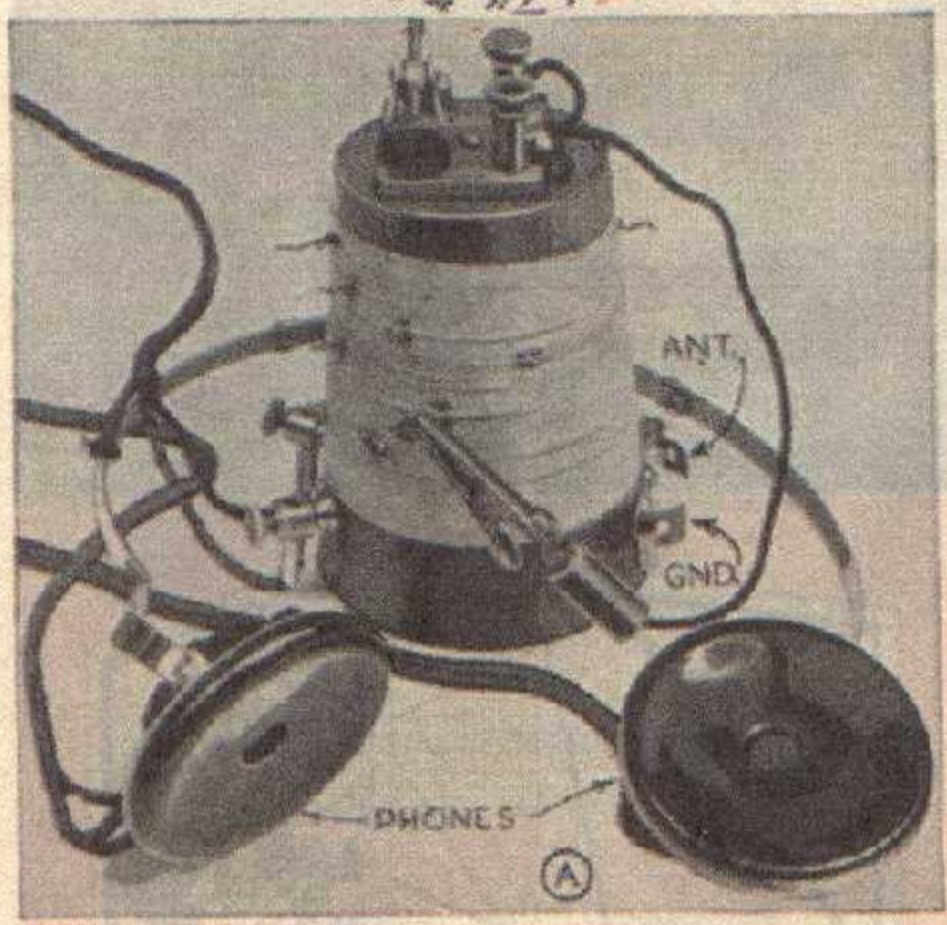
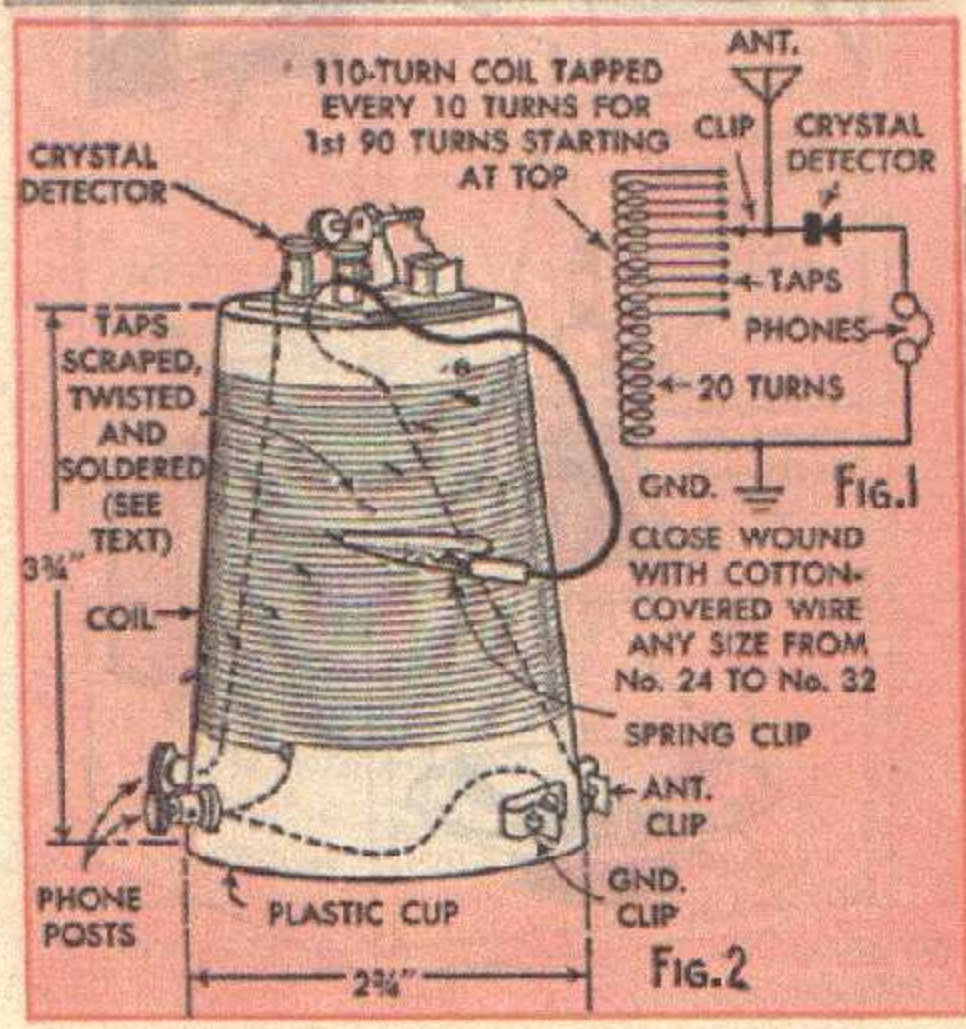
TWO LOW-COST CRYSTAL SETS

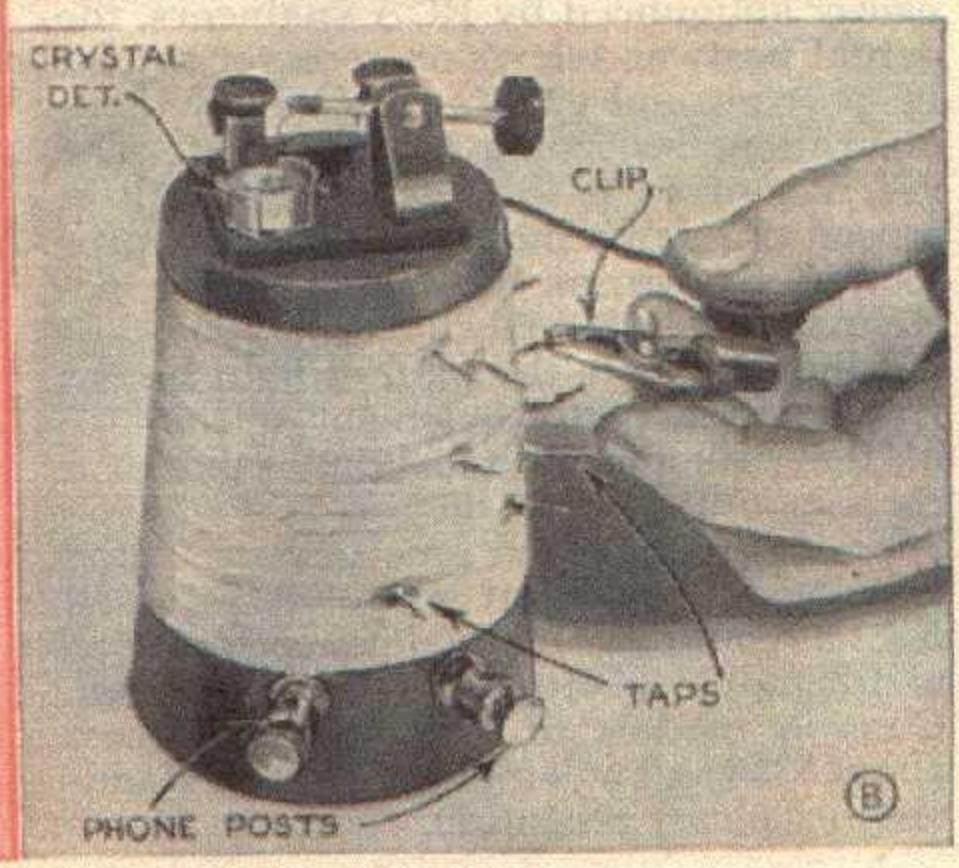


CRYSTAL sets never lose their appeal because they offer so much radio for so little money and because they give satisfactory reception on local stations. All you need is a good pair of 2,000-ohm headphones, a few scrap materials, and a crystal detector to build an efficient broadcast receiver of this description. Complete crystal detectors cost about 25 cents, or you can assemble your own holder and mount a small piece of galena mineral. A safety pin, or a piece of stiff wire, will serve as an adjustable contact point.

Crystal circuits are of infinite variety. Some are quite selective and will separate strong local broadcasting stations in crowded localities; others of simpler design are intended to receive only the strongest station in a given area. The usual range for any crystal receiver is about 40 miles for powerful broadcasting stations, although greater distances have been covered under favorable receiving conditions or with elaborate antenna and ground systems that are not practical from an economical standpoint. In every case maximum range is obtained with a long and high outdoor antenna and a ground on a cold water pipe, rather than with trick circuits. For distant stations the antenna should be 150 feet long or longer.

Schematic circuit diagram Fig. 1 shows a crystal set reduced to its simplest fundamentals. It consists of a coil, tapped for tuning, and a crystal detector. This set is intended for use only in a city which has but one broadcasting station powerful enough to give a good signal on crystal sets. The coil is wound on an ordinary plastic drinking cup of the "dime" store variety as detailed in the pictorial diagram

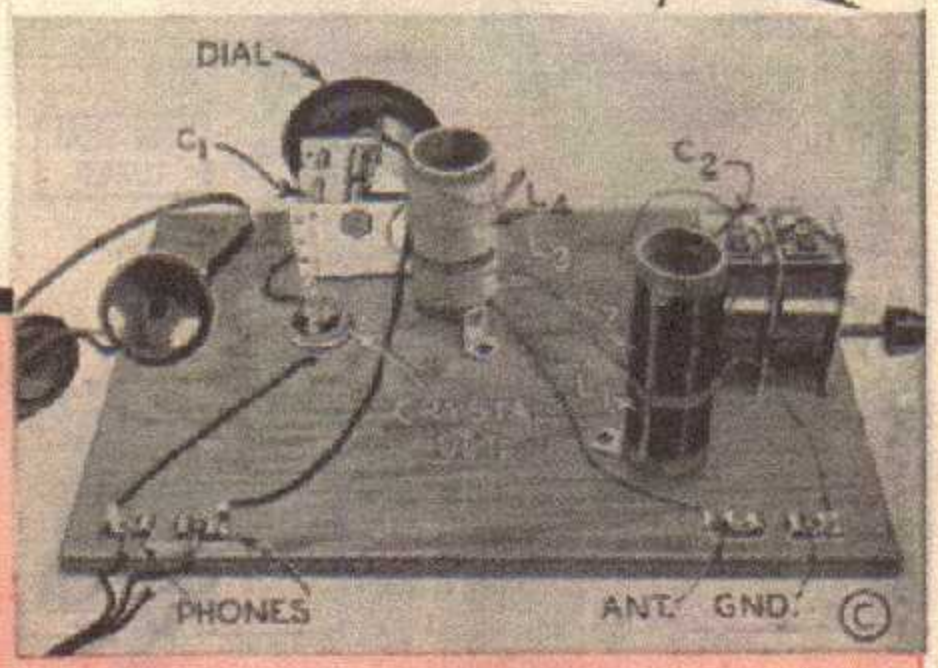




for EXPERIMENTERS

Fig. 2 and photos A and B; the total cost was approximately 50 cents. The coil tuning taps are made by scraping the insulation from the wire at the tap point, twisting it and applying solder so that it will stand out and provide a terminal for the "bulldog" spring clip. The standard adjustable crystal detector is mounted on top of the cup. Two Fahnestock spring clips and two binding posts complete the assembly.

A really selective crystal receiver is shown in photo C; the schematic circuit appears in Fig. 3 and simplified pictorial wiring diagrams are given in Figs. 4 and 4-A. It includes a wave-trap and employs two 2-gang variable condensers that were salvaged from old broadcast receivers. As only one section in each 2-gang condenser is used, single-section condensers of the same capacity may be substituted. The set is tuned with variable condenser C_1 at front; interfering stations are tuned out with the wave-trap condenser C_2. Detailed student material list R-335 is available from Popular Mechanics radio department upon receipt of ordinary letter postage.



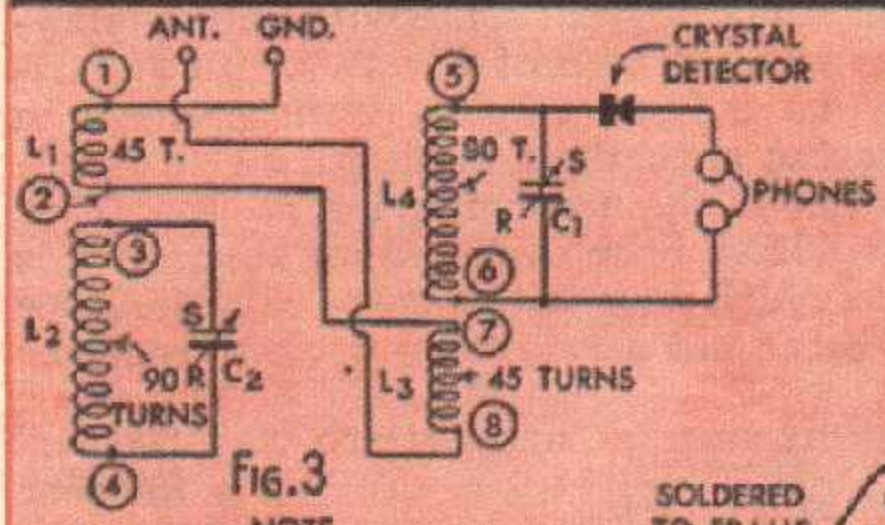


FIG. 3

NOTE
C_1 AND C_2 = SINGLE SECTIONS OF TWO OLD 365 MMFD. 2-GANG VARIABLE CONDENSERS

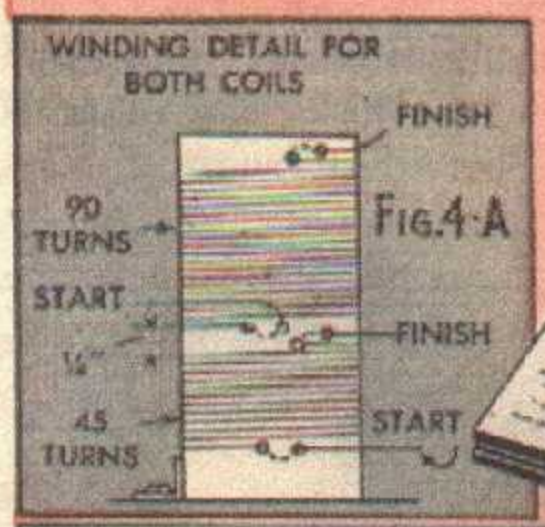


FIG. 4-A

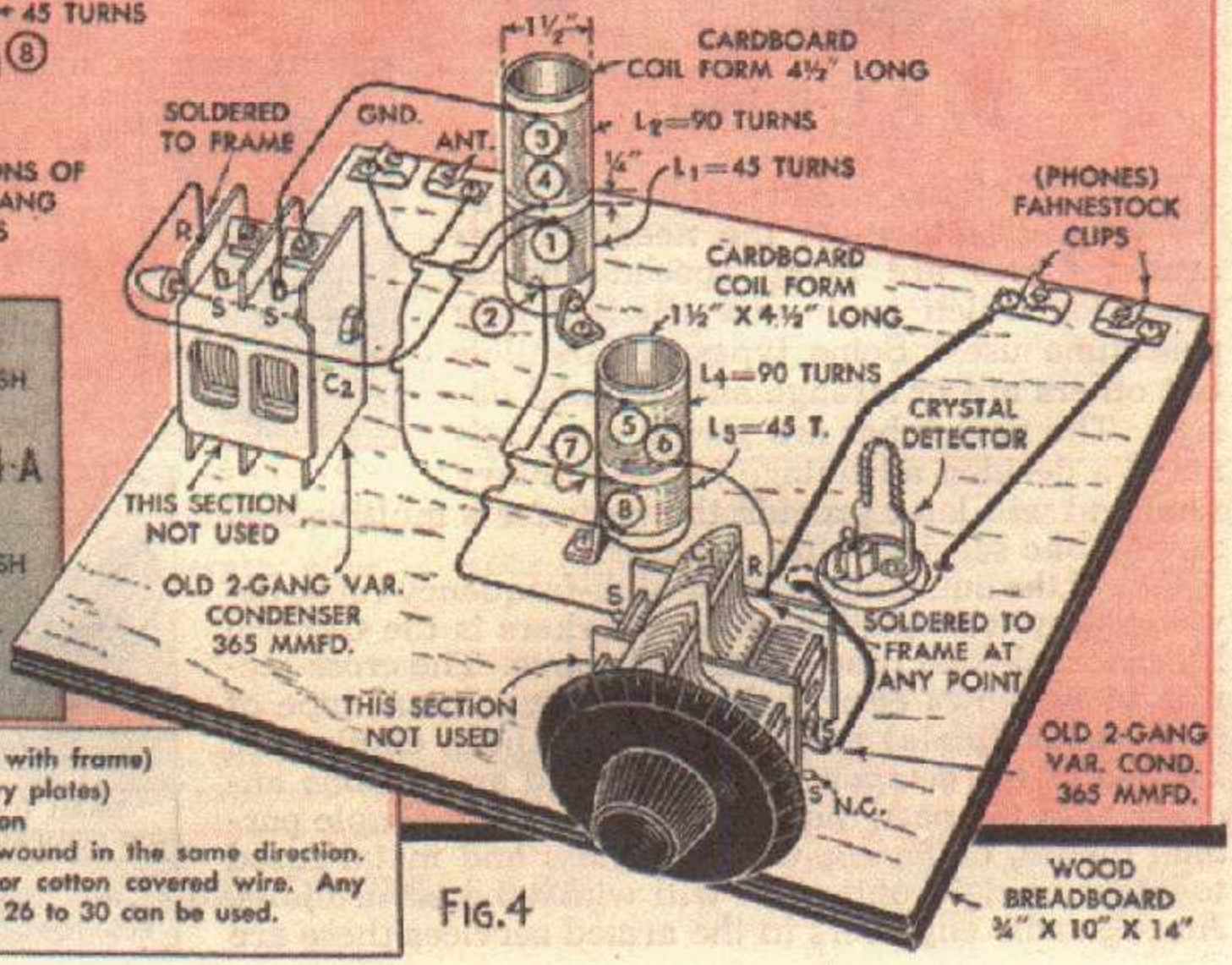


FIG. 4

NOTE—R=Rotor (common with frame)
S=Stator (stationary plates)
N. C.=No connection
All coils are close-wound in the same direction. No. 26 enameled or cotton covered wire. Any size wire from No. 26 to 30 can be used.