

# Cigar Box Radio

**B**ACK in the early days of radio, it was a common sight to see the entire family crowding around and taking their turn at the earphones of the latest marvel of the age—the crystal set radio. It seemed so uncanny how it was possible to get music and voices in the room from afar without the use of wires. With the advent of newer radios the crystal set slowly lost its popularity. However, it still is lots of fun to turn the pages of time back and build a simple crystal set. Anyone with but average workshop skill can easily construct such a set in an evening or two, and, if located about ten miles from a broad-

casting station reception should be good.

The first step is to make the tuning coil inductance that is used in the antenna circuit. Take a piece of  $\frac{3}{4}$  to 1 in. diameter mailing tube or fibre tubing about 6 inches long and closely wind on a single layer of No. 26 to 28 gauge enameled wire. For winding the coil make the simple jig shown in Photo 1. The jig consists of a base board with two L-shaped metal brackets. The coil tube is set between the brackets with a screw holding one end and a piece of  $\frac{1}{8}$  in. steel rod which acts as a handle, imbedded into the other end. Both screw and handle rod are driven into a round piece of wood pressed into the tube for a center core. The wooden center is left in place and later permits mounting the finished coil permanently in the cigar box. The end of the steel rod, which forms the turning handle, is flattened where it is driven into the wood.

The start and finish of the coil are secured from unwinding by drilling a small hole at each end of the tube and passing a loop of the wire through each hole. The coil is then given a coat of thin shellac, as illustrated in Photo 2.

The next job, shown in Photo 3, is to



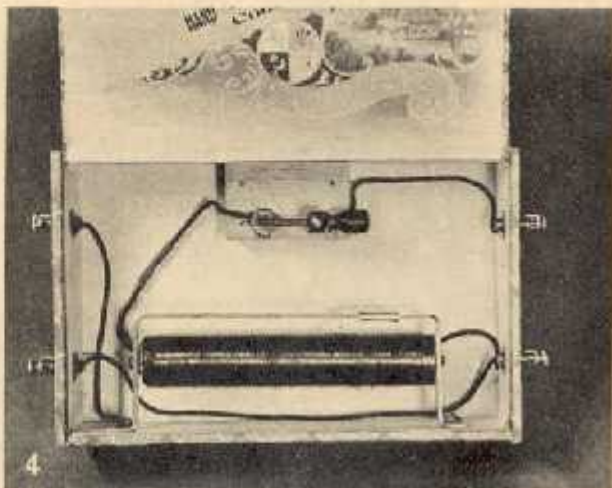
Winding the coil. Coil tube, with its wooden center core, revolves when the handle is turned.



After the ends of the coil are made secure, apply a thin coat of shellac to the entire surface.



Carefully solder a wire lead to each end of the coil. Use No. 18 or 20 insulated flexible wire.



Arrangement of parts within the cigar box. Note the coil mount, slider, and crystal detector.



tical store. At each end of the box binding posts are fitted. The upper one at the left side is for the antenna connection and the lower one for the ground. The right hand terminals are for the phones. The antenna comes in and connects to the brass slider at its bottom foot. The ground connects to one phone terminal and also to one end of the coil. The other end of the coil goes to the crystal and the detector arm to the remaining phone terminal.

solder a piece of No. 18 or 20 insulated flexible wire to the start and finish of the coil to act as leads. Each wire lead is made secure by inserting the end through the hole drilled for the winding ends.

Next mount the coil to the front side of the box with short bolts inserted through a combination support and slider arrangement, as pictured in Photo 4. The support is merely a strip of  $\frac{1}{4} \times \frac{3}{16}$  in. brass bent to fit the coil. The slider, built up from sheet brass, slides freely on the strip. Clean the coil over which the slider rides with fine sandpaper, down to the copper, so a good contact will be made with every turn. Wood screws are used at each end of the coil to hold it in place.

The detector is a common mounted galena crystal and an adjustable arm with a "cat whisker," obtainable from any radio or elec-

For best results a long outside antenna of about 75-100 ft. long is recommended. The earphones should be sensitive and wound to a fairly high resistance, such as 2000 ohms. Adjustment is provided by the sliding contact which varies the tuning inductance. It should be possible to get several local stations on different spots on the coil, but selectivity will be only fair so in some cases interference may be experienced. The detector must be very carefully adjusted to find a sensitive spot by moving the cat whisker around to touch different places on the crystal.

