THE MIGNON RADIO COUPLER.

A radio receiving tuner which operates on an entirely new principle is the Mignon vario-selective coupler. Its appearance is illustrated by the cut, Fig. 1. The variation of inductance in its windings is effected by rotary switches entirely, which feature is found on but few instruments of this type to-day. This feature is one of its good points. A loading inductance, primary and secondary, are provided in this coupler, the tuning to any wave length from a hundred meters to 3,000 being done quickly and easily by turning the rotary knobs. Its cabinet is extremely small, measuring 8x8x1½ inches, with a weight of two pounds.

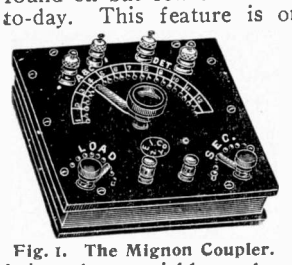


Fig. 1. The Mignon Coupler.

This instrument is of the variometer type, similar to the Telefunken variometers which are so efficient. The arrangement of the circuits are outlined in Fig. 2, which are the standard ones. The dotted lines indicate how additional tuning apparatus may be connected to the Mignon set.

Looking at Fig. 2 we see that there are three divisions of the winding, viz., the loading inductance, LI, the primary coil, P, and the secondary, S. The 2,000-ohm head 'phones are connected across the binding posts marked "Receivers." The aerial and ground are connected to the posts labeled A and G. Detectors are connected at posts marked Det., and if a "Radioson" or other battery type detector is employed, a switch should be placed at X in series with the detector. Variable timing condensers may be connected at V. C. 1 or V. C. 2, or both. For ordinary work the coupler is used without any blocking or fixed condenser across the 'phones as at J. C., but for long distance reception a small capacity should be joined across the 'phones. Great efficiency is obtained here, as the windings are very close and also they are metallically joined together. Again, the loading inductance is a part of the coupler coils and thus realizes the best efficiency possible; all

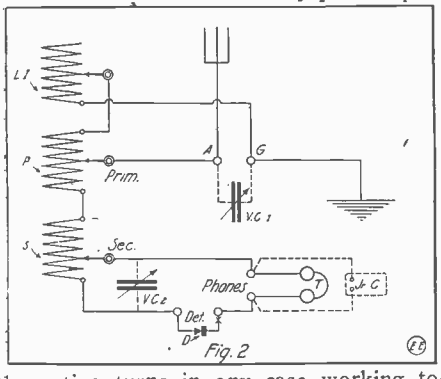


Fig. 2

the active turns in any case working together in a common field. This set, with 2,000-ohm 'phones and a good detector, make a handy one for jewelers in receiving the radio time signals.

D. Frederick Primm of St. Louis, Mo., says:

"I received your free copy of the Electrical Experimenter for which please accept my thanks. I find this paper very interesting and just the thing for the Experimenter."

W. R. Cottrell, of Prairie City, Iowa, says:

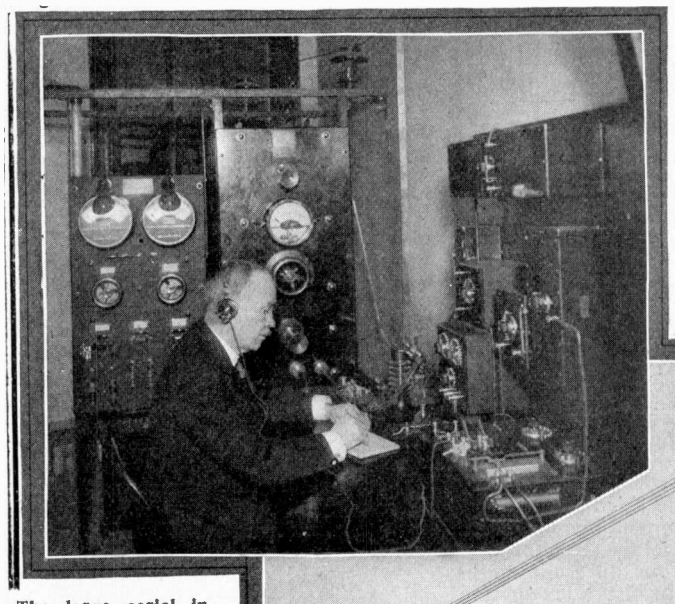
"I think your magazine is great and hope to see it enlarge along its chosen path."

D. L. & W. RAILROAD WIRELESS.

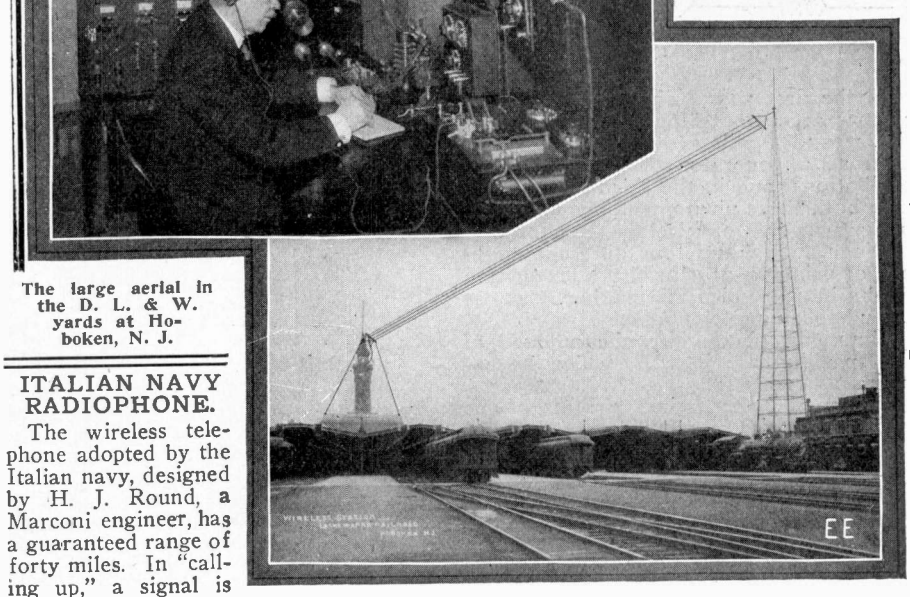
The Scranton, Pa., wireless installation of this railroad was covered in an illustrated article in the February number of *The Electrical Experimenter*. The towering steel mast at Hoboken, N. J., attracts the attention of all passengers on passing ferry boats on the Hudson river. It has a height of 401 feet and is extremely simple in design, as may be seen from an inspection of the picture, following Marconi practice along this line. The antenna extends from the top of the skeleton steel tower to the tower on the ferry house, shown at the left, the distance between the two points being 600 feet.

The view of the interior of the radio operating room shows the completeness and substantial character of the equipment. The station has a five-kilowatt outfit, and a wave length of 2,800 meters is normally used.

The system is in thoro operating order and communication is had with Buffalo and Binghamton, N. Y., Scranton, Pa., and those express trains en route that are equipped with wireless apparatus.



The interior of radio station at Hoboken.



The large aerial in the D. L. & W. yards at Hoboken, N. J.

ITALIAN NAVY RADIOPHONE.

The wireless telephone adopted by the Italian navy, designed by H. J. Round, a Marconi engineer, has a guaranteed range of forty miles. In "calling up," a signal is sent by an aerial wave so attuned that it sets in motion a certain pendulum, thus ringing a bell, and by the varying strengths of the waves, the sender is able to act upon any one of about twenty pendulums, and to ring any one of the receivers without having the call heard by the nineteeen others. When connection is established, conversation is said to be easy over distances up to forty miles or more, except during thunderstorms or like electrical disturbances.

HAMMOND RADIO BOAT GOES 56 MILES.

The wireless torpedo boat, invented and perfected by John Hays Hammond, Jr., at his laboratory, near his father's home, has been tried out before Colonel Hann, U. S. A., and a delegation of military and naval men. Later the government will give the apparatus an official test.

The craft was driven from Gloucester Bay to the Graves, off Boston light, a distance of twenty-eight miles, where it was controlled perfectly and brought home again entirely by electricity.

On a dark, foggy night it would be possible to work this craft against a battleship. It could also be operated from a warship. Mr. Hammond plans to make his boat practically a submarine.

WIRELESS TRAVELS 175,000 MILES A SECOND.

The Naval Observatory at Washington, D. C., has completed the reduction of the observations for the direct determination of the difference of longitude between Washington and Paris, made last Winter by its parties, and finds it to be 5 hours 17 minutes 36.658 seconds.

The velocity of transmission of radio signals given by these observations is 175,000 miles per second, which is probably the best value yet obtained, though owing to the distance—3,831 miles on a great circle—between the stations, which, compared with this velocity, is small, it is subject to a probable error or 16,000 miles per second.

These observations constitute the first direct determination of the difference of longitude betweet Washington and Europe, and it is the first time that radiotelegraphy has been used for transatlantic longitude determinations. Independent observations were made by the United States and French Governments, each having two parties, (which exchanged station at the middle of the observations), one at the United States Naval Observatory, and the other at the Paris Observatory, using the navy radio station at Arlington and the Eiffel Tower, respectively, for radio transmission.