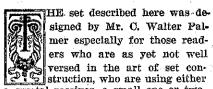
The "Beginner" Three-Valve Set



a crystal receiver, a small one or twovalve set, or no set at all. There are, we know, a great number of crystal and one-valve sets being used at present, despite the reduction in the price of larger apparatus. Many beginners believe that the construction of a larger set would be beyond their scope, but it will be found (by those who try) that the construction of a good, if simple, receiver is quite easy.

This "Beginner's Three' has been designed with several points in view. In the first place, the cost of the parts is an important consideration; for most beginners are rather sceptical about spending very much as they are not sure that the set will work properly. This hesitancy can be overcome by careful choice in the matter of the circuit and the apparatus.

Another question, equally important with the cost, is that of the efficiency of the receiver; and for this reason, in the vital parts of this set, the best available apparatus should be used. Such parts as the new-style dials, while they add much to the appearance of the receiver, have very little effect on its actual operation; and those of the older style, which can be obtained gulte cheaply from your local dealer, are quite suitable for our purpose. Should the constructor desire to "dress up" the little set later on he may readily do so. Many readers who would be interested in building a set of this type will have some parts already in their "junk-box," and, of course, these will help to keep the cost at a mini-

A Small, Powerful Receiver

Simple and Compact.

THE "Beginner's Three" contains one stage of radio-frequency amplification, a regenerative detector and one stage of audio-frequency amplification.

The first thing to do when building any receiver is to collect all the necessary parts. The apparatus used in the original set is appended:-

List of Parts.

in. (L1, L2)

Two variable condensers, .0005-mf.

ratio (T1). One "Phasatrol" (PH).

One variable rheostat, 0-500,000-omh

Two vernier dials. One radio-frequency choke (L3). One by-pass condenser, 0.5-mf. (C4). Fixed resistance (if necessary). One .002-mfd. fixed condenser (C3). One filament switch, GSW. One Bakelite panel, 7 x 10. Four terminals.

One roll of connecting wire. Baseboard, 10 x 83 x lin.

Screws, angles, washers, several strips of bakelite for coil, mounting for binding posts.

The colls may be constructed on the general lines described by "Megohm" in Volume II., No. 51. The secondary

of each coil contains 86 turns of No. 28 S.S.C. or S.C.C. wire. The turns should be space-wound, unless D.C.C. by placing a piece of thread beside the wire. The primary of each coil contains 15 turns and the tickler on the detector coil 20 turns.

Some constructors may have on hand smaller condensers, such as .00035 mfd., and in this case the outlay for the set will be reduced by using them. In this case the secondaries should be arranged so that 115 turns are left for each of these colls. For further details regarding the use of other wire One Coil former, 2in. in diameter, 61 see Listener's Guide, "Table of Relative Inductances."

Mounting the Coils.

Three UX valve sockets, baseboard A FTER the coils have been arranged, cut from bakelite, hard-rubber or fibre for these instruments.

gests itself to the reader may be used. In the original set, two old binding-posts of the metal type used several years ago (those with a screw in the top and a hole in the side for the wire to pass through) were drilled out so that the wood-screw through.

The detector coupling coil (the one with the three windings) is mounted by a small angle-piece which is screwed to the coil strip and is secured to the baseboard with a small wood-screw. A 6-32 machine-screw and nut are used to fasten the coil strip to the angle, which is one of the small brass brackets found in the local 5-an-10-cent store.

Other Assembly.

A FTER the coils have been prepared. the next point is to drill the panel for the tuning condensers, oscillationcontrol resistor R3, and the filament switch. The templates supplied with the next point is to mount them, the condensers will provide the most One audio-frequency transformer, 6:1 The strips for mounting the coils are convenient way of laying out the holes The resistor

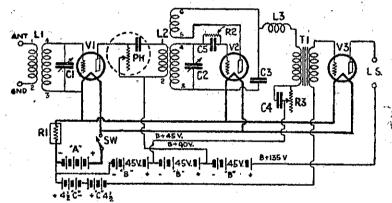


Fig. 1.-The 'Beginner's Three' is shown here with all the connections to batteries, for the convenience of the beginner.

for the aerial coupler (the one with trations. two coils) has a hole drilled in each end to hold the mounting screws. The it may be well to make the bindingpost strip also. This strip is also cut them. from 1-inch panel material, and is 31 the wi inches long by 1-inch wide; in this, however, six holes are drilled. The spaced over the remaining space, for the aerial, ground and two 'phone binding posts. .

After the strips have been prepared, they should be cemented to the coils. Collodion (or liquid court plaster, as it is sometimes called) is a very convenient material for this purpose.

board. It may be well to explain how mentioned before. The latter resistor this is done, even though we are not is shunted by an 0.5-ml. by-pass conscrews, passed through the holes in the will not have to pass through the high coil mounting strips, and through a resistance. In order to make the set suitable washer which raises the coil as low in cost as possible, a cable has above the base. made from a piece of metal tubing; or This reduces the cost of the cable and any other suitable method which sug- still permits the convenience of the

They are each 3½ inches and switch are centred between the long, 1-inch wide and 1-inch thick. That two condensers, as shown in the illus-

The pictorial lay-out (Fig. 2) shows the positions of the other parts of other is drilled at one end only. While the set. The coils are placed at right the strips for the coils are being made, angles to each other, so that there will be the minimum of interaction between They are also so located that the wiring between the grid end of the coil and its condenser and tube-socket terminal is as short as possible. two at the ends are for the mounting radio frequency choke, which is equip-screws; four others are then evenly ped with a machine screw for subpanel mounting, is fastened to a small brass angle; which is in turn fastened as shown, to the plate (P) terminal of the detector tube socket. This is done for convenience only, as the mounting bracket is not connected in any way to the terminals of the choke.

The "Phasatrol" stabilises the radio-When the cement has dried, the coils frequency amplifier, and the resistor are ready for mounting on the base- R3 is used to control the detector as The latter-resistor quite ready for assembling all the denser which serves to carry the audio-The antenna coil is secured to frequency currents in the primary cirthe wooden base by two long wood- cuit of the transformer, so that they The washer may be been improvised from the hook-up wire.

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