



A READER BUILT IT!

Gadgets and circuits which we have not actually tried out, but published for the general interest of beginners and experimenters.

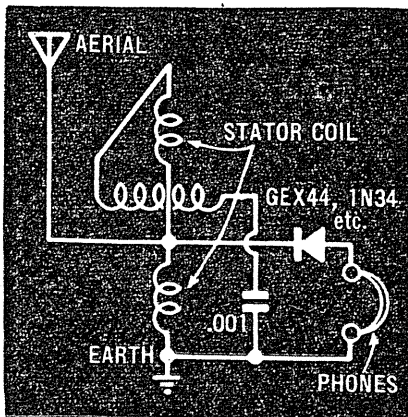
NOVEL CRYSTAL SET WITH VARIOMETER-TUNING

This idea, submitted by a Sydney reader, should appeal to the experimental instincts of the home builder. It is a miniaturised crystal set built around a small variometer taken from a piece of disposals equipment. The overall size, complete with attached dial-type knob, will easily fit into a pocket.

A NUMBER of variometers of all shapes and sizes have been procurable through disposals sources over the past few years, and it is quite likely that many readers have thrown such items into a corner with the thought that some day they may find a use for them.

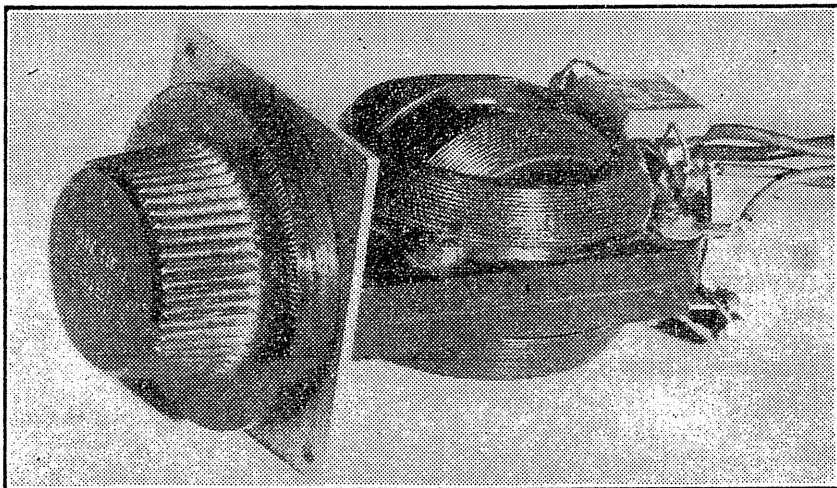
The variometer used in this instance had 24 turns, wound in two halves, on a spherical former of about 7-8in radius. Inside this former a similar split coil of the same number of turns but with reduced radius is arranged to rotate through 180 degrees. The connections are brought out to the rear, one end of the stator coil being connected to one end of the rotor coil.

The total value of inductance is governed by the position of the rotor coil relative to the stator coil. When in the position where the turns of the two coils are in the same direction, the inductance value is at a



maximum. When the rotor coil is turned fully in the other direction, the inductance value is at a minimum.

With a .001 mfd capacitor connected across the two outside ends of the series-connected coils, it is possible to tune over the broadcast band by slowly turning the knob attached to the shaft driving the rotor



All components can be seen in this photograph. Of the types of fixed detectors available, the germa nium diode will give best results.

coil. The L/C ratio is not the best, and it will naturally follow that, all other things being equal, the volume from this set will not be as good as with a much larger coil and smaller value of capacitance used with the crystal sets described in the magazine over the past years. With variometers having more turns on each coil, a smaller tuning condenser could be used to advantage.

However, the novelty angle is the main theme, and the fact is that with one of these variometers, a fixed crystal detector, a fixed capacitor,

a pair of headphones and an aerial and earth system, a crystal set can be "knocked up" in a few minutes.

Note that both the aerial and the detector are connected at the junction of the two halves of the stator coil. This is merely a rough attempt at impedance matching within the practical limits set by the connections to the coils. A little experiment in this direction may prove helpful. Similar provision is made in the larger fixed coils for crystal sets by tapping the coil at about every 10 turns.

MAINS FILTER FOR RADIO

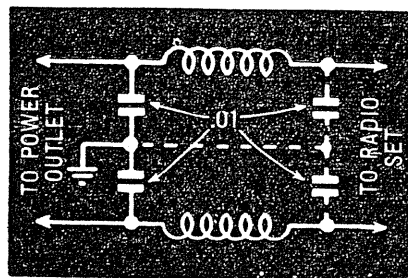
If you are troubled by electrical interference arriving at your set via the power mains, here is one way in which a reader went about minimising it.

THE chokes are made up by winding about 100 turns of 22 to 24 SWG wire (either enamelled, DSC or DCC) on a 2in cardboard former. Mount both chokes in any suitable fashion inside a metal box, such as with wooden clamps or insulating stand-offs, so that they are quite clear from the inside of the box. There must be no risk of a short-circuit to the box.

Connect one end of each choke via a 3-core power flex running through a rubber-grommeted hole in the box to the power outlet. The green wire of this flex should connect to the metal case and to the

"earth" pin of the 3-pin plug at the other end. Connect two .01 mfd mica capacitors, one from each choke to the metal case.

The other ends of the chokes are connected to the appropriate pins of a standard 3-pin power socket mounted on the box. It will be a



matter for experiment whether a similar pair of capacitors are required at this end of the chokes.