

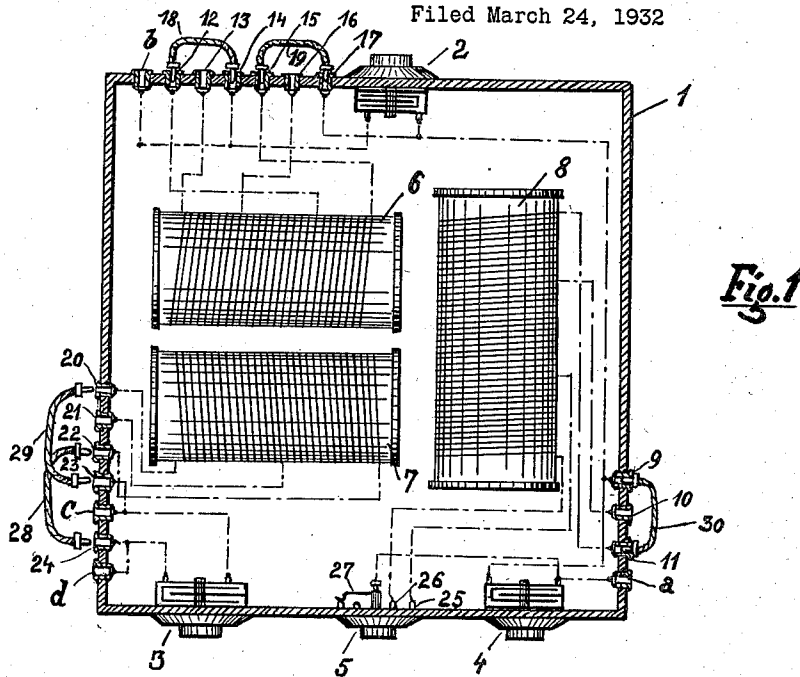
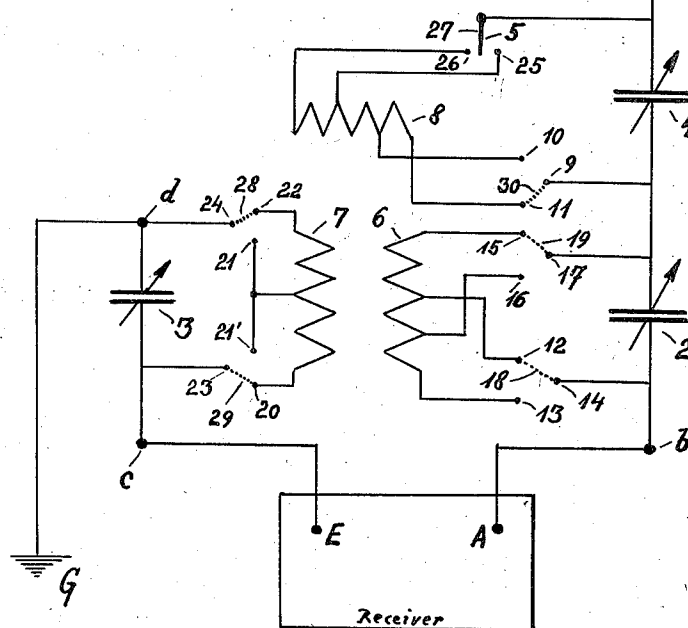
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FILTER FOR RADIO SETS

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FILTER FOR RADIO SETS

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2 Claims. (Cl. 250—20)

The present invention relates to a filter for eliminating local or interfering broadcast stations. It consists of a separate unit to be inserted into the connections to the antenna and the earth respectively of a radio receiver, and will completely eliminate interference with local broadcasting stations or with stations, the wave length of which differs but slightly from that to be received, and will nevertheless allow clear, loud, and easy reception of the station desired.

The principal idea of the invention consists in inserting between antenna and receiver two series-connected oscillation circuits which are coupled with each other conductively and, preferably, also inductively and in coupling said circuits inductively with a third separate oscillation circuit, which contains a variable capacity and is inserted into the earth-connection of the receiver.

The coils with their various lead-offs, in combination with variable condensers of say 250 and 500 cm. capacity each (0.00025 and 0.0005 mfd. each) and a number of binding-posts wired as here described, represent a combination of filters with highly remarkable efficiency. It is a feature of the invention that a variable condenser coupled with each coil, and a number of lead-offs led to a suitably located switch, allow the number of windings and the inductance of each coil to be so set as to clearly obtain the desired wave length in the radio frequency stage of the receiver.

On the accompanying drawings, the invention is shown as an example: more especially Fig. 1 illustrates one practical embodiment of the invention, whereas Fig. 2 shows in a more diagrammatical manner the electrical connections which may be employed.

a is the terminal for the aerial, b is connected with the aerial terminal of the receiver and c with the ground terminal of the receiver, while d is the terminal for the grounding of the filter arrangement. In a container 1 are contained the coils 6, 7, and 8, made of bakelite tubing or any other suitable insulating material, being about 5 centimeters in diameter and wound with about 60 turns each of enameled wire of about 0.4 millimeter in diameter. The variable condensers 2, 3, and 4, as well as the switch 5 are operated from outside the container. The contact-members 9, 10, 11, 12, 13, 14, 15, 16, 17, 20, 21, 22, 23, and 24 representing the several lead-offs of the coils can be connected by means of the connectors 18, 19, 28, 29 and 30, so that the variable condensers can be connected with the several lead-

offs of the coils. The conductive parts of switch 5 are denoted by the numerals 25, 26, 27.

The first lead-off of the coil 8 is connected through the switch 5 and contact 26 with one pole of the variable condenser 4 and to the aerial a ; the second lead-off goes to the same pole of the condenser 4 through the switch 5 and contact 25; the third lead-off goes to the contact-member 10, and the fourth to the contact-member 11; the other pole of the variable condenser 4 is connected to the contact-member 9, one pole of the condenser 2, and contact-member 17; the other pole of the condenser 2 leads to contact-member 14 and to terminal b and thereby to the aerial terminal A of the receiver. The first lead-off of the coil 6 leads to contact-member 15, the second to contact-member 12, the third to 16, and the fourth to contact-member 13. The coil 7 has only three lead-offs: the first goes to the contact-member 20, the second to 21, and the third to 22; the condenser 3 is connected on one side with the contact-member 23 and the grounding of the set through c , and on the other side with the contact-member 24 and the ground of the filter through d . The connector 30 is used to connect as desired the group of contact-members 9, 10, and 11. The connectors 18 and 19 form connections among the contact-members 12, 13, 14, 15, 16, and 17, while the connectors 28 and 29 form connections among the contact-members 20, 21, 22, 23, and 24. The variable condensers 2, 3, and 4 are used to further tune the filter.

The mode of operation of the filter device, as set forth, is the following, although the user would not be limited to the advice given herewith by way of example. After the filter set being inserted in the antenna circuit A— a and the ground connection E— G respectively, as shown in Fig. 2, the lever 27 of switch 5 is set to touch the contact 26, the connection 30 is set to connect the contact-members 9 and 11, similarly connection 19 is set to connect contact-members 15 and 17, connection 18 to connect contact-members 13 and 14, connection 28 to connect contact-members 22 and 24 and connection 29 to connect contact-members 20 and 23. The three variable condensers 2, 3, 4 are turned so as to obtain their zero position. Now the receiver is handled in the usual manner and tuned by its own tuning means to that wave length that is intended to be eliminated. After this the three condensers 2, 3, 4 (preferably first the condensers 2 and 4 and afterwards condenser 3) are operated in a well known manner, until the reception of the sta-

tion to which the receiver had been tuned, is totally eliminated. In case the operation of condensers 2, 3, 4 is not quite sufficient for that purpose, one or more of the variable connections 27, 30, 18, 19, 28, 29 respectively may be used at random and by so doing it will be found, by what change of their respective position in regard to their original position the best effect is obtained. Now the receiver may be tuned by its own tuning means to any desired frequency, especially to that differing but slightly from that which is eliminated. Of course it is difficult to say to which frequency the oscillation circuits containing condenser 4 and coil 8, condenser 2 and coil 6, condenser 3 and coil 7 respectively are tuned or are to be tuned. But in fact there is no need for special advice of that kind, since the users of radio receivers and especially those skilled in the art as a rule do not know either, to what frequency the receiver is to be tuned for receiving a certain station, but they are accustomed to operate the different switches and handles of the receiver by way of trial, until the best reception possible of the desired station is obtained.

The scheme given in Fig. 2 is in substantial conformity with the showing of Fig. 1. The only difference consists in that the contact-member 21 is for the sake of better clearness divided in two contact-members 21 and 21' which are conductively connected with each other. No special advice is to be given for the employment of the

device shown in Fig. 2 as everything said in connection with Fig. 1 applies equally to Fig. 2.

I claim:

1. A filter device to be used in connection with wireless receiving stations which comprise a receiver, antenna and ground connection in order to eliminate local broadcast stations and to separate from each other interfering stations with but slightly different wave lengths, consisting of a set of two series-connected oscillation circuits coupled with each other conductively and of a third and separate oscillation circuit, which is coupled inductively with at least one of the said series-connected oscillation circuits and contains a variable capacitance, the said set of two oscillation circuits having connection on one side to the antenna and on the other side to the aerial terminal of the receiver, but the said third and separate oscillation circuit having connections on the one side to the ground connection of the receiver and on the other side to the ground.

2. A filter device according to the preceding claim, characterized by oscillation circuits comprising each a condenser, a coil, connecting leads and variable connectors between condenser and coil, the said coils being provided with tapplings adapted to be alternatively connected by the said variable connectors with the leads leading to the respective condenser in such a way as may be required to tune the said oscillation circuits to a desired frequency.

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