

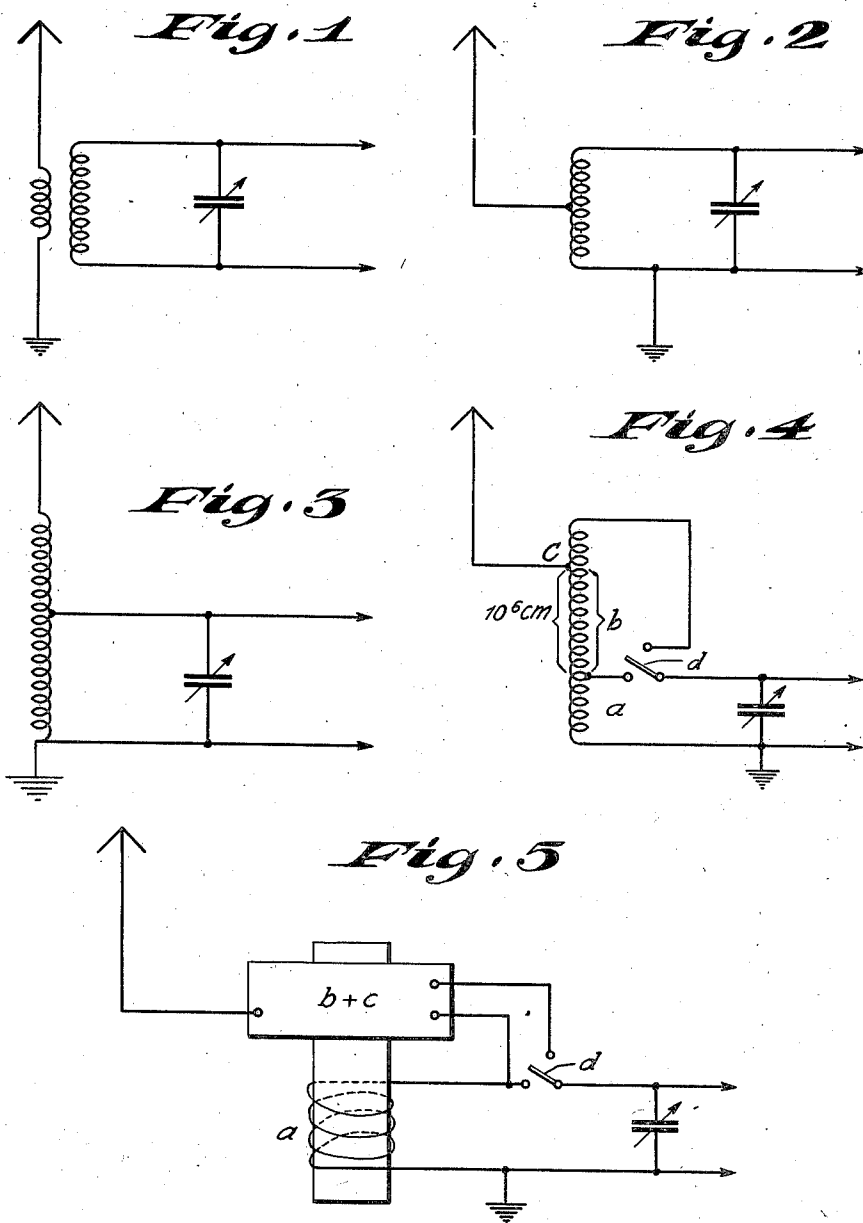
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RECEIVING CIRCUIT FOR BROADCAST APPARATUS

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RECEIVING CIRCUIT FOR BROADCAST APPARATUS

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1 Claim. (Cl. 250—20)

This invention relates to receiving circuits for broadcast apparatus. More particularly, it relates to circuit arrangements for using the same antenna circuit for receiving either long wave or short wave broadcasting stations.

In connection with the use of aperiodic antenna, former practice generally has been to choose the antenna wave at a value below the broadcast band i. e., at about 150 meters. On account of the step-up transformation associated therewith there resulted a comparatively high input value which, however, was subject to marked changes over the broadcast range. The usual coupling schemes are based upon the purely inductive and inductive-galvanic principles.

For reasons of practicality, it has of late become more customary to choose the antenna wave at figures above the broadcast band, say, at about 800 meters. While it is true that this means a lower input value, it is likewise a fact that the input value in passing over the broadcast range is subject to far less change than formerly.

According to the invention, in choosing this antenna wave, recourse is had to a mixed inductive and galvanic type of coupling as shown in Fig. 3. The advantage of this arrangement compared with those known in the prior art resides in the use of one tapped coil instead of two separated from each other.

Other advantages flow from the necessity that the arrangement may be changed over to long-wave reception. It is found that when working within this range where the variation is only as 1:2 where the number of transmitters is far smaller, there exists no such great interest in the properties before referred to as inside the broadcast band. Hence, according to this invention an antenna wave of about 800 meters is preserved for the long-wave working.

In the drawing, Figs. 1 and 2 disclose the usual coupling schemes based upon the purely inductive and inductive-galvanic principles. Figs. 3 and 4 disclose modifications according to the invention of mixed inductive and galvanic coupling schemes, and Fig. 5 is a modification of the invention disclosed in Fig. 4.

Fig. 4 shows in what way the circuit arrangements are then made. Theoretically, there results a single coil with two taps. The turns (*a*) between the beginning of the coil and the first tap constitute the oscillation circuit inductance for the short-wave range, while the turns (*a* plus *b*) comprised between the beginning and the second tap at which the antenna is joined, represent the antenna inductance for short and for long wave ranges, while the entire coil (*a* plus *b* plus *c*) constitutes the oscillation circuit inductance for long wave range.

For normal antenna of about 250 mm. capacity there results, for a 800 meter antenna wave an inductance of about 10^6 cm., and this is about one half of the usual inductance of the long wave range. Hence, as will be seen the arrangement of the invention in the first place, affords a saving of half of the inductance for the long wave range, while, in the second place, a great saving is feasible in that for effecting a change in the wavelength, only one single pole switch is required. In both wave-ranges the input values are sufficiently constant throughout the entire width.

For reasons of space, cost and damping the said two-tap coil is wound in such a way that the inductance for the broadcast band consists of a cylindrical coil with stranded (litz) wire, and the antenna or long-wave coil in the form of a packet coil (see Fig. 5). In this instance there is a chance for obtaining another advantage to insure a change in coupling by choosing different arrangements for the two constituent coils or coil parts.

What I claim is:

In combination, an inductance coil having one end grounded, the opposite end and an intermediate point of said inductance coil having leads connected to a pair of contacts, a switch member adapted to be connected to one or the other of said contacts, a variable condenser connected between the grounded end of the inductance coil and the switch member, and a fixed antenna connection to a point on said inductance coil intermediate the pair of switch contacts.

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