An Inexpensive Crystal Set
Local Broadcast Stations Can Be Received With Pure Tone Quality

The crystal receiving set has much to recommend it when the purpose is to receive local broadcasting. This set is easy to construct and simple to operate. It costs little to build, does not require batteries and has a justly deserved reputation for producing clear, undistorted tone quality. The crystal set described below by Will H. Bates which appeared in Popular Mechanics magazine, has the additional advantage of being able to separate the "close together" stations, giving the sharp tuning usually obtainable only in vacuum tube sets.

This simple selective crystal receiver will bring in the broadcast programs within a range of 35 or 40 miles, and can be built for less than $1, exclusive of the headphones and the aerial and ground supplies. No variable condenser is used, yet the set will separate the local stations. This is of particular advantage in the larger cities, where several stations are on the air at the same time, and the average crystal receiver will not tune sharply enough to give satisfaction.

For local stations, a few turns of bell wire around the room behind the molding will answer for the aerial, and a wire clamped to a water pipe makes an ideal ground. The revolving coil makes the set easy to tune. This primary coil is rotated with the finger as indicated in the illustration. It is mounted on the wooden support, de-

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placed and the unit is complete and ready for mounting.

The starting wire of this coil is bared and looped around the shaft back of the wood disk, a large nut and washer holding it in place. The aerial wire is brought up through the base and looped around the shaft at the rear of the support, and held in place with a lock bearing and washer. The wooden baseboard is ¾ by 7 by 7 in. and rests on four ½-in. strips tacked around the outer edge, so as to allow the larger secondary coil clearance underneath it.

The secondary coil, in two sections, is wound on a form made from the remainder of the spool, the rim of which is drilled to take 19 nails, as shown. The smaller section has 12 turns and is mounted directly back of the primary, and supported by its lead wire but not touching the shaft; spaghetti tubing being used to strengthen the supporting heads. The inside lead of the small coil is taken through the baseboard to the inside turn of the larger coil, and the outside end of the small coil to one side of the crystal detector. Both sections of the secondary are wound with No. 22 d.c.c. wire, the method of winding being over two spokes, and under two. Leave a start and finishing end about 8 in. long, remove from the form and sew together as before. The second section of the secondary has 50 turns, and is made in the same way. It is supported below the baseboard by a thin strip of wood; the author used a paper soda straw. The brass machine screw that supports the spring-brass strip also holds the supporting strip for the large secondary and forms the grounding terminal from the primary through the metal strip. The brass connect strip is bent to form a ½-in. mounting piece drilled for the machine screw and mounted on the baseboard so that it will make good contact with the primary caps when the coil is rotated.

The .0025-mfd. condenser is mounted across the phone posts, under the baseboard. The outside end of the large secondary coil is connected to one phone post, and the other phone post is connected to the other side of the crystal detector, completing the instrument.