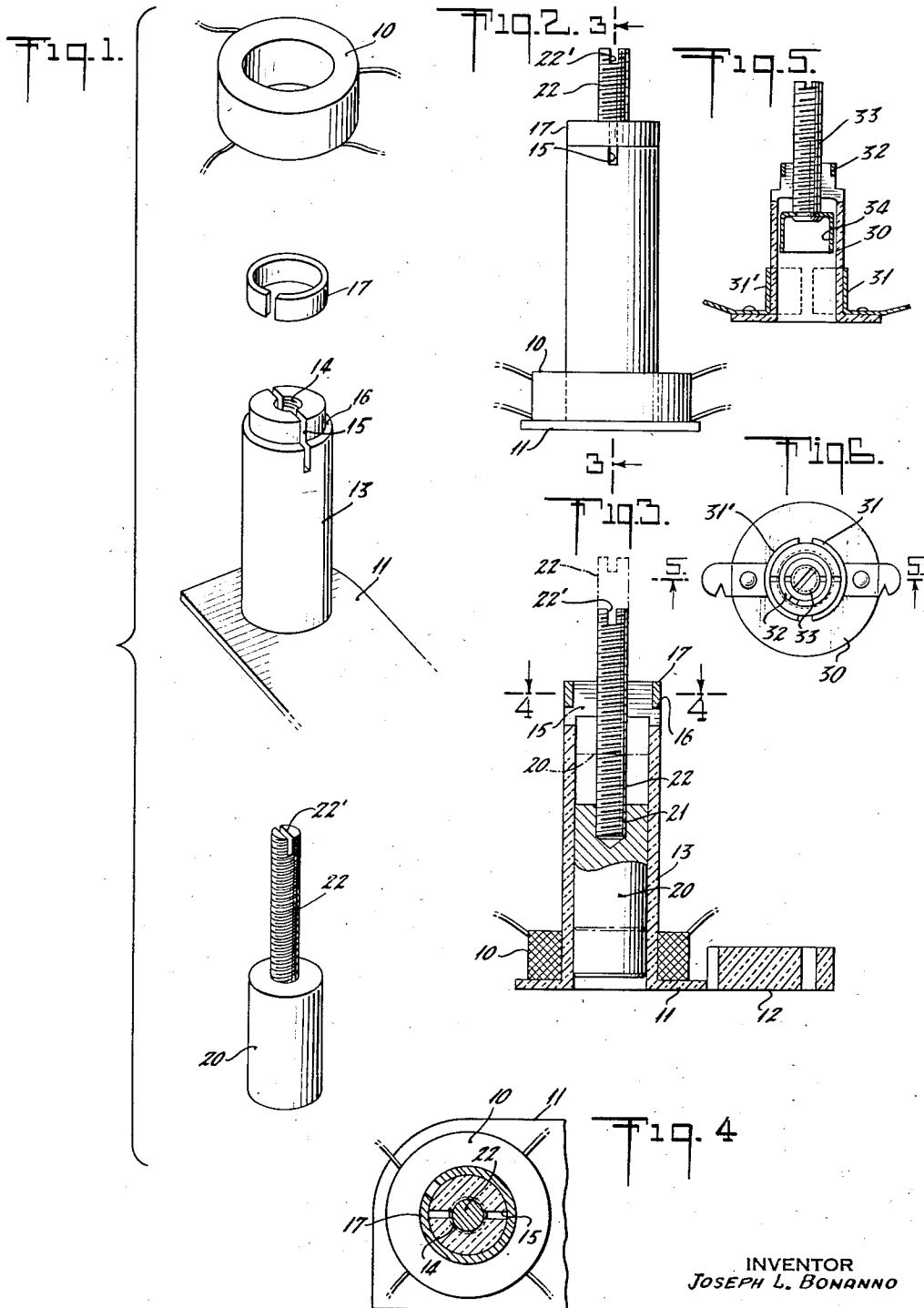
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VARIABLE TUNING DEVICE

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VARIABLE TUNING DEVICE

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The present invention relates to variable tuning devices and is more particularly directed toward tuned radio frequency controls either inductive or capacitive such as used in radio receiving sets and other electronic devices.

In the manufacture of permeability tuned radio frequency coils and capacity tuners as used in these purposes, it has heretofore been customary to employ complicated arrangements of mechanical devices including screw machine parts, lock nuts and the like for adjusting the inductance or capacity of the device. These devices have been large and cumbersome, have required considerable space for their accommodation and have contributed substantially to the cost of the structure.

The present invention contemplates tuning devices employing a minimum number of extremely simple parts capable of rapid assembly and easy adjustment and occupying a very small amount of space.

According to the present invention, the coil or fixed part of the condenser is received about a plastic tube and held in a fixed position on this tube. The movable iron core or movable part of the condenser is held in a readily adjustable position by a threaded member, threaded into the plastic tube and held there by a split metal band or ring.

The accompanying drawings show, for purposes of illustrating the present invention, an embodiment in which the invention may take form, it being understood that the drawings are illustrative of the invention rather than limiting the same.

In these drawings:

Figure 1 is an exploded view showing the parts of the device as designed for a variable inductance;

Figure 2 is an assembly view showing this device in elevation;

Figure 3 is a longitudinal sectional view on the line 3-3 of Figure 2;

Figure 4 is a transverse sectional view on the line 4-4 of Figure 3;

Figure 5 is a sectional view taken on the line 5-5 of Figure 6, illustrating a variable capacity, and

Figure 6 is a top plan view of the structure of Figure 5.

In Figures 1 to 4 inclusive a coil is illustrated at 10. This coil may be any suitable radio frequency coil, the tuning of which is desired. It may have such leads and size as the electric design indicates.

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The coil support 11 is preferably molded from a thermoplastic such as nylon or polystyrene. It has a mounting base indicated at 12 and a tubular coil support 13 which extends directly away from the support and provides a shoulder or stop against which the coil 10 is placed. The upper end of the coil support 13 as indicated in the drawings, is closed and has a threaded opening 14, a transverse slot or saw cut 15 and a reducing shoulder 16. The reduced end of the coil support carries a split band 17 which may be made of steel or Phosphor bronze. An iron core 20 of a size to fit within the tube 13 has a tapped end 21 to receive a threaded rod 22. This rod extends out from the threaded opening 14 in the end of the plastic tube and is slotted as indicated at 22' to facilitate turning it with a screw driver. The core and rod are threaded tightly together.

The rod and core are inserted through the tube and the rod threaded through the end of the tube so as to bring the core in the field of the coil. The position of the core can be varied by turning the threaded rod in the tube. The spring 17 at all times grips the plastic material and holds it tightly against the threads and overcomes the tendency of the parts to become loose or vary the adjustment because of cold flow or on account of jarring or rattling of the instrument in which the device is used.

In the forms shown in Figures 5 and 6 a thermoplastic support is shown at 30. It carries two semi-cylindrical plates 31, 31', adapted to form the fixed elements of a variable condenser. The upper part of the support 30 carries a tension band 32 similar to the band 17 and is threaded to receive a screw 33 similar to the screw 22. The screw 33 carries a metal, cup-like, plate element 34. When the screw 33 is moved back and forth the capacity of the device is varied, and the adjustment is maintained in the manner described above.

Since it is obvious that the invention may be embodied in other forms and constructions within the scope of the claims, I wish it to be understood that the particular forms shown are but two of these forms, and various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

1. A variable reactance having a fixed tubular part disposed about an axial line and a movable part shiftable about and along said axial line, and a coaxial mounting for the parts including a thermoplastic support having an inwardly flanged end provided with an axial threaded hole and a

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transversely extending slot, a threaded member in the hole and carrying the movable part, and a tension device about the support and maintaining the thermoplastic material under axial compression and in tight engagement with the threaded member to overcome the tendency of the loosening due to cold-flow inherent in the thermoplastic material of the support.

2. A variable reactance such as claimed in claim 1, wherein the fixed part of the reactance is a coil about the tube and the movable part is an iron core carried by the threaded member inside the tubular part.

3. A variable reactance such as claimed in claim 1, wherein the fixed part is an arcuate plate and the movable part is a cylindrical plate inside the arcuate plate.

4. A variable reactance such as claimed in claim 1, wherein the tension device is in the form of a split metal ring.

5. A variable reactance such as claimed in claim 1, wherein the slotted end is externally of reduced diameter and wherein the tension device

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is in the form of a split metal ring on said reduced diameter portion.

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