

cotton-covered wire is to be used for the winding. Making one end secure to the timber, start winding in and out of the uprights, passing inside one and outside the next.

It will be noticed that each lap passes on the other side of the skewer from its predecessor. Thus series of diamond shapes are formed, the centres being the skewer. The whole will somewhat resemble a basket, hence the name. Wind on from forty-five to fifty turns, according to the length of the aerial: the longer, the aerial the fewer the turns.

To secure the meshes cut fifteen pieces of the 24 wire, each four inches long. Pass one end down each diamond shape and up the adjoining series of diamonds. Thus a U shape, with long arms, will connect each series of diamonds. Twist the ends of each wire together to form a firm support for the corners of these cavities. When firmly secured twist each end of the coil to the U nearest and remove from the former. Place this in the cabinet as shown in the lay-out diagram (III).

Lay-Out.

IN selecting components use only the best. They cost more, but amply reward; especially does this refer to

diagram a large 1½-volt cell is shown, but a torch cell would be sufficient. This is to economise space. For safety's sake the valve base and transformer should be fixed to a piece of timber of suitable dimensions, say, seven inches by four. This would allow both to be removed when an alteration is necessary. Care should be taken that the letters G and GB (C) of the transformer should be opposite P and G of the valve base.

A permanent crystal has been selected and should be mounted vertically about two inches from the top of the right-hand end of the cabinet. It is shown horizontal in order to simplify the wiring diagram.

The terminals marked A (ANT) and G (GND) should be two inches from the top. Two jacks are provided; one will plug into the crystal set alone for 'phone use, the other into the amplifier for speaker use. They may be mounted as shown, or with the speaker jack below the 'phone jack. All joints should be soldered.

Wiring.

BY the aid of the diagrams no difficulty should be encountered in wiring. Square 18 tinned wire may be used if covered with spaghetti. Ordin-

pass a wire along the floor of the cabinet, up the back to the ground terminal.

A wire passes from this terminal to the portion of the jack connecting with the tip of the plug as shown. Join the free end of the crystal to P of the transformer. From about the centre of this wire a branch runs to the other prong of the 'phone jack.

This completes the 'phone winding. Plug in and try out. A round or two might have to be taken from the coil, but the use of a .0005 mfd. condenser would make up for any inaccuracy in number of turns. If, on tuning in, it is found that the loudest point is 100, more turns should be added. If loudest at O, the number should be reduced.

Amplifier Winding.

CONNECT G of the secondary of the transformer to G of the valve base and GB (or C) to the negative terminal of the cell lying on the B battery. Connect the positive of this cell (C battery) to the negative of the A battery, that is, to the outside terminal of the two cells on the left back. From this terminal (A-) run a wire to one of the filament (F) terminals of the valve base. Connect the other filament terminal to the rheostat. Do this

This completes the filament wiring, turn on the rheostat and test by connecting a torch bulb to the F terminals, this should light.

To complete connect the terminal on the valve base marked P to the longer prong of the speaker jack (that is, to the prong connecting with the tip of the plug). Connect the remaining prong to B+. Repeat the test with the torch lamp and if everything is in order introduce the valve.

On one side of the valve is a terminal. Connect this to B+ or to the B+ terminal of the jack, as shown.

Plug in the speaker and turn on the rheostat only partially—to turn it on full would ruin the valve.

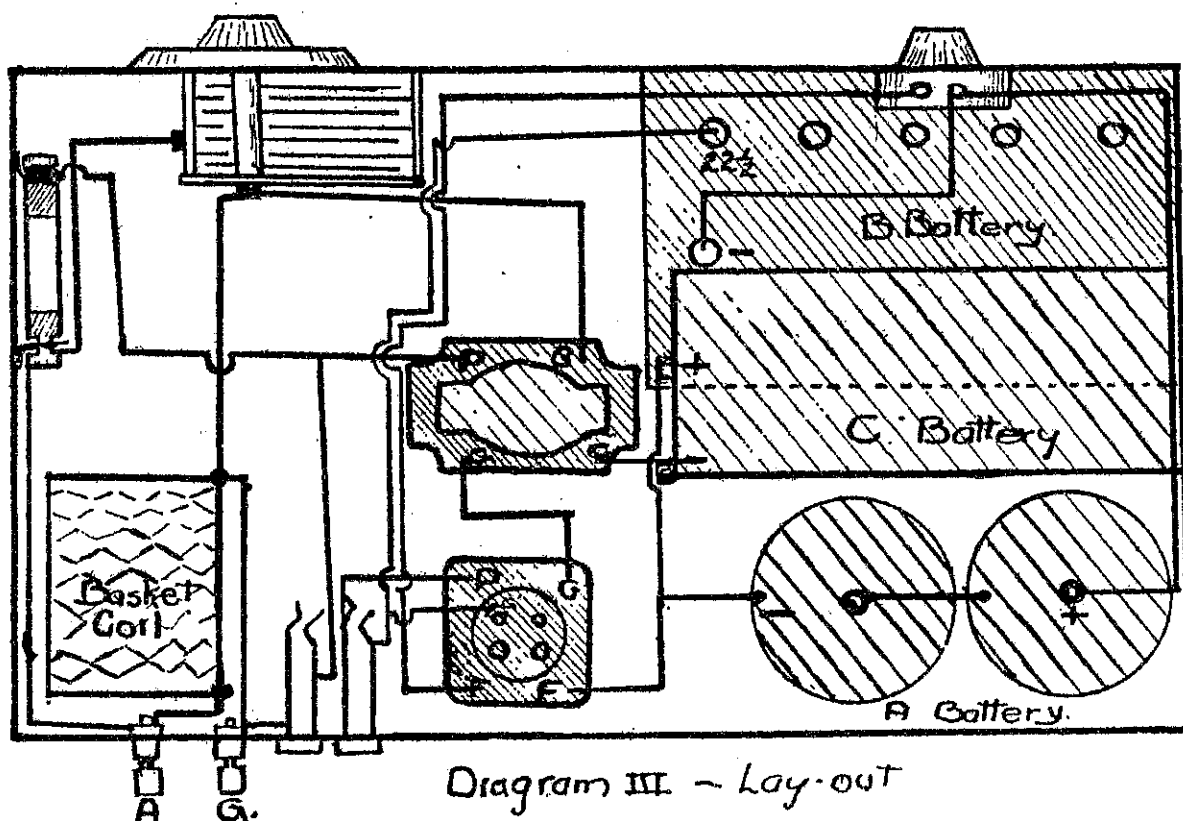
By following the diagrams it will be seen that the wiring follows the sides and bottom of the cabinet wherever possible. Do this for neatness as well as efficiency.

Working Hints.

FOLLOWING are a few hints that should aid the beginner to look after the set and keep it in tip-top order.

Do not let the batteries get too low. Batteries tend to burn out slightly more rapidly than B, so keep a voltmeter handy.

If torch batter cells are used for



the condenser, the transformer and the rheostat. A list is appended.

Drill the upper half of the panel 2½ in. from the top and three inches from each end. On the right-hand side fit the condenser, on the left the rheostat, that is when one is facing the cabinet. A chisel may be introduced to make a neat fit. Lay out the remaining components as shown in diagram III. It will be noticed that the C battery overlies the B. In the

any insulated 18 wire will do if the outer insulation is stripped away, leaving the rubber covering. Wherever possible wire along the sides and floor of the cabinet. To the aerial terminal attach two wires, one to one end of the coil and the other to the crystal, and on again to the fixed plates of the condenser. Connect the moving plates to the free end of the coil and to B of the transformer. From the soldered joint of the coil

Components for Crystal and Amplifier

CRYSTAL

1lb. 24 S.W.G. D.C.C. Wire.
Permanent Crystal.
.0005 S.L.F. Condenser.
Lightning Arrester.
Wire for connections.
Two Terminals, Gnd. and Ant.
Phone Jack and Plug.

AMPLIFIER

Transformer small ratio (3½ to 1).
Double-grid Valve (241).
Valve Base.
30-ohm Rheostat.
Plug and Jack.
22½-volt B Battery.
3 1½-volt Cells.

by running a wire along the bottom of the cabinet and up the inside of the front. From the other end of the rheostat take a wire round to A plus, and another to B minus. Connect the two free terminals of the A battery.

test frequently, otherwise quality will be lost.

The writer found an improvement effected by placing a celluloid screen between the condenser and the coil. A (Continued on Page 30.)

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