



A well proportioned British radio job takes to the air during the WestsEssex Gala Day, Fairlop Aerodrome, London. The plane was built by O. Hemsley.

TRICKS OF THE TRADE



Ed Lorenz, noted designer of radio equipment for use in model aircraft, concludes a comprehensive discussion to give the new rc'er an idea of what it is all about. In the last issue, he covered transmitters, receivers, actuators, provided a glossary of terms. This month, he discusses tricks of the trade, relays, gives a complete run-down of batteries available, matching them with ship sizes, other requirements.

► To acquaint you with little "tricks of the trade," which may prove helpful to you in radio control work, here are a few useful items.

Figure 1 shows a power supply operating from the 110 volt AC line. This will supply a smooth source of DC power for experimental transmitter and receiver work, thus saving batteries. The money spent in building this unit will be repaid in battery replacement cost within a period of six months, especially if it is a club project. This power supply may be constructed on a small board and covered to protect the user from shock and the power supply from short circuits. Your local radio shop or a "ham" friend should be able to help you build it into a metal box, taking the proper precautions against shorts. Have the output taps checked for the correct voltage, fluctuations being due to variations in line voltage.

Figure 2 shows how a half-wave folded dipole antenna may be constructed to take up less space and be more portable. This configuration will eliminate nulls also. The supports may be made from thin strips of wood.

The use of relays makes possible many variations in control circuits while still using a single receiver. While it is admitted that several relays will add a little weight to the receiver control system, their usage has the advantage of not being an electronic type of control and once adjusted will always hold that adjustment. And then there is only one receiver to tune. To use a relay system requires a pulsing signal from the transmitter. Since this is not a construction article, we shall not go into elaborate systems but shall show the two basic hookups used to accomplish various functions. Figure 3 shows the method used to hold a relay on while pulses are being transmitted, and Figure 4 shows the circuit for keeping the relay



Norm Rosenstock makes a hand glide test of a radio-controlled towliner. An excellent soarer, ship is a development of Jasco design.

open during pulses. The size of the condensers and resistor will vary with the resistance and inductance of the relay and the supply voltage but are representative when using a Kurman 5,000 ohm or Sigma 8,000 or 10,000 ohm relay with a 45-volt supply voltage. This type of relay control system is operated best by running the delay relays off the points of the receiver relay. Experimentally, results may be observed by making the hookups as shown and then rapidly making and breaking the battery lead.

For those interested in a pulse type transmitter control, Figure 5 shows a typical method of construction. This will give a pulse length varying from minimum time on/maximum time off to maximum time on/minimum time off. At midway point, the pulse length, time on and time off, are equal. Pulse rate may be varied by attaching a gear train to the motor shaft to turn the commutator and then placing a 10 or 15 ohm rheostat in series with one of the motor leads.

For a club project, a simple field strength meter is shown in Figure 6. This instrument may be used to determine correct antenna coupling on the transmitter, radiation patterns of transmitting antennas, and relative signal outputs of various transmitter circuits. It is basically a receiver which indicates relative signal strength. In operation, the field strength meter is taken about 50 to 500 feet from the transmitter and meter readings noted when tuned to the correct frequency. This will be indicated as an increase on the meter. When adjusting antenna coupling or tying various antennas, the meter should be located at the same spot and in the same position each time so as to get accurate comparative readings. Removing one's hand from the tuning condenser or tuning wand may detune it slightly; if this happens, the capacity setting should be increased SLIGHTLY, then moved back, and increase in reading observed.

TRICKS

FIG. 1

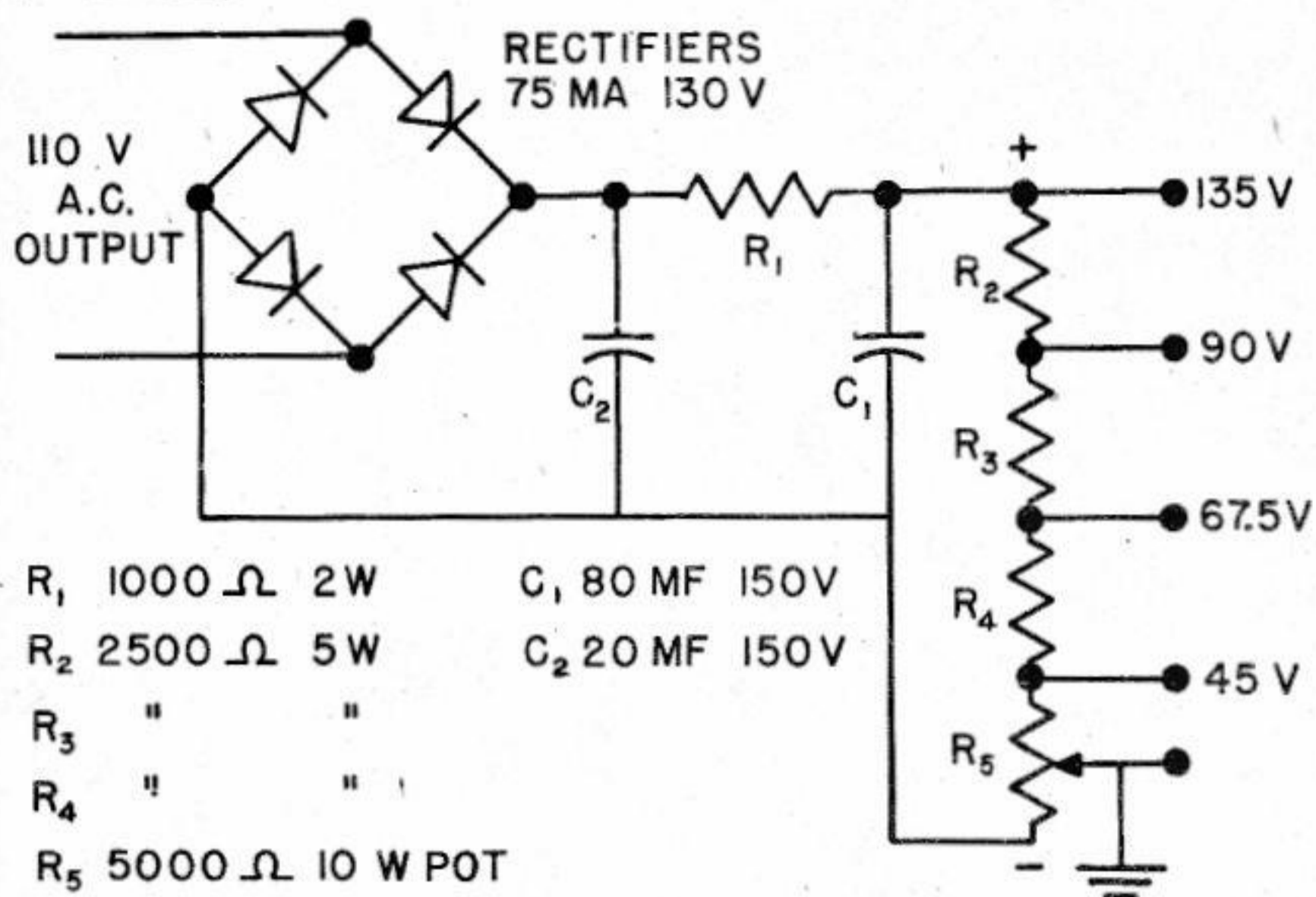


FIG. 2

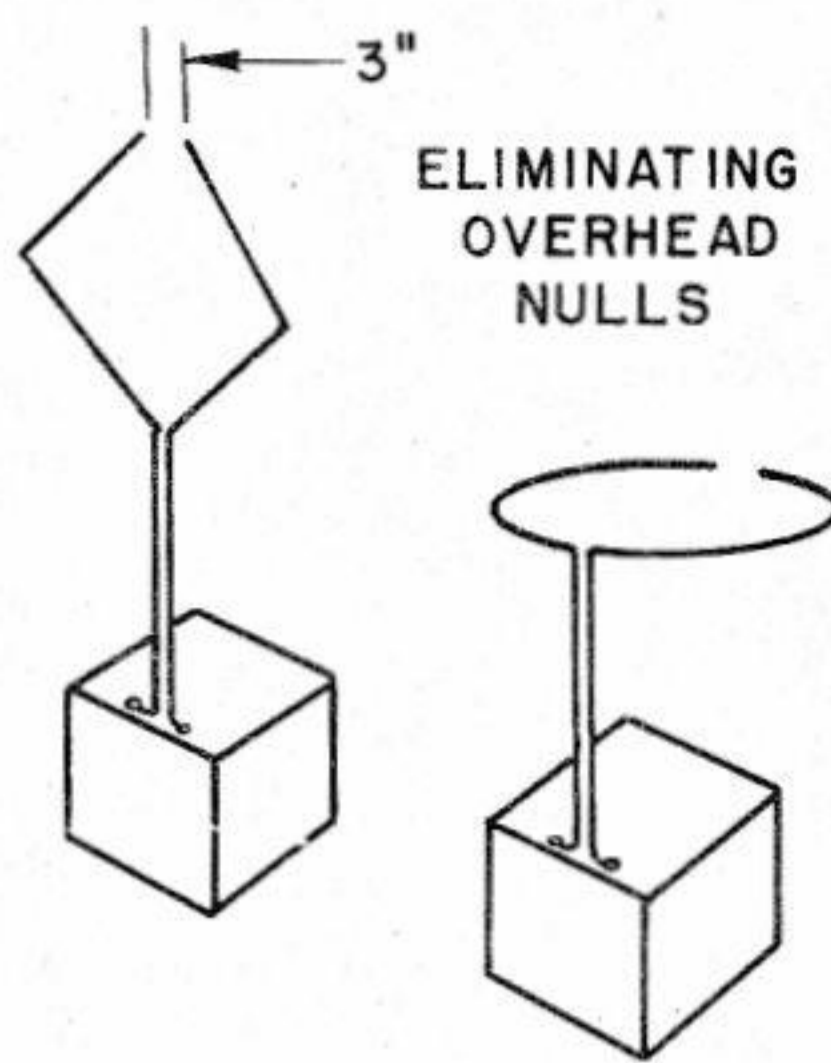


FIG. 3

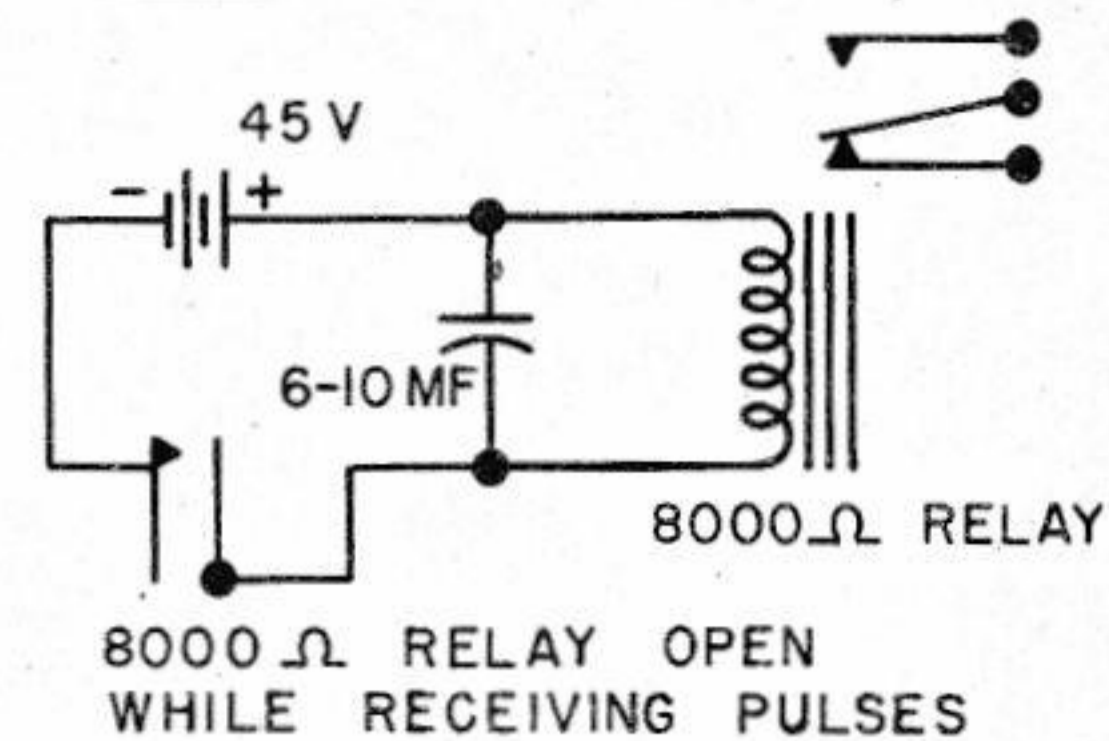


FIG. 4

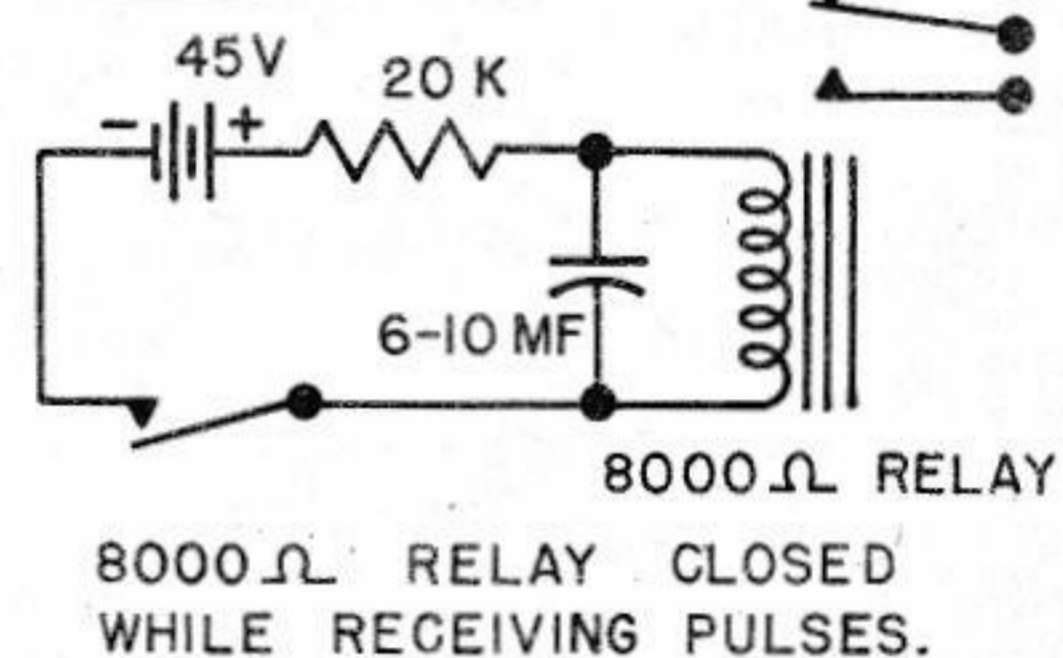


FIG. 7

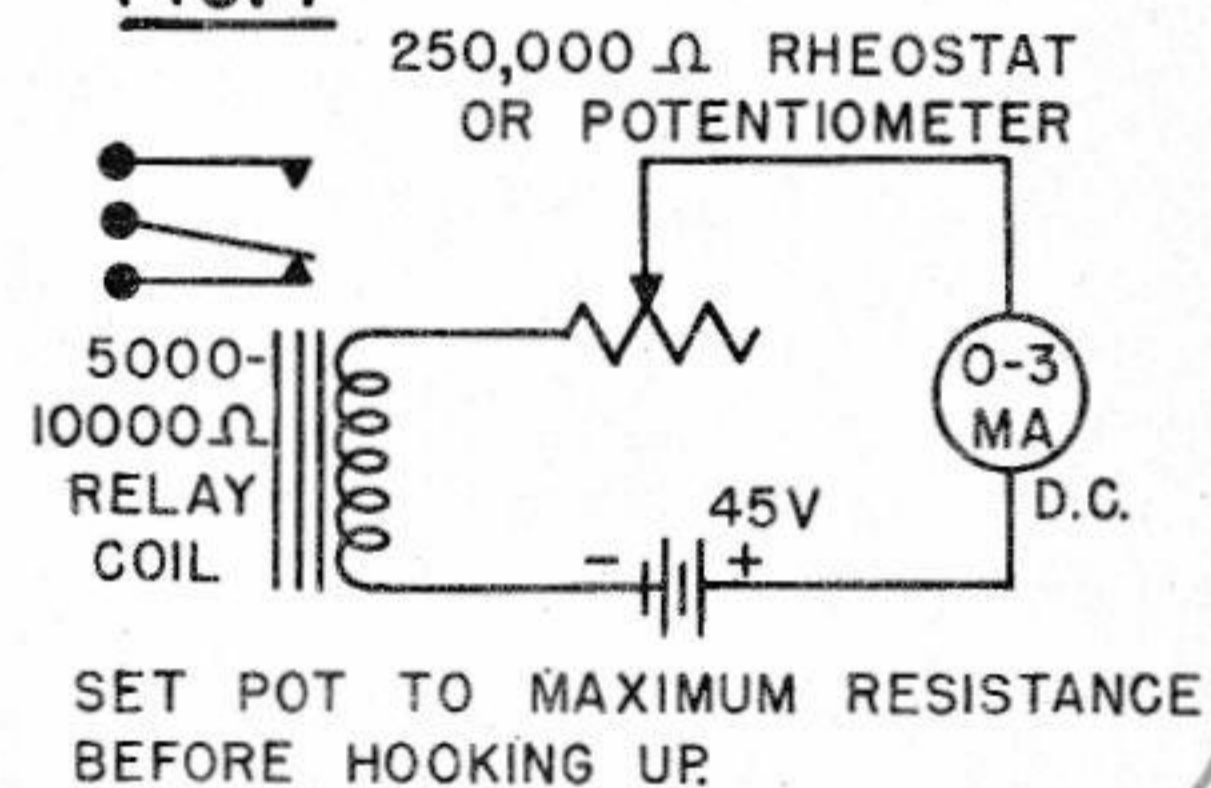
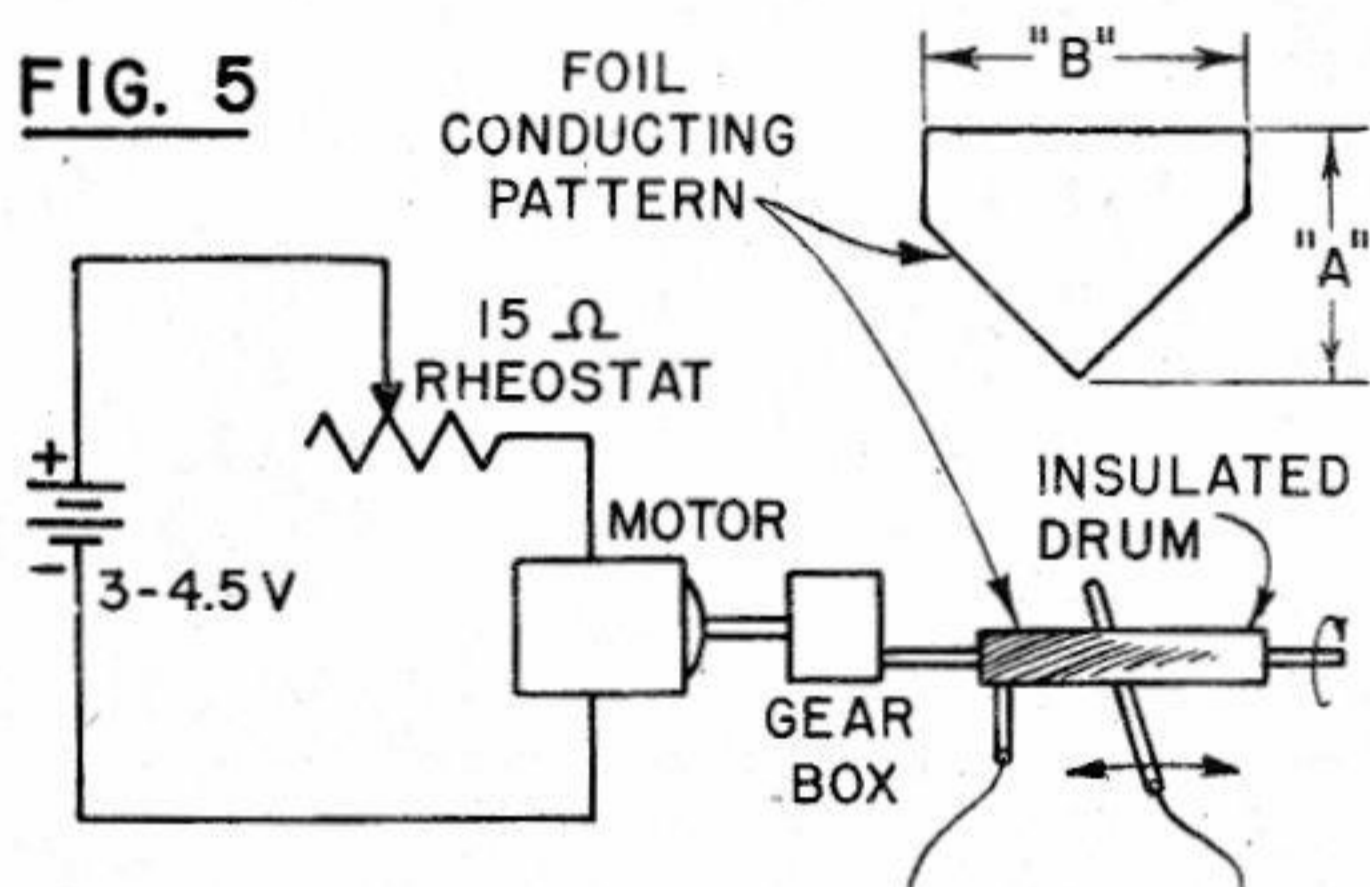


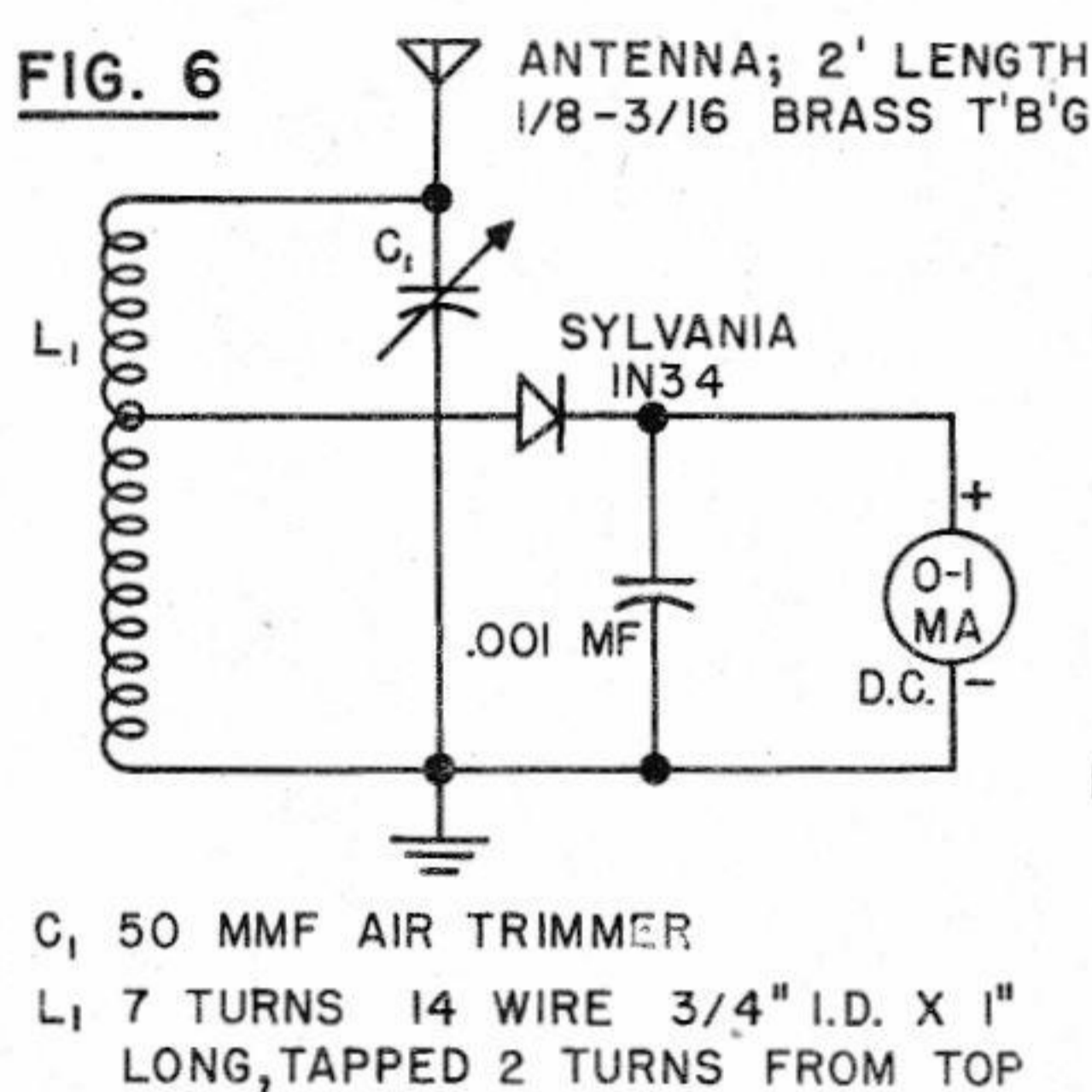
FIG. 5



USE WIRE WOUND RHEOSTAT OR POT,
CLAROSTAT 58-15

"A" = 1/2" LESS THAN LENGTH OF DRUM
"B" = CIRCUMFERENCE OF DRUM

FIG. 6



Right—The Good Brothers four-position escapement. Note the double magnets. When used with a beep box, this type of escapement has proved capable of following up to 20 impulses a second.

Below—Good Brothers receiver is an example of a hard-tube circuit. Relay, adjacent to tube, is specially made, may seem strange to builders who are familiar with the Sigmas and Kurmans.

