

A Crystal Set and Amplifier to work from $22\frac{1}{2}$ Volts

(By "Galena")



Of crystal sets and amplifiers there are literally hundreds, yet all are modifications of a simple plan. The following is another to be added to that category, but should make a strong appeal to all who desire the local station on good loudspeaker strength with a minimum of running cost. A crystal set is described, together with the amplifier, but any crystal set may be used by hooking the speaker terminals to the transformer.

A small cabinet contains everything, and if carefully constructed, well-

age and consumption. Under these conditions the set will work from one small B battery and three dry 1½-volt cells. The drain is very small and, providing the set is moderately used, the cost of renewing the batteries will be trifling.

Prospective constructors should not expect to get beyond the local station,

resistance of 4500 ohms. The low plate voltage, filament voltage and consumption renders it highly suitable for a one-stage amplifier. The 241 valve requires only 2 volts on the filament, and as three volts are provided by the batteries a 30 ohm resistance must be placed in the circuit to prevent the filament from being spoiled.

baseboard panel and components, and connect these by long leads to batteries, either concealed or lying about the set. A cabinet may be constructed, but usually not till some time afterwards, if then.

This time procedure is reversed and the cabinet is constructed first, and the amateur will not find this difficult. Diagram (1) will give an idea how this should look when finished.

The timber is half-inch, well-seasoned heart; 8 x ½ inch dressed lining is very suitable, and is readily obtainable from a timber yard for a very small sum. About 7 feet will be ample.

Space will not permit full constructional details of the cabinet. Measurements are fully given, and no difficulty should be encountered. Outside measurements are given in each case.

The front portions should be joined as in diagram II. The edges can then be rounded off and polished. It is advisable to fit the bottom and back into the front and sides; that is, like the end of a fruit box.

The top forms a lid and is provided with hinges. A small overlap, say half-inch, is preferable in the front. This should be bevelled off to give a neat appearance. When complete, smooth with sandpaper, stain, varnish, and allow to dry. Not until thoroughly dry is it advisable to carry on with the assembly.

The Coil.

THE coil to be used is of the basket type. Although being perhaps a little more difficult to construct than the ordinary plain coil, the writer considers it better in this circuit. Many have been tried, but this was found to be the best.

On a piece of timber draw a circle with a radius of 1½ inches, divide this

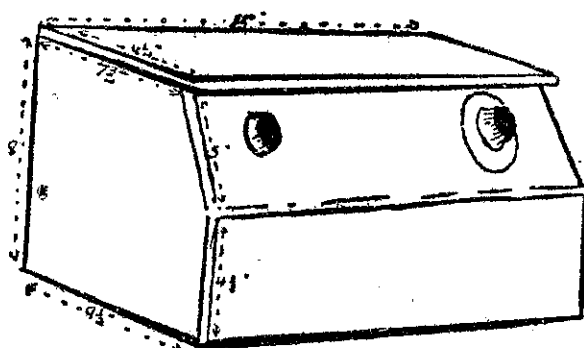


Diagram I.

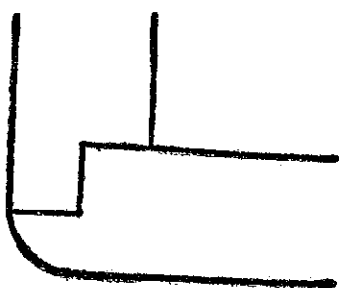


Diagram II

stained and polished, will become a fine piece of furniture.

Only one valve is used, but it is of the double grid type, requiring only 22½ volts on the plate and auxiliary grid, with the usual low filament volt-

THERE are four stages in the evolution of the wireless "fanatic," the crystal, the amplifier, the broadcast valve receiver, and the short wave receiver. The advent of Christmas will mark the initiation of many newcomers to the joys of radio. Of these a large proportion will start with the simple crystal. But Christmas broadcasting, with all its cheer, calls everyone to listen-in, but how—on a crystal? To fill that gap this set is described. Both initial and running costs are low, while quality and volume are truly remarkable.

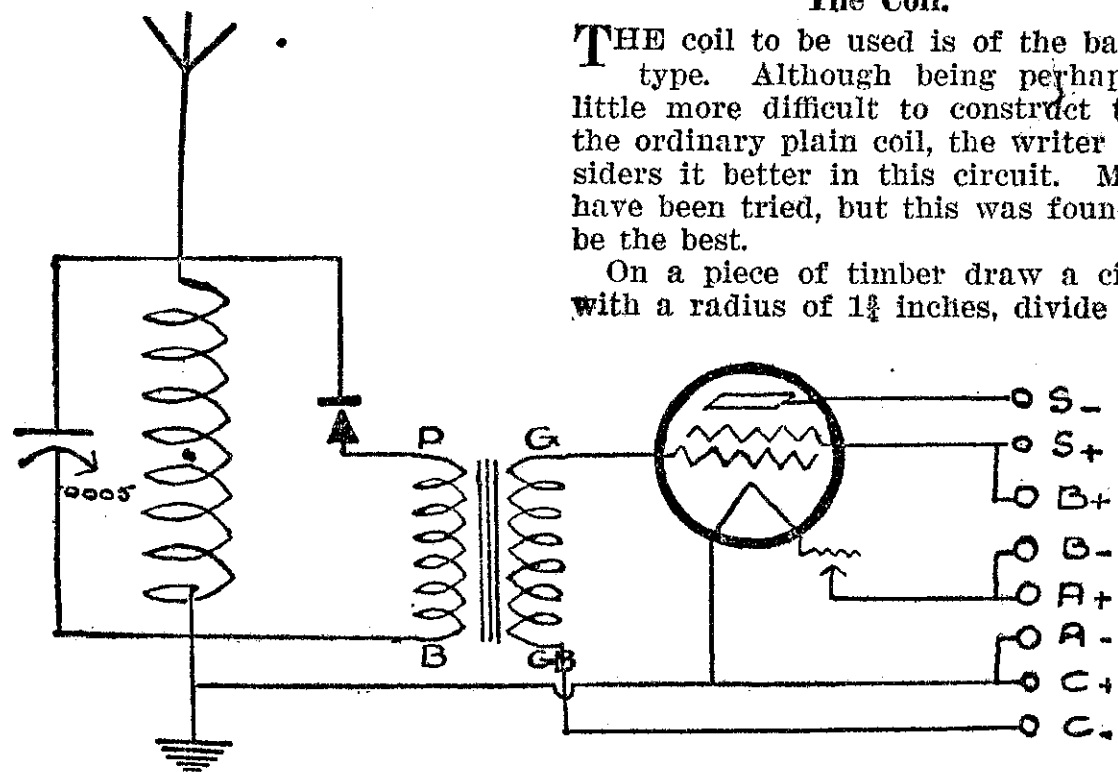
that is not claimed, but it is claimed that there are few, if any, sets that can be run on such low voltage and give amplification that will far exceed that of the ordinary one-valve amplifier.

The circuit is not original, but an individuality has been given which renders it different from the usual type of set.

The writer knows of no other make of double grid valve on the New Zealand market but 241 which can be readily obtained.

The Double Grid Valve.

THE valve is provided with two grids, and is thus enabled to give in the case of Philips 241 an amplification factor of 4.5 with the low internal



Theoretical Diagram.

The Cabinet.

THE usual procedure in construction is to build a set, comprising a

into 15 equal parts, and drill to take 15 pieces of meat skewer each 2½ inches long. Twenty-four gauge double

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