The Rejecta - Two Crystal Set

Will Separate Local Stations

SINCE the publication of the "Rejecta" Crystal Set a few weeks ago and the subsequent sale of all copies of the "Radio Record" containing the description, we have received numerous requests for a redescription.

In the meantime we have rebuilt the set, eliminating all unnecessary tappings and slightly rearranging the parts. Our experiments have shown us that right under 2ZW this set will discriminate between the stations and give very loud signals from each. It is equally as sensitive as the ordinary crystal set and has the added advantage that it is far more selective. It is very simple to make and constructors should have no difficulty whatever.

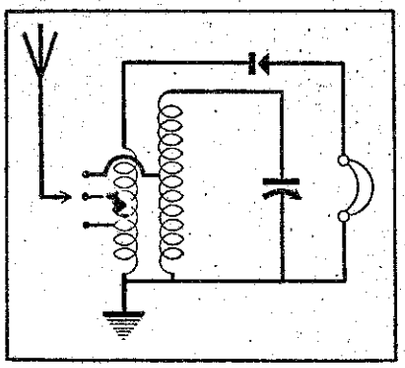
A list of parts is published and it will be seen that it is almost the same as that for the "Rejecta" Crystal Set, so that any who have bought their parts and not completed that set or have not had success with it will be able to reassemble them along the lines suggested in this article.

It will be noticed that a 3in. former is used. This is done mainly because that size is more readily obtainable than 2in., but it has also certain theoretical advantages.

The Coil.

THE total number of turns on the coil, which is wound with 24 d.c.c. wire, is 64, of which 30 must be slightly spaced in order to allow 30 gauge wire to be wound in the spaces. Take a piece of 3in. former from 3½-4in. long, and half-inch from one end drill two holes. Then measure off 2½in. and, slightly to the right of the first two holes, drill another two. The main coil will end here. Between these two sets of holes and 1½in. from the bottom make two more holes. The 30 gauge wire will be anchored through these.

There are two methods of winding the coil; one is to wind on the coarser wires, leaving a slight spacing and afterward wind in the finer wire in the spaces, and the other is to wind both



lots of wire on together. This is probably the easier way, though a little difficulty is encountered when it comes to the tappings. Presuming that both wires are wound on together, fasten the end of both wires through the two lower holes, leaving about 3 inches slack. Commence winding, and at the tenth turn, hold both wires firmly and twist the fine one round itself several times, so as to make a little twisted projection which later must be bared. Continue winding for a further 10 turns and put another tapping in the fine wire. At the 24th turn a tapping is made in the 24 gauge wire. It is advisable to leave the making of this connection until later, when the wire can be scraped and the tapping wire soldered to it, but if the constructor does not have facilities for soldering, it is best to give a twist in the wire and continue as before. On this occasion nothing is done with the finer wire.

Continue winding until the 30th turn is reached. By this time the wire will be opposite the two holes that were made 1in. from the bottom. Thread the fine wire through these, leave about 3in. slack, and cut off.

Now continue the close winding for another 34 turns, and finish off through the top two holes. It should be noted that the three tappings are made an inch or so round from the two bottom holes which were drilled in the former

Components for the "Rejecta II"

.00025 variable condenser (not an expensive one).
3½ or 4 in. of 3in. former.
4 terminals; crystal.
3 valve pin sockets.
1 valve pin or plug to fit socket.
Panel 3-ply, ebonite or formica 6in. x 5in.
Baseboard, 6in. x 5in.
2 small angle brackets.
¼lb. 24 dcc. wire.
9 yards 30 dsc. wire.

If the constructor consults the diagram he will see the relative positions these tappings must occupy. If they are brought out where indicated it will be found that the set, when completed, will have a neat appearance. If they are brought out haphazardly he will have to take the wires in a roundabout way to the various tappings. Study the diagram, be quite clear what has to be done, and then start the job. In a table we publish the number of turns with the tappings, etc., just to make quite sure that everyone understands just how many turns to wind on. Affix two small feet to the coil to anchor it to the base board.

Assembling the Set.

THE next job is to drill the panel. At the top, on either side, will be the aerial and the earth. It is suggested that these should be about ¾in. from the top. At about 2½in. from the top and in the centre laterally mount the condenser. The three valve pin plugs for the aerial tappings are mounted on the right immediately below the aerial terminal, while the 'phone terminals are beneath the earth on the other side. The crystal is in the centre underneath the condenser.

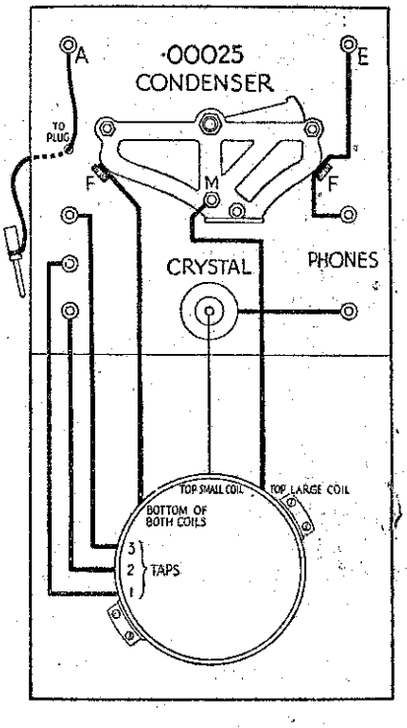
Having done this, mount the panel against the baseboard and the coil at the back, just clear of the condenser. If you cannot follow out the wiring from the drawing take it step by step as indicated here.

The free ends of the bottoms of the coils are scraped clear of insulation, twisted together and taken to the lower phone terminal on the left. Over this wire slip a piece of insulated sphagetti, or, if this is not available, do not clear the wires but merely twist them together and take them to the terminal. When this point is reached clean about ½in. and make a good connection.

The earth terminal is also connected with the moving plates of the condenser and the nearest phone terminal. If the fixed plates are handier, connect to these, only remember that you have changed them over.

Now connect the panel side of the crystal with the other phone terminal and the rear terminal of the crystal with the free end (the top) of the fine wire.

The top of the main coil must be carried down to the disengaged condenser terminal. If the diagram is followed this will be the moving plates. This free end must go to one condenser terminal (fixed or moving plates) and the other terminal (moving or fixed plates) must go to earth. It is really immaterial which is which, and either can be chosen for convenience. If a three-terminal condenser, as shown in the diagram, is used, the two end ter-



minals (fixed) will be the earth ones; they are the same for they are connected by the fixed plates.

The Tappings.

NOW we will return to the tappings for a few minutes. Handle these very carefully because they are liable to snap off and you will have to start the winding again. Clean a portion of each of the two tappings on the fine wire and solder a heavier wire on to each. Carry this to the two lower sockets on the panel. The tapping on the coarser wire will go to the top