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RECEIVER TUNING MECHANISM

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Fig. 1

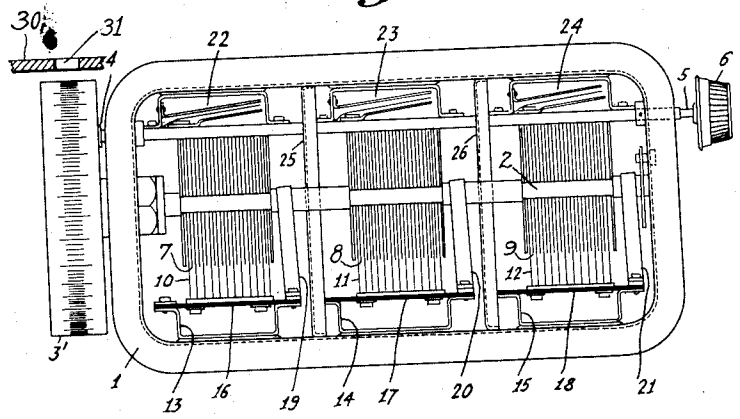
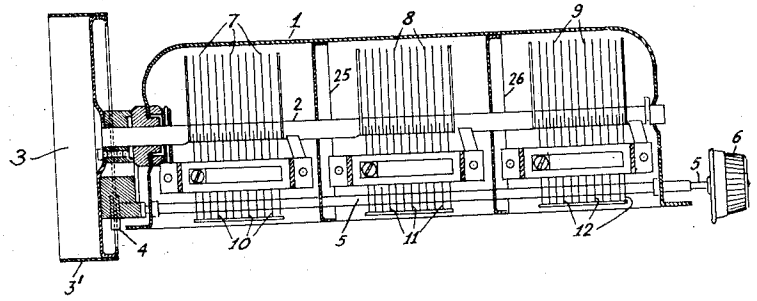


Fig. 2



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RECEIVER TUNING MECHANISM

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In the Netherlands September 3, 1928

6 Claims. (Cl. 175—41.5)

Our present invention has reference to wireless receiving sets comprising two or more tunable circuits, and, more particularly, to sets of this kind in which the said circuits are tuned by means of variable condensers which are mounted on the same spindle so as to assist the adjustment.

The invention consists in surrounding the said condensers jointly by a metal screening hood which also serves as a frame in which the said spindle is journalled, and to which the sets of stationary plates, which are insulated from it, are fixed. In addition the casing is provided with a metal transverse partition between each two contiguous condensers.

One of the main objects of our present invention is to provide a compact unit which can be easily and cheaply manufactured, any superfluous part being dispensed with, and which is fully screened from all the remaining parts of the circuit arrangement, the partitions preventing the circuits from interfering with one another.

Another important object of the invention is to provide a compact tuning unit in which each of the tunable circuits is connected to the corresponding set of rotary condenser-plates through a separate contact member which is insulated from the casing, and makes contact with the spindle adjacent the corresponding set of plates.

The invention will be more clearly understood by reference to the accompanying drawing in which an embodiment of the invention is illustrated.

In the said drawing,

Fig. 1 is a bottom view, and,

Fig. 2 is a vertical longitudinal section of a casing comprising three condensers according to the invention.

Referring to the accompanying drawing in which like characters of reference indicate the same parts in the different views a pressed metal, sheet iron, casing 1 has journalled in it a spindle 2 which passes through it in a longitudinal direction. This spindle projects from the casing on one side, and is there provided with a flanged indicating disc 3 that carries along its exterior periphery 3' a cylindrical readable scale. The scale is visible through an opening 31 in the panel 30. The inner side of the disc 3 is engaged by a pinion 4 mounted at one end of an operating spindle 5, the latter being parallel to spindle 2. Spindle 5 passes through the casing 1, and projects therefrom on the side opposite the disc as well. It is provided on this side with a hand knob 6. When this knob 6 is turned, the disc 3, and consequently the spindle 2, rotates with it in the same direction, but at a considerably smaller angular speed.

The spindle 2 has mounted on it three sets of condenser plates 7, 8 and 9 which cooperate with, and are adapted to move between three sets of stationary plates 10, 11 and 12. The latter are fixed to the casing by means of metal straps 13, 14 and 15, and insulating yokes 16, 17 and 18. Thus, the sets of stationary plates are fully insulated from the casing and from the sets of rotary plates which are in metallically conducting connection with the latter.

The insulating yokes 16, 17, 18 have secured to them copper contact springs 19, 20 and 21 which slide on the spindle 2 adjacent the corresponding sets of plates 7, 8 and 9. The said springs have joined to their ends the so-called dead ends of the corresponding oscillatory circuits. One may get the erroneous impression that it might be simpler to use for this connection the casing 1 itself, and at least one single sliding contact on the spindle 2. This has, however, been found to give rise not only to undue couplings between the oscillatory circuits, which can be avoided by the simple use of three separate sliding contacts adjacent the sets of plates, but also requires careful insulation of the springs, brushes or similar devices used from the casing.

In addition, the variable condensers have connected in parallel with them three small auxiliary condensers 22, 23, 24, the capacities of which can be controlled by means of a regulating screw. These capacities function to perfectly equalize the tuning of the three circuits for one given position of the spindle 2. This uniformity of tuning is, then, maintained to a sufficient extent for any other position of the spindle 2 if by careful manufacture the rotary condensers sufficiently equal one another.

Lastly, the casing 1 contains between the three rotary condensers two metal transverse partitions 25 and 26 which ensure a perfectly metallic screening between these condensers. Thus, and by the use of the described manner of connecting the condensers with the corresponding syntonizing circuits, a perfect stability of a high-frequency amplifier is secured, even if the latter comprises three or more stages.

While we have indicated and described one arrangement for carrying our invention into effect, it will be apparent to one skilled in the art that our invention is by no means limited to the particular organization shown and described, but that many modifications in the arrangement, as well as in the apparatus employed, may be made

without departing from the scope of our invention as set forth in the appended claims.

What we claim is:

1. A tuning mechanism for a receiver comprising a plurality of condensers, a common shaft to which the rotors of said condensers are secured for movement therewith, an indicating dial mounted on one extremity of said shaft, a second shaft spaced from and parallel to said first shaft, means coupling said second shaft to said dial whereby manipulation of the second shaft operates said dial and first shaft, and a manipulating knob on the second shaft adjacent the opposite extremity of the first shaft.

2. A multiple condenser structure comprising a plurality of condensers, a common shaft upon which the rotors of the condensers are mounted for movement therewith, a common operating shaft for the condensers, said shaft being parallel to the first shaft, a plurality of metal plates disposed at the ends of the condenser structure and intermediate the condensers, whereby said condensers are electrostatically shielded from one another, both said shafts being journalled in the plates located at the ends of the condenser structure, and a dial mounted on one extremity of the first shaft.

3. A condenser structure comprising a plurality of condensers, a common shaft for supporting the rotors of said condensers for movement therewith, a dial mounted on one extremity of the shaft, an operating shaft parallel to the first shaft, means coupling the two shafts, a plurality of metal plates for shielding the condensers from each other, means for rotating the operating shaft said means being rotatable about an axis parallel to the longitudinal axis of the supporting shaft and located at the end of the operating shaft remote from said dial.

4. A device of the class described comprising a metallic frame adapted to be mounted behind an instrument panel, a plurality of variable condenser structures mounted in said frame, said frame having a bottom portion, end portions and side portions arranged to provide an electrostatic shield around said variable condenser structures, a shaft journalled in said end portions and having the rotors of said variable condensers mounted thereon, said frame including a plurality of metallic shielding plates intermediate said condenser structures, a control shaft parallel with said first mentioned shaft, means journalling the control shaft in said end portions, means mechanically coupling the two shafts and a dial mounted on one of said shafts and visible through an opening provided in the panel.

5. A device of the class described comprising a frame adapted to be mounted behind an instrument panel, a horizontal shaft journalled in said frame and extending parallel to said panel, a plurality of condenser structures having rotor elements mounted on said shaft, an indicating dial mounted at an end of said shaft and adapted to be visible through an aperture in said panel, a control shaft connected to said dial and parallel to the first shaft, and a manipulating knob on the end of the control shaft adjacent the end of said first shaft opposite the dial end.

6. In a tuning mechanism of the class described an electrical instrument having a control shaft rotatable to vary the electrical properties of the same, a frame, a shaft journalled in said frame, a plurality of stator plates mounted upon said frame, a plurality of rotor plates mounted on said second shaft, said control shaft being journalled in said frame and parallel to said second shaft, an indicating dial mounted on an end of said second shaft and disposed exteriorly to the frame, and a manipulating knob on the end of the control shaft adjacent the other end of the first shaft, and means for coupling said control shaft to said dial.

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