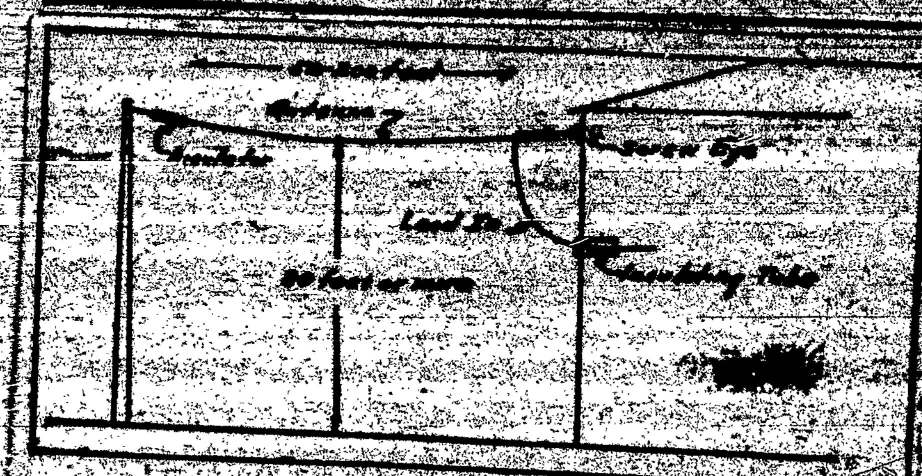
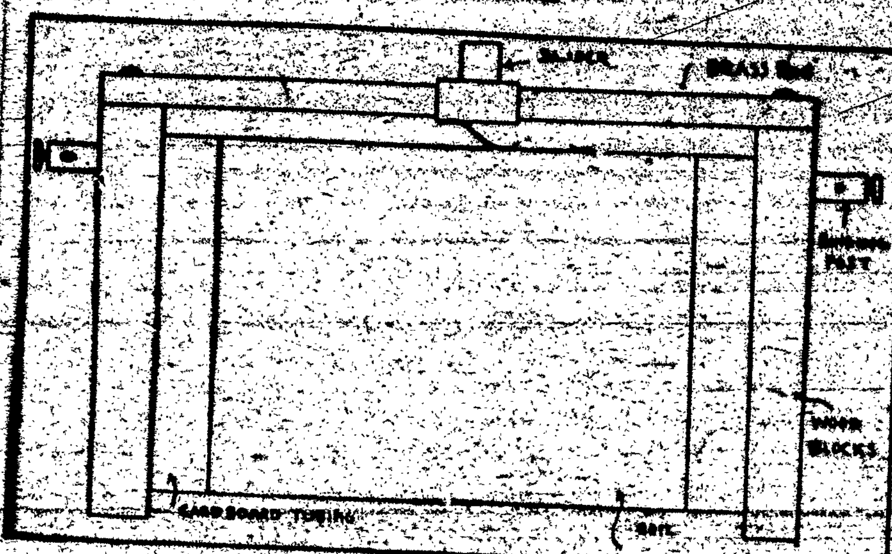


The Antenna.



The Tuner.

RADIO

HOW AMATEUR CAN BUILD A RECEIVER

Instructions for Setting Up the Antenna and for Assembling the Tuner.

In order to pick up sufficient energy with the simple radio receiving set it is necessary to connect one terminal to an antenna consisting of one or more wires suspended in the air and insulated from all grounded material and the other terminal to a ground, usually the water supply pipe. The height of an antenna used with a small receiver should not be less than 30 feet. As the received energy varies directly as the height of the antenna, the higher the antenna the louder will be the signals or voice produced. The length of an antenna for short wave reception should not be less than 30 feet nor should it be longer than 200 feet. The minimum wave length to which a simple receiver can be adjusted for electrical resonance will be above that used by amateurs if the receiver be connected to an antenna 200 feet or more in length.

A simple radiophone receiver capable of picking up radiophone stations similar to KDKA at East Pittsburgh, can be assembled by a novice for from $4 to $15, depending upon the builder's ability to use his hands. If the builder will construct most of his apparatus he will appreciate it much more and probably will understand more about its operation than if he buys a set already made. However, for those who have not the ability or the time to spend constructing their own apparatus the following description will not only give the details as to the construction of each component part of a receiver but also what standard ready-made parts can be purchased and used in its stead.

The material can be purchased at any electrical supply store.

In erecting a simple antenna for use with the receiver shown in the diagram, the antenna proper and the lead-in are of stranded hard-drawn copper wire, strand No. 22, costing about 1 cent per foot. The two insulators are of molded material and can be purchased for about 25 cents each. The antenna shown is supported between a house and a pole. It may be found more convenient to support it between a tree and a house, two houses or even between two chimneys on the same house. In bringing down the lead-in care should be taken that it is kept as far away from grounded material as possible and when bringing through the wall or under the window into the house it should be brought through some sort of an insulating tube, such as rubber or bakelite.

In making the ground connection the same kind of wire can be used as was purchased for the antenna. You can clean a section of the waterpipe thoroughly and solder the ground wire to it.

MAKING THE TUNER

To make a tuner for this receiver, the following raw material will be required:

Piece of cardboard tubing three inches outside diameter and five inches long, costing about 10 cents.

100 feet No. 22 double cotton-covered magnet wire costing 25 cents.

Standard slider (see sketch) for ¼ by ¼ brass rod, 40 cents.

1 six-inch length of ¼ by ¼ brass rod (square) 20 cents.

2 binding posts (see sketch) 20 cents.

2 circular blocks of wood whose diameter is just equal to the inside diameter of the piece of cardboard tubing and between 3-8 and 1-2 inch thick.

Some shellac or varnish is also required.

Starting one-half inch from one end of the cardboard tube wind on the No. 22 D. C. C. wire within one-half inch of the other end of the tube. Fasten one end of the winding to the tube but allow some surplus wire on the other end for making a connection. After the winding is in place give it a coat of shellac or varnish to hold the turns in place. Assemble the circular-cut pieces of wood in the geometrical center of the square blocks and then shellac or varnish them for the appearance's sake.

When thoroughly dry slip the two end blocks into the wound tube and by means of a few finishing brads driven through the cardboard tube fasten the end blocks to the wound tube. The slider is to be mounted on top of the coil and should be capable of making contact with any turn of the wire on the tube. In order to remove the insulation from the wire just under the rod where the slider moves back and forth, wrap a piece of sandpaper around a thin piece of wood and using another piece of wood as a guide, sandpaper the insulation from the winding. Drill a one-eighth inch in diameter through the slider rod about one-fourth inch in from each end so that the rod can be fastened by screws to the end blocks. After the slider rod is fastened in place see that the contact finger on the bottom of the slider can at all times make good contact with the winding. Mount a binding post on either end of the coil, attaching one by means of a wire to the slider rod and the other to the end of the wire wound on the tube and the tuner is complete. A tuner can be purchased already assembled for about $3.50 to $4.00.

LINKING MOVIE AND RADIO

British Scientists Have Some Success in Wireless Transmission of Motion Pictures.

British scientists are reported to have met with more or less success in developing a method of transferring motion pictures by radio. Some months ago a photograph was transferred by wireless from the Copenhagen newspaper, the Politiken, to England, and later from England to a ship in mid-Atlantic, so that the possibility of linking the movies with the new art is not remote.

If perfected the new development of the already versatile art will make it possible for one to see on his own receiving instrument things that are happening at a great distance. For instance, a ship is sinking at sea. The transmitting station of the vessel, instead of sending a message of the disaster, sends a picture that anyone with a receiving set will be able to see just as the present broadcasting programs are heard.

That all sounds remote now, but the telephone was considered equally so, and the wireless, even after Marconi's immortal message had bridged the Atlantic, was generally believed to be akin to the idea of perpetual motion.

TIPS TO THE RADIOIST

A crystal detector cannot be satisfactorily amplified.

Insulate ends of aerial wires with several small insulators.

Wherever possible run aerial wires at right angles to electric light wires.

The lead wire should be the size of the combined number of wires in the aerial.

Gas piping makes a poor ground, but the cold water pipe ground is excellent.

A crystal detector is never as efficient as a vacuum tube detector no matter what instruments are connected to it.

Within three to five miles from a broadcasting station indoor one wire aerials about 40 feet long stretched from room to room, are generally satisfactory with crystal detectors.

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