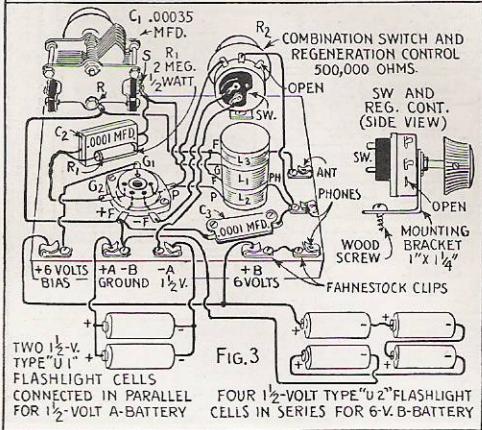
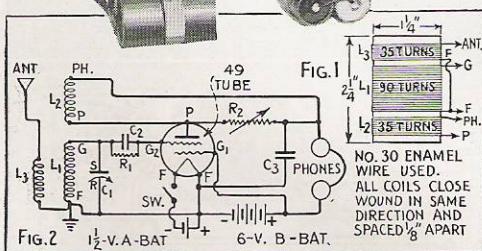
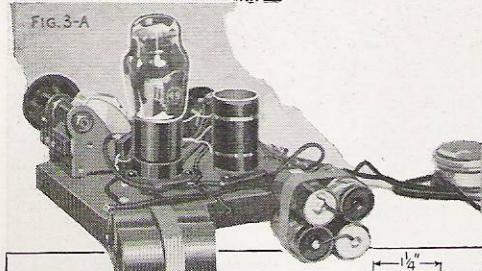


One-Tube Set Works on Six Flashlight Cells



FIG. 3-A



SIX flashlight batteries of the variety available in the five-and-ten-cent stores, will operate this little one-tube receiver. The outstanding features include unusually low cost, crystal-set simplicity, space-charge detector and good DX tube set performance. Beginners, graduating from the crystal stage of radio experimenting, will find this an easy set to build and the space-charge detector is of special interest.

The method of using a space-charge detector, although not new, has seen little use. Now, thanks to the experimental work of a Canadian amateur, VE4EA, who demonstrated the practicability of using a type-49 tube as a space-charge detector in a portable 2-tube short-wave receiver, the hook-up is gaining favor rapidly. As far as can be determined, this is the first time that the principle has been applied in the construction of a simple one-tube broadcast receiver.

In the set to be described, the type-49 tube is employed in a regenerative circuit with resistor control of regeneration. A positive bias is applied to the inner grid of the tube, thus permitting the tube to operate efficiently with only six volts of plate voltage. The filament supply is 1½ volts; this may be obtained from two type-U1 flashlight cells connected in parallel as shown, or a single No. 6 dry cell may be used. Four type-U2 flashlight cells connected in series, furnish the bias and plate voltage.

Coil-winding details are shown in Fig. 1; it is important that all three windings be made in the same clockwise direction and the connections should be made as shown. The original coil form used was the cardboard cover removed from an old type-U1 flashlight battery. The start and finish ends of each coil winding are anchored by passing the wire through two small holes punched in the cardboard tubing with a pin. Be sure to leave the wires long enough to reach the various points where they are to be soldered as indicated in diagram Fig. 3; the coil form is glued to the base-

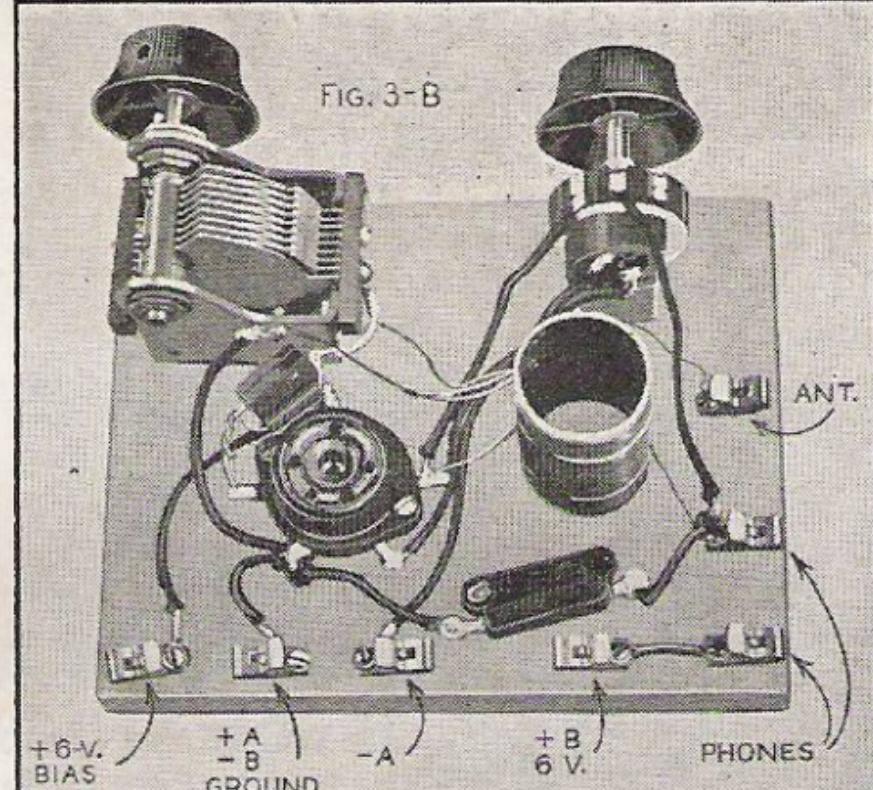
(Continued to page 142A)

Set Works on Flashlight Cells

(Continued from page 420)

board in an upright position directly back of the regeneration control.

All parts are mounted on a wood base-board, $\frac{3}{4}$ by $5\frac{1}{2}$ by 7 in.; the arrangement is clearly shown in Figs. 3, 3A and 3B. It will be noted that a separate Fahnestock clip is used for supplying the inner grid voltage. This is done so that a higher voltage may be used on the plate than the grid if desired. The plate voltage, which goes through the headphones to the plate of the tube, may be increased to 12 volts



with a slight increase in volume; however, the grid bias should remain at six volts. A complete list of the original materials used in this set can be obtained from Popular Mechanics radio department without charge. The blueprint number is R-227.

When the wiring has been completed and carefully checked, connect the batteries and headphones; use a good antenna and ground and be sure that your headphones do not have a total resistance of more than 2,000 ohms. Higher resistance phones will reduce the plate voltage so that the set will not operate properly. In tuning, the regeneration control is advanced until a soft thud, which indicates oscillation, is heard; now back off the control slowly until oscillation ceases. Stations are then tuned in by rotating the knob on the variable condenser. Slight readjustment of the regeneration control may be necessary in order to obtain maximum volume. The set is most sensitive at the point just before oscillation begins.