pass condensers, together with the grid-bias battery, are located underneath the aluminium baseboard. Thus, shortness of wiring and neatness of layout have been secured, while the above baseboard appearance of the set is considerably enhanced.

Building the Set.

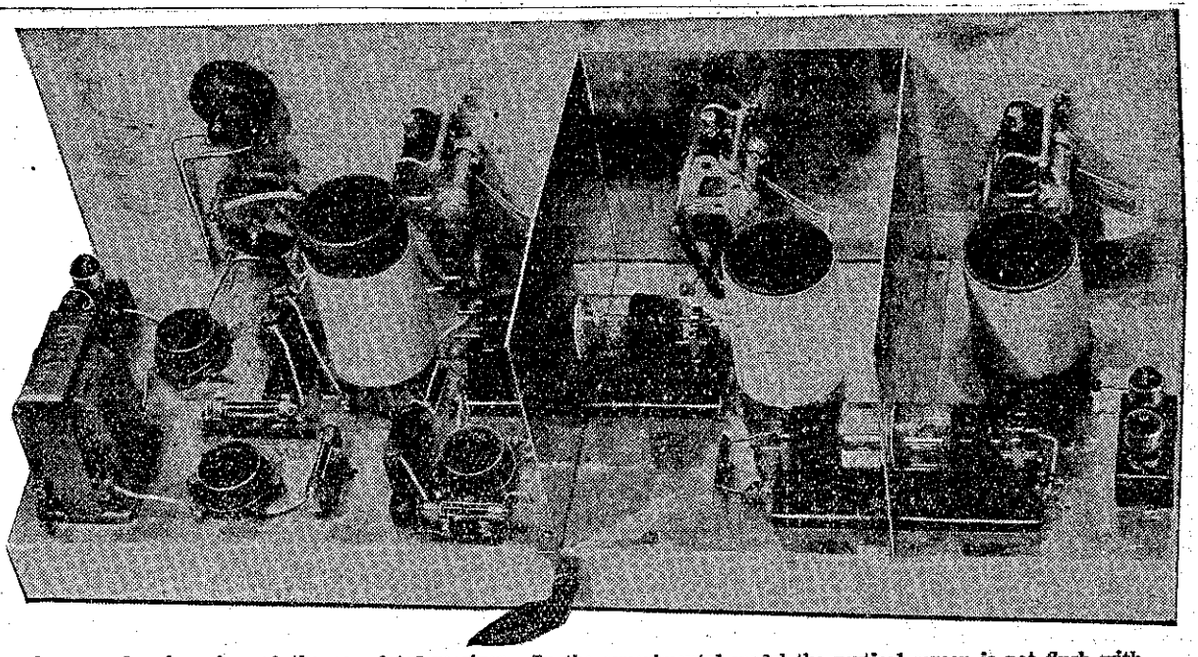
NOW for the set itself. The first thing to do is to procure the aluminium baseboard and shielding, the panel and the necessary parts. These should all be obtained and checked up against the list of parts given on this page before construction is commenced.

The baseboard and vertical shield compartment may be bought ready made or can be shaped by the constructor from sheet aluminium from the dimensions given. Unless suitable tools are to hand, however, we strongly advise the former. To avoid cutting gaps in the aluminium and thus reducing the effectiveness of the screening, the valve holders themselves are cut in half and mounted, on each side of the shield, in the manner shown. The leads running to the ends of the valve holders marked "A" and "G2," should be of insulated flex to allow this portion of the valve holder to be withdrawn about ¼in. from the shielding and the valve thus inserted or withdrawn.

The Coils.

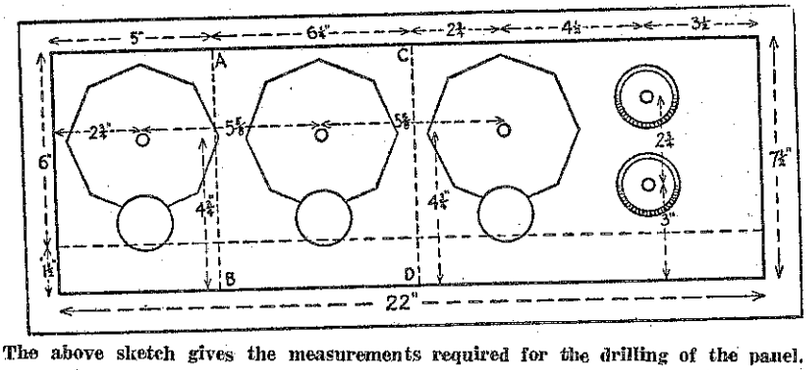
AFTER securing all the parts, the next task is to wind the coils. These are quite straightforward, and should present no difficulty. All are wound on a 2in. former, which may be of ebonite or glazed cardboard. One 4in. and two 3½in. lengths of this will be required. The three secondaries are wound with 26 d.c.c. wire, while the primary of the first r.f. coil and the reaction coil are wound with No. 32 d.s.c. About ¼lb. of the former and a few yards of the latter will be ample.

Now for the first r.f. coil. This will have three soldering lugs at its base, for connections to aerial, earth, and the grid of the first valve. Care should be taken when commencing and finishing off windings that these are taken to points nearest to those to which they are to connect. For example, in the first coil, the soldering lug to which the top of the primary is connected should be directly opposite the aerial terminal. Again, the bottom of the primary and the bottom of the secondary, which are taken to a common tap, should be as close as possible to the moving vanes of the first variable condenser. Finally the top of the secondary should be taken out to a point which will give the shortest connection with the grid of the first valve. It is in watching little points like these that shortness in wiring and increased efficiency is obtained. The constructor may get a general idea of where the soldering lugs should be mounted on the coil from the photograph reproduced above, but next week a layout diagram showing clearly the disposition and wiring of every component will be published.



A comprehensive view of the completed receiver. In the experimental model the vertical screen is not flush with the top of the panel, as it should be.

Now for the coil itself. About a ½in. from the end of one of the 3½in. lengths of former make two small holes parallel to the edge of the former and at right angles to its axis. The end of the 26 d.c.c. wire is doubled through these and attached to a soldering lug mounted on the base, and 85 turns are wound on. The end is doubled through two similar holes to prevent the coil unwinding, and then taken down the inside of the coil to the soldering lug designed for it. We are now ready to wind on the primary. Ten thin ebonite spacers, preferably of semi-circular cross section and about ¾in. long, are then stuck with seccotine, or glue, at equal intervals round the bottom of the secondary. The coil of No. 30 d.s.c. is now taken and the end attached to the soldering lug to which is soldered the bottom of the secondary. Twenty-five turns, slightly spaced, are then wound on.



The above sketch gives the measurements required for the drilling of the panel.

The end may be anchored at the top by two methods, In the first, the turns of the secondary are pushed slightly aside and a small hole made in the former underneath. The end of the primary is then passed through and down inside the coil to the soldering lug intended for it. Alternatively it will be found that the wire will be held quite securely if a turn is taken round one of the ebonite spacers and then taken down outside the coil to the soldering lug.

Two points about the winding of this primary. A strip of celluloid or of brown paper may be substituted for the ebonite spacers. Correct spacing of the primary, i.e., the thickness of one turn, is rather difficult to achieve unless the following procedure is adopted: Secure a piece of thread or thin twine, of about the thickness of the wire employed for the primary, and wind it on together with the primary, alternating the windings. At the completion of the coil the thread is then unwound and the primary will be correctly spaced.

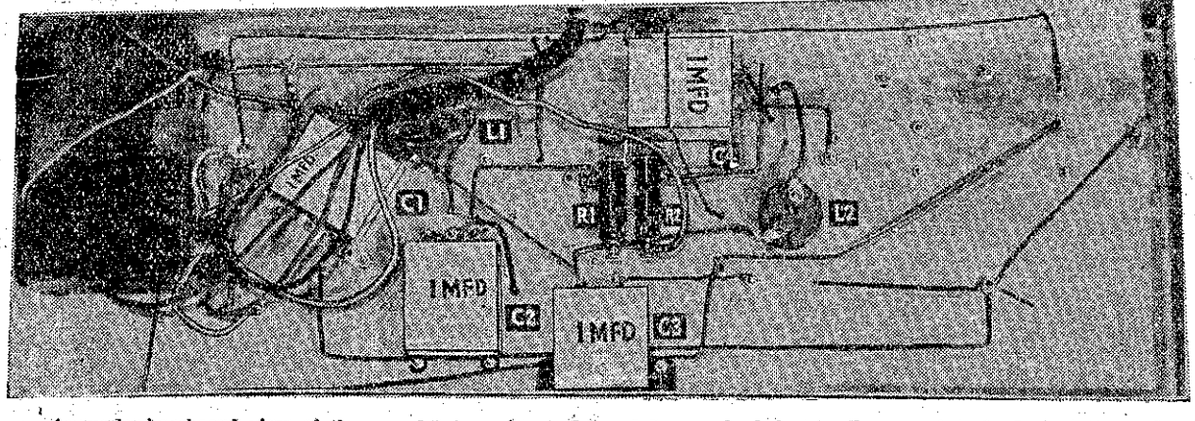
When the two angle brackets for mounting the coil on the baseboard have been screwed on, the coil is complete.

The next coil, which consists of 85 turns of No. 26 d.c.c., centre tapped, is the simplest of all. The same procedure regarding the placing of the soldering lugs should be followed with this coil, and the winding commenced. After 42½ turns have been wound on, a hole is made in the former, and the wire doubled and threaded through. It is then taken to the soldering lug, the double end being bared for attachment. In this way the soldering on of a tapping is avoided. The winding of the coil is now continued until another 42 and a fraction of a turn are wound on. The necessary holes are pierced and the ends taken down in the ordinary way.

The secondary of the third coil is wound on in exactly the same way as the first, but the number of turns is reduced to 77, owing to interaction of the secondary with the reaction coil just above it, and the reduction in number of turns is necessary to give approximate matching of the condenser dial readings.

Exactly 1-8in. above the top of the secondary two holes are pierced and the reaction winding, consisting of 28 turns of close-wound 32 d.s.c. is placed on. The end of this winding is taken to a soldering lug on top of the former or enough wire is left after anchoring

(Continued on page 30.)



An under-baseboard view of the completed receiver. L1 and 2 are r.f. chokes in the s.g. plate leads, and R1 and 2 decoupling resistances in the screening-grid leads.