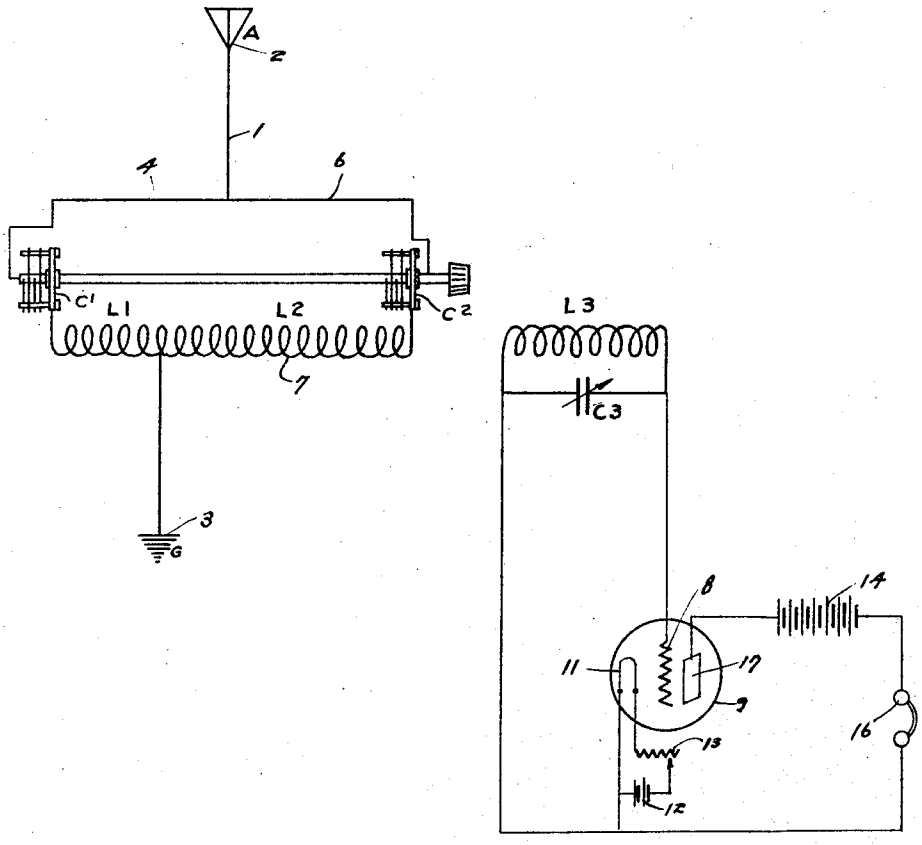
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RADIO APPARATUS

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RADIO APPARATUS.

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The present invention relates to improvements in radio apparatus and has particular reference to the radio tuning circuit. It is proposed in the present invention to provide a circuit capable of extremely sharp tuning and allowing of wave lengths approaching the one to be received to be tuned out. I utilize for this purpose an aerial circuit split into two branches, each branch having its own capacity and inductance and the two inductances being arranged in such a manner that their two magnetic fields produced by each alternation oppose one another so as to practically render the aerial circuit irresponsive except in the one case of a wave length corresponding exactly to the wave length of one of the branches, in which case the electro-magnetic field produced in the inductance of this branch is so much stronger than the electro-magnetic field produced in the other inductance as to render the latter negligible, it being understood that the two inductances of the two branches are unequal. It is further proposed in the present invention to arrange the two capacities in the two branches in such a manner that they may be manipulated by means of a common control. Further objects and advantages of my invention will appear as the specification proceeds.

The preferred form of my invention is illustrated in the accompanying drawing, which shows a wiring diagram for a single vacuum tube hook-up. While I have shown only the preferred form of my invention, I wish to have it understood that various changes or modifications may be made within the scope of the claims hereto attached without departing from the spirit of the invention.

In its preferred form my aerial circuit 1, including the antenna 2 and the ground 3, is split into two branches as shown at 4 and 6, each of the branches containing a variable condenser marked C^1 and C^2 and a portion of a common inductance 7, that portion included in one of the branches and marked L^2 being larger than the portion included in the other branch and marked L^1. It will be noted from this arrangement that a single alternation passing through the aerial circuit will produce opposing magnetic fields in the inductances L^1 and L^2, and, although one of these opposing fields is somewhat stronger than the other one, the difference ordinarily will not be sufficient to allow the former to prevail over the latter to an extent sufficient to allow the oscillation in either branch to be detected.

The two condensers C^1 and C^2 are preferably mounted on a common axis so that both may be operated by means of a common knob. It is apparent that as the knob is turned the oscillation periods of both branches are changed simultaneously and that if properly proportioned the branch C^2—L^2 may be tuned in to a certain wave length which it is desired to receive. In that case the magnetic field of the coil L^2 will be so much stronger than the magnetic field of the coil L^1 that the field of the latter coil becomes practically negligible and the oscillations in the branch C^2—L^2 may be readily detected.

It will be seen from this arrangement that as long as neither of the branches is sharply tuned to an incoming wave length both will remain practically irresponsive, but when one of the branches is sharply tuned it then becomes responsive in view of the overwhelming strength of the magnetic field around its coil as compared with the magnetic field around the other coil, or, in other words, if it is desired to receive signals of a certain wave length and one of the branches is tuned exactly to that wave length, the circuit will be responsive to the same while being irresponsive to any other wave length, due to the fact that any other wave length would create opposing fields in the two portions of the inductance of substantially the same strength. The secondary L^3 is placed in inductive relation to the coil L^2, preferably about four or six inches away from the same and in axial alignment therewith, while a variable condenser C^3 is connected across the same for tuning the secondary circuit. The remainder of the hook-up may be made in any conventional form, one terminal of the secondary being connected to the grid 8 of the vacuum tube 9 and the other terminal to the filament 11, which latter is lit by means of the battery 12 controlled by the rheostat 13. The plate circuit may include the B battery 14, the phone 16, and the plate 17, one end of the plate circuit being connected to the filament in the conventional manner.

I claim:

1. In a radio apparatus, a tuning circuit split in two branches having unequal inductances arranged to produce opposing mag-

netic fields and variable capacities therein and a common control for the two capacities.

2. In a radio apparatus, a tuning circuit split in two branches having fixed unequal inductances arranged to produce opposing magnetic fields and variable capacities therein and a common control for the two capacities.

3. In a radio apparatus, an aerial, two branches connecting therewith, a variable condenser in each branch, a fixed inductance connecting the two ends of the branches, and a ground connection for an intermediate point of the inductance, the point being nearer one end of the inductance than the other and a common control for the two condensers.

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