

### THE PANEL ARRANGEMENT OF THE RECEIVER

The antenna and ground binding post are on the left, with the battery and phone binding posts on the right. The lower switch lever controls the antenna coupling. The upper right-hand switch lever and the right-hand dial tune the secondary circuit, and regeneration is controlled by the upper left-hand switch lever and the left-hand dial. The rheostat is adjusted by the knob at the right, which is next to the binding posts. The smaller knobs close to each dial operate the geared vernier on each condenser.

## Simple How-to-Build Articles for Beginners No. 4

*How to build a single-tube, Reinartz-circuit receiver*

By LAURENCE M. COCKADAY

COST OF PARTS: *Not more than \$20.00*

APPROXIMATE RANGE: *500 miles*

HERE ARE THE ITEMS YOU WILL NEED—

- |  |                                      |
|--|--------------------------------------|
| A and B—coils of the Schoonhoven Ray-coils for the Reinartz circuit; | G—King vacuum-tube socket;           |
| C and D—Bowman "Low-loss" vernier variable condensers;               | H—Unity vernier rheostat;            |
| E—Dubilier micadon, .00025 mfd.;                                     | I, J and K—Amsco switch levers;      |
| F—Turn-it variable grid leak;  | L—switch points;                     |
|  | M—composition panel, 7 by 18 inches; |
|  | N—baseboard, 7 by 16¾ inches.        |

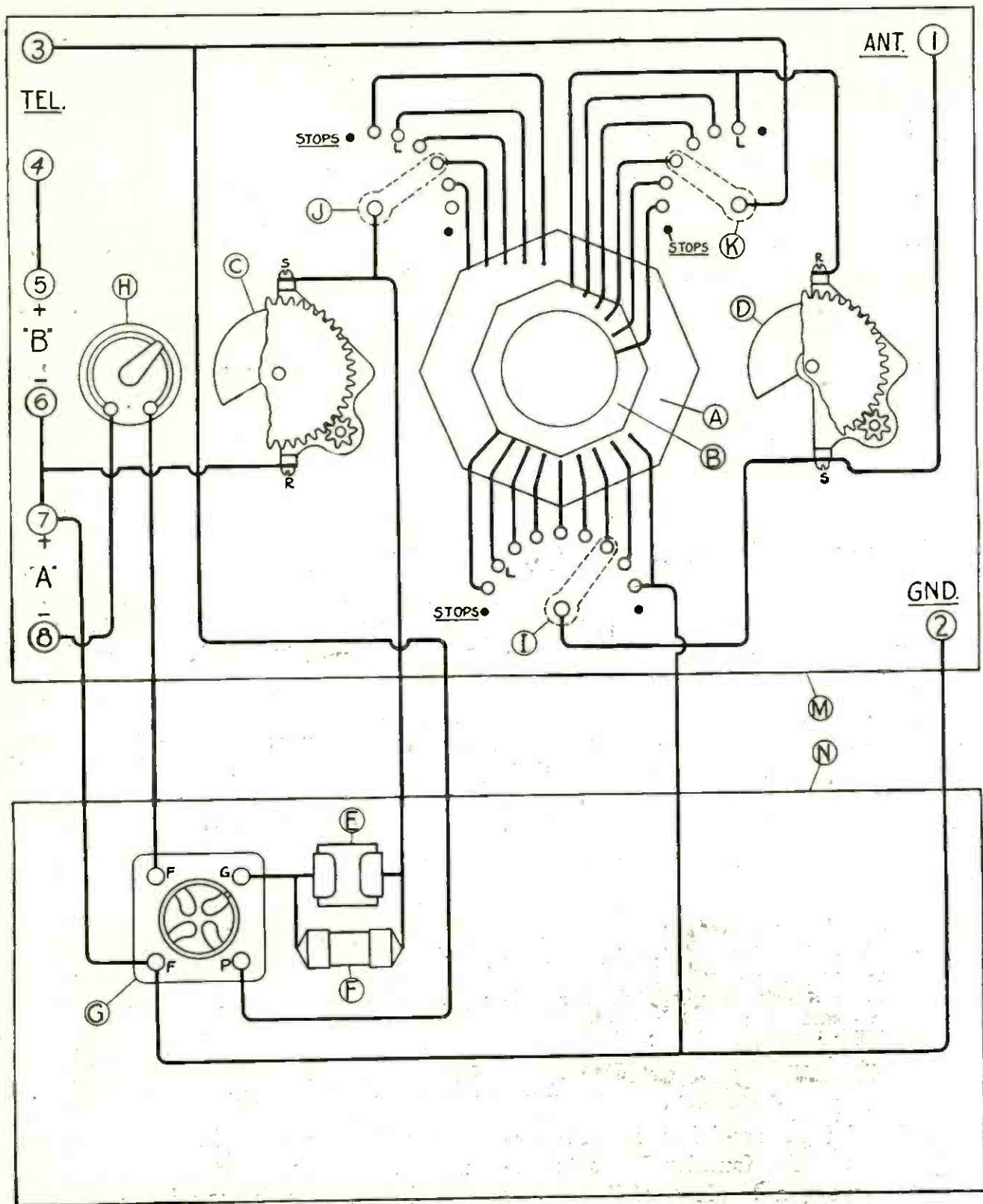
THE fourth receiving set of this series is the familiar Reinartz circuit employing a single "soft" detector tube. The set is for use with headphones only, unless an audio-frequency amplifier is added to it.

The set was built in the POPULAR RADIO LABORATORY with the express purpose of giving the real novice a simple regenerative receiver that is extremely easy to make and one that will give him good results.

Anyone can make it, and anyone can make it *work*.

All that is necessary is to take this article to a radio dealer and ask him to give you the parts that are specified at the head of this article.

When you have obtained the parts, take them home and lay out the instruments on the panel and the baseboard as shown in the diagram on page 578 and in the back view shown on page 579.



### The "Picture Diagram" of the Hook-up

Even a glance at the above illustration will convince the novice that this radio set is really easy to wire up. In this diagram the instruments are shown in picture form and the connecting wires are drawn in, IN THE EXACT MANNER THAT THEY SHOULD GO IN THE SET. The upper rectangle represents the back of the panel and the instruments that are fastened to it, and the lower rectangle is the baseboard. The terminals on the various instruments are plainly shown and the instruments are marked with designating letters that reappear in the text and the list of parts.

All the parts are lettered with the same letters as given in the list of parts so you can make no mistake either in constructing the set or in wiring up the instruments. The wiring should be done exactly as shown in the picture diagram.

When you have finished wiring the set, you can connect it up for operation by following these instructions:

Connect the antenna to binding post No. 1.

Connect the ground wire to binding post No. 2.

Connect the telephones between binding posts Nos. 3 and 4.

Connect the 22½-volt "B" battery between posts Nos. 5 and 6, with the positive terminal to post 5 and the negative terminal to post 6.

Connect the 6-volt "A" battery between posts Nos. 7 and 8, with the positive terminal to post 7 and the negative terminal to post 8.

An 80 to 100-foot single-wire antenna is recommended.

Tuning the set is simple. The switch lever I controls the antenna tuning. The switch lever J and the condenser C control the secondary tuning. And the switch lever K and the vernier vari-

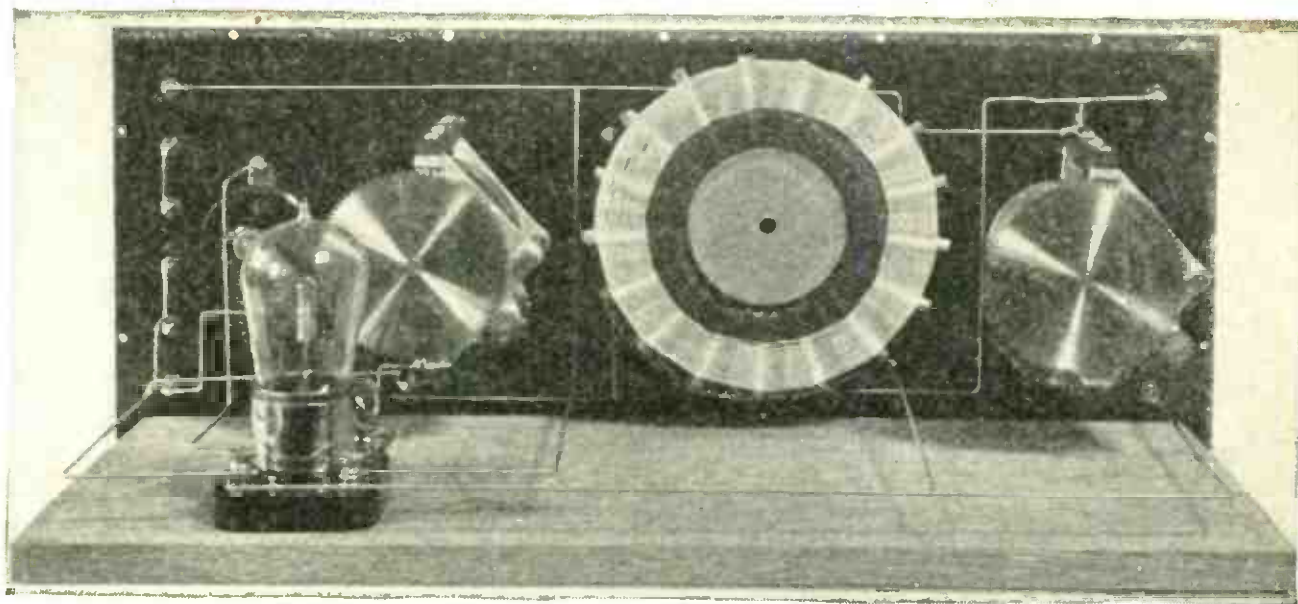
able condenser D control regeneration.

In order to get the best results with the set be sure that you do not turn up the rheostat H too high. Never turn it up higher than is consistent with the proper signal strength.

If you are located in the vicinity of a number of powerful broadcasting stations that operate at the same time, you will find that the switch lever I (the lower one on the panel) should be kept turned to the right as much as possible. This will give you excellent selectivity with little falling off of the signal strength.

The receiver is designed for use with the UV-200 or C-300 tube, but it will give satisfactory results with the other standard tubes if the rheostat is of the proper resistance to control the filament current and the "B" battery voltage is of the correct value for the tube you use.

*Never* allow the set to squeal! If you do you will not only spoil your own reception, but you will also spoil reception for your neighbors. So, keep the rheostat turned down as much as is possible without detracting too much from the signal strength. Then you will have good results and so will your neighbor.



THE REAR VIEW OF THE SET

*Study this view in connection with the picture diagram of the hook-up on page 578. The location and connecting points of each wire appear clearly and you can determine just how to bend the wires to get the shortest connection with the proper clearance. The coil is supported satisfactorily by the short wires running from it to the switch points.*