

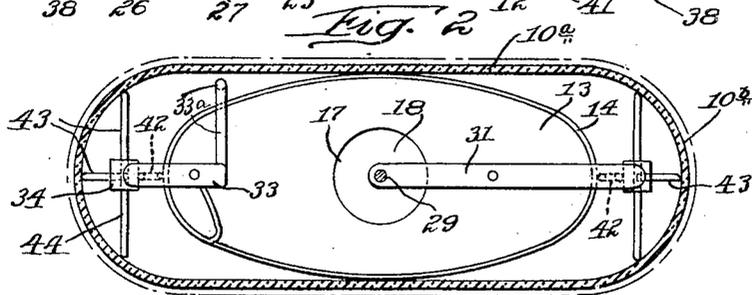
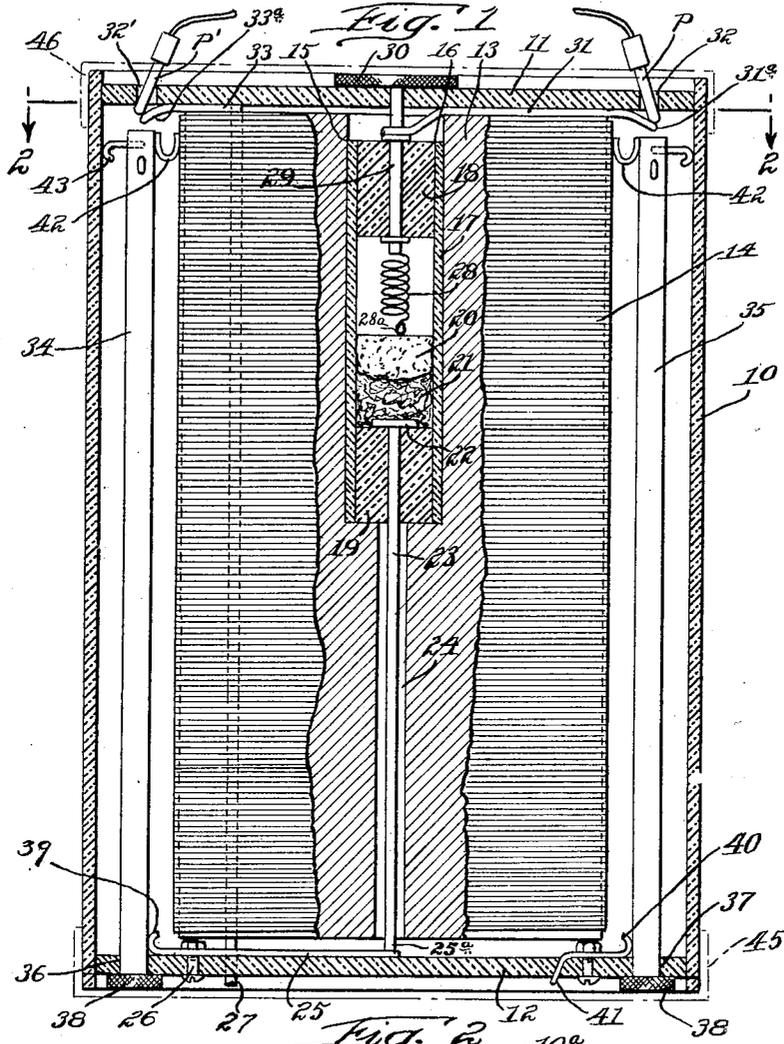
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RADIO RECEIVING SET

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Inventor:  
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# UNITED STATES PATENT OFFICE.

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## RADIO RECEIVING SET.

Application filed November 10, 1924. Serial No. 748,837.

This invention relates to radio receiving sets, and more particularly to a set employing a crystal detector and equipped with means for tuning the same, all within a relatively small compass and contained in a case of vest-pocket dimension. A principal object of the invention is to provide an exceptionally simple, inexpensive but efficient set in which the tuning coil is wound upon a block of insulating material having a bore in which the crystal detector is located to be supported by said block and to be movable with the tuning coil into and out of a relatively flattened case, having heads, through one of which is extended a slider carrying a contact member which engages the tuning coil within the case.

The foregoing and other objects and advantages of the invention will more fully appear from the following detailed description taken in connection with the accompanying drawings, and the distinctive features of novelty will be pointed out in the appended claims.

Referring to the drawings:

Figure 1 is a central longitudinal section of a receiving set embodying the invention; and

Fig. 2 is a transverse section on line 2—2 of Fig. 1.

10 indicates the inclosing case of the set which may be produced of hard fibre about  $\frac{1}{16}$  inch in thickness of generally oblong cross section, preferably with flattened longer side portions 10<sup>a</sup> and rounded shorter side portions 10<sup>b</sup>. The ends of the casing thus formed are closed by fibre plates or heads 11, 12 respectively, which may be of hard fibre of approximately the same thickness as the body 10. I provide a block 13 which may be either of wood, hard fibre or other suitable insulating material, of a length slightly less than the longitudinal dimension of the case 10 and of a generally oval or elliptical form in cross section adapted to fit between the longer sides 10<sup>a</sup> of the case and terminating some distance short of the rounded shorter sides 10<sup>b</sup> as seen in Fig. 2. This block is wound throughout its length spirally with wire 14 to constitute the tuning coil, this wire being preferably about No. 30 gage which adapts the device to receive from one hundred to six hundred metres. The block 13 has a central bore 15 in which is fitted a crystal detector device 16. This crystal de-

tor device may, within the contemplation of the invention, be of any suitable type, but preferably, and as herein shown, this detector device comprises a cylindrical fibre shell 17 having fibre blocks 18, 19 fixed in the respective end portions thereof, with a crystal detector element 20 pressed into, and seated in, a body of silver wool 21 which rests against the block 19 and engages a conductive head 22 borne by a stem 23 which extends through the block 19 and outward through a bore 24 of the block 13 large enough to provide clearance therefor. The outer extremity 25<sup>a</sup> of this stem engages a contact strip 25 fixed to the end plate 12 by means of a clamping bolt 26. This strip 25 has a bent spring extremity 29 adapted to press against, and make electrical contact with, a sliding rod 34 to be later described. 28 indicates an adjustable spiral spring contact engaging the crystal 20, this spring being borne by a stem 29 fitted to turn in the block 18. The outer end of this stem extending through the casing cover plate 11 bears a relatively large dial 30 by which the spring contact 28 may be engaged with different portions of the upper surface of the crystal. The spring contact 28 preferably has its extremity which engages the crystal formed as a loop 28<sup>a</sup>. A conductive strip 31 has one end thereof in contact with the stem 29 and has its other end extending underneath a telephone plug aperture 32 adjacent one edge of the casing cover plate 11, the portion of said strip underneath said aperture constituting a flat spring extremity 31<sup>a</sup>. The telephone plug hole 32 is slightly larger than the telephone plug tip P, so that said tip is adapted to be pressed through said hole into contact with the spring extremity 31<sup>a</sup> as shown. The other telephone plug aperture 32' is also slightly larger than the telephone plug tip P' and this tip, when it is pressed through said hole, engages a spring extremity 33<sup>a</sup> of a conductive strip 33 which is in contact with one end of the tuning coil 14. This strip 33, and hence the end of the tuning coil with which it is connected, is engaged by, and electrically connected with, a conductor 27 leading outward through the cover 12 to the ground connection. At opposite sides of the tuning coil within the casing, rods 34, 35 respectively are mounted for sliding movement, these rods being guided through apertures 36, 37

respectively provided therefor in the cover plate 12 and having their extremities which project outward from the cover 12 equipped with knurled heads 38 constituting finger  
5 pieces. The rod 34 is electrically connected through the contact 39 with the crystal 20 and the rod 35 is similarly connected through a spring contact strip 40 with the antenna  
10 connection 41 which leads outward through the cover 12. The inner end of each of the rods 34, 35 is equipped with a spring contact strip 42 adapted to press against the tuning coil at opposite sides thereof. For  
15 guiding the inner ends of the rods 34, 35 and to hold the contact 42 pressed against the tuning coil, said rods may be equipped with spacing prongs or bearing members 43, 44 adapted to engage the casing walls at  
20 spaced apart points to hold the rods in alignment as they are slid in and out of the casing for tuning purposes. Thus by sliding the rod 34 inward or outward to the required extent, the secondary detector and  
25 telephone circuit is tuned, while by sliding the rod 35 the antenna circuit is correspondingly tuned. The ends of the casing may be closed tightly against the entrance of dirt and moisture by cover caps 45, 46 as indicated in dotted lines. It will be observed  
30 that the block 13 upon which the tuning coil is wound is solid and is provided with a bore into which the crystal detector is fitted so as to be movable into and out of the case  
35 10 as a unit, which construction not only reduces the cost of the apparatus but also lends to the efficiency of the same, as the block affords a firm support for the crystal detector and reduces the liability of disturbance of the crystal by vibration or blows.  
40 I am aware that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and I therefore desire the present embodiment to be considered in all respects  
45 as illustrative and not restrictive, reference

being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a radio receiving set, in combination, a casing of insulating material provided at its opposite ends with heads, a tuning coil within said casing and having a solid core of insulating material provided with a bore extended axially from one end thereof and providing a housing for a crystal detector, said crystal detector located in said bore and movable into and out of said casing with the tuning coil as a unit, and a slider provided with a contact member co-operating with the tuning coil.

2. In a radio receiving set, in combination, a casing provided with heads at its opposite ends, a tuning coil located in said casing and of such size and shape as to leave a space between it and a wall of said casing, and a slider extended through a head of the casing into the space between the tuning coil and casing and provided within said space with a contact member engaging the tuning coil and with a bearing member engaging the casing to maintain the contact member in firm engagement with the tuning coil as the slider is moved into and out of said space through said head.

3. In a crystal radio receiving set, in combination, a casing provided at its opposite ends with heads, a tuning coil within said casing, and a slider extended through one of said heads and movable into and out of said casing substantially the length of the tuning coil and provided within the casing with a contact member co-operating with said tuning coil.

In testimony whereof, I have signed my name to this specification.

AGNAR WIKSTROM.