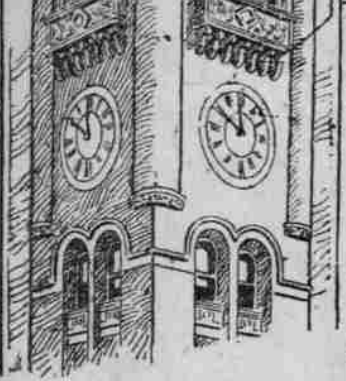


RADIO WAVES AND RIPPLES



as 500 miles at night or even farther at times. The Catalina phone has been reported heard a distance of over 700 miles with this kind of receiver, but of course such results can be attributed to exceptional conditions.

"HOW FAR CAN I expect to hear with my receiving set?" is the favorite question asked by radio fans and it is about the most difficult one to answer. As there are no set laws governing reception distances, it is practically impossible to estimate correctly the range of any particular type of apparatus.

In general there may be said to be five or six different types of receiving sets in use today for the reception of radio telegraph and telephone traffic. These are as follows:

(1) Receiving apparatus employing the ordinary crystal detector with single inductance and low single-wire antenna. This type of receiver, provided the detector is adjusted properly, is capable of picking up radiophone concerts from a distance of ten miles, and spark signals from distances ranging from 10 to 100 miles daylight range, depending on the size of the transmitter. Amateur sparks may be heard as far as 20 miles with this simple receiver, while commercial stations may come in from about 100 miles.

RADIO QUERIES AND ANSWERS

Editor Radio Waves and Ripples: In connecting the wires of the aerial to the sticks across the top of the wire, should you just wind the wire around the sticks or should you use a screwdriver to insert a knob between each wire and the spreaders on both ends of the aerial?

feet on the other, or the other 85 feet long and 75 feet on both ends?

2. What is the difference between inductance and how it is used?

3. What is the difference between an auditor amplifier and an auditor detector tube?

4. Please send hook-up for the set described above.

G. L. E. Gervais, Or.

Editor Radio Waves and Ripples: 1. How can you tell whether the current is D. C. or A. C.?

2. How do you add zinc to the ammonium phosphate in a rectifier or do you have to make more solution?

3. How do you tell the negative and positive leads on the A. C. current?

4. Place one of the wires over an ordinary pocket compass. If the needle begins to vibrate or fluctuate continually in both directions, the current is A. C. If the needle turns to one direction and remains there, the current is D. C. Another test is to place both ends of the glass of salt water that they are a couple of inches apart. If the water around one of the wires begins to bubble, the current is D. C. and that wire is the positive pole of the current. If the water around both wires begins to bubble the current is alternating.

(1) Which would be the best and give more tuning, loose coupler or a variometer?

(2) In your diagram in last Sunday's issue, I could not see where the wire goes to the ground and the detector tube is attached. Are they attached to the rod running through the variometer?

(3) How would you attach a ground wire to a moving automobile?

A. FAN, Portland, Or.

Editor Radio Waves and Ripples: 1. Where can I get blue prints of radio receiving outfits?

2. How many plates would be required in a condenser to receive 100 miles if the plates are 2 1/2 inches and the set would receive up to 600 meters?

3. Can all the parts of such receiving set be made in the wire house?

H. C. White Salmon, Wash.

(1) The variometer is the most efficient for short-wave radiophone reception in conjunction with a crystal detector.

(2) A length of lamp cord with plenty of slack is used to connect it can easily revolve in and out of the stationary coil.

(3) The best plan is to use the whole automobile frame, engine and all, for the ground.

Editor Radio Waves and Ripples: (1) What size wire is the best suited for use in a regenerative receiver?

(2) Could I get any better results by raising the detector tube about 3 inches from the base and placing the grid condenser under it, thus making a short condenser?

(3) Would a variable condenser of .001 capacity produce as good results as one of .0005?

A. FAN, La Center, Wash.

Editor Radio Waves and Ripples: 1. In putting up an aerial for a crystal set and also a long wave aerial, how many wires should be used to get the best results?

2. How far apart should the wires be if a three-wire aerial is used?

3. Kindly give distances for both 100 and 150 feet long will give you the best results for receiving radiophone.

4. About three feet apart.

5. No type set can be given a definite receiving range. This will depend on many other things, such as location, type of transmitter and magnetic or other interferences.

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A. FAN, Vancouver, Wash.

Editor Radio Waves and Ripples: 1. I have wound a transformer coil from an old Ford coil, as described in Radio News for June, but when connected to a dry cell, neither primary nor secondary coil will pass a current. Is this a sign that the wires are broken?

2. I have a vibrator with good platinum points. Is there any use I can put this in the wire house name?

E. F. Caste Rock, Wash.

(1) Yes; evidently there is an open circuit in both of your coils.

(2) The vibrator can only be used to make and break a current for a spark coil.

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VISITORS AT AUTO CAMP GROUNDS ENJOY RADIO CONCERTS SENT BY THE OREGONIAN

High-power Receiving Set and Magnavox Are Installed in Community Store—Music Is Heard More Than 600 Feet Away—Feature Is Proving Attractive to Restless Autoists.



PORTLAND AUTO CAMPERS ENJOYING A RADIO CONCERT BROADCAST FROM THE OREGONIAN TOWER FOR THEIR ESPECIAL BENEFIT LAST WEEK.

RADIO concerts both afternoon and evening is the latest convenience offered to the visitor at the auto camp grounds, a high-power receiving set and magnavox lately installed in the community store is now proving one of the best inducements ever offered to the restless autoist to stop and linger awhile within the vicinity of the Rose City.

A recent report phoned in from the camp grounds to The Oregonian during the broadcasting of a concert from The Oregonian radio tower, stated that the music was coming in so loud and clear at the camp that it could be heard more than 600 feet away from the magnavox.

The magnavox has been placed with its mouth pointing outside of the store so that there is room for several hundred persons to sit or stand about and hear the music comfortably. It is reported that impromptu dances are held at the camp now and then whenever dance music is broadcast from The Oregonian and other local transmitting stations.

The storage or dry cell type and is required to furnish but a small amount of current. A type in general use consists of 15 small dry cells sealed in a block with an insulating compound. These cells are connected in series giving a total voltage for the block of 22 1/2 volts. Taps may be taken from intermediate cells to secure a lower voltage.

A new scheme for "wired wireless" is in contemplation by certain radio experts, by means of which millions of farmers now out of the regular broadcasting range will be enabled to "listen in" to market and agricultural reports with small crystal sets which have a receiving range of 15 to 25 miles. This scheme takes into consideration the broadcasting of speech by means of the electrical power lines which cover the country with a network of wires. A sending station may be at one end of the wire which penetrates many miles into the "backwoods," and any farmer who is located less than 30 miles or so from this wire can listen in with ease with a low-priced crystal outfit.

Radio Notes. EFFORTS of experimenters to work with indoor loop antennas has developed the conclusion that a loop will not work properly unless it is built according to some kind of system. One loop will work magnificently and another will operate poorly. What is the correct specification?

The best practice seems to indicate that a loop four to six feet square, having six turns of wire spaced one-quarter of an inch apart, will outwork any other form of loop on the market for shortwave work. For longwave work, the loop

Several Terms in Radio Explained to Fans. Amplification, Filament, Variometer, Plate Battery Defined.

THE following are explanations of several terms which some of the new fans are meeting and finding difficulty in understanding their application in radio telephony:

Amplification.—Amplifiers employing the vacuum tube may be divided into two classes, the radio-frequency amplifier which increases the strength of the radio-frequency signals in a receiving set before it passes through the detector tube, and the audio-frequency amplifier which increases the strength of the signal after it has been changed by the detector tube from an inaudible to an audible frequency.

The Variometer.—This type of inductive tuning functions very efficiently as a receiver of short waves, particularly when combined with two variometers and a vacuum tube, one of the variometers being connected in the grid circuit and the other in the plate circuit.

Filament or "A" Battery.—A storage battery when used as a source of filament current is commonly of the lead plate-sulphuric acid type and is provided with a variable resistance to limit the amount of current flow. The potential is usually 6 volts and the capacity may vary from 36 to 100 ampere hours. The battery should be recharged at the normal rate when the specific gravity has fallen to 1.175. The level of the electrolyte must be maintained at least one-half inch above the top of the plates by the addition of distilled water.

The Plate Battery.—In a receiving circuit using a vacuum tube, the plate of "B" battery supplies the current which actuates the diaphragms of the receiving telephones. This battery may be of

any of the following types: (1) A four-wire inverted L which rises at one end from a 125-foot pole to the height of 150 feet at the other end fastened to the top of a pine tree, is used at the present time as the station's antenna. A specially constructed symmetrical ground has been built, terminating in a deeply buried mass of metal. For radiophone transmission, however, a counterpoise stretched directly underneath the antenna is used entirely.

RADIO FOR CAMPING TRIP CAN BE ARRANGED EASILY

Two Types Are Most Successful and Will Bring Concerts From Twenty-five to Two Hundred Miles Away.

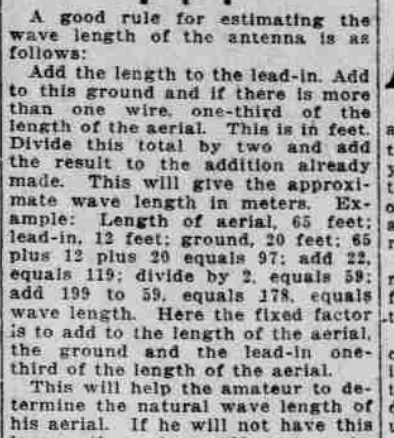
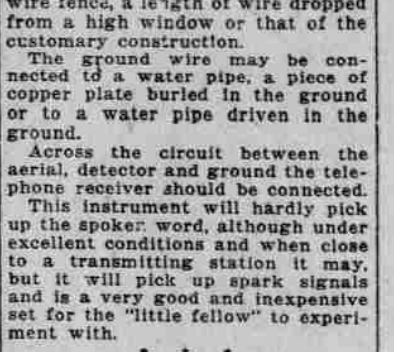


Diagram 1—Hook-up for variometer crystal set for short-range reception. Diagram 2—Hook-up for portable regenerative receiver and sketch of case in which such set can be assembled for taking along on a camping trip.

ARE you taking a radio set with you on your camping trip this summer? If not, why not? The world's news and musical entertainment beside the blazing campfire are yours if you will but take advantage of them. It won't take up an awful lot of room in your little old flivver, and as for an aerial, a roll of wire carried along will do the trick nicely.

There are two types of sets on the market today which are very satisfactory for the camping and vacation trip. You're handy with tools, you can easily make them. The first type is the simple variometer crystal set, the construction of which has been described several times in these columns. With this type of set the concerts can be received from stations 25 miles away. The parts required for this type are a small variometer, a variable condenser and a crystal detector. If you make the set yourself connect it up as in diagram No. 1 and assemble it in a small portable case.

Type No. 2 is the regenerative receiver, which is very sensitive and will bring in stations as far as 200 miles away. The parts for this set are a loose-coupler or a variometer, a variable condenser, and a "wax" in the antenna chamber of a great—and at public meetings! So a colleague devised a radio garter for her use. The receiver is in the garter and is connected with the ground and the woman's ear by eyeglass snap-chains.

Another tiny set is sold in the form of a ring and a third is exactly like a slim pocketbook. Some New York hotels now give you radio to tea. The radio apparatus keeps "my lady" informed of the world's doings when the orchestra isn't playing.

There is a new hotel going up on Long Island which is to have radio in every room! There are to be 600 rooms—and 600 radio sets. The owners expect to pay \$150,000 for this privilege. But who doubts that they will get it?

Nor is old Europe so far behind in the matter of radio as many imagine, although every government is practically monopolizing its own particular ether. Several of the Berlin-Hamburg trains have radio stations on board which are at the disposal of passengers. And two French railway companies are to install radio phones on their trains.

Radio Fans Need License. CLEVELAND.—Radio enthusiasts here must now pay a license fee of 50 cents, both for sending and receiving. City council recently passed an ordinance requiring licensing and inspection of all radio stations, professional as well as amateur, in this city.

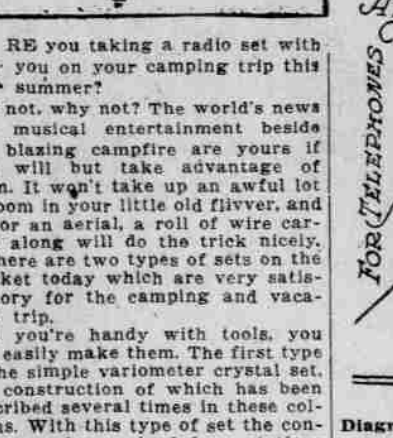
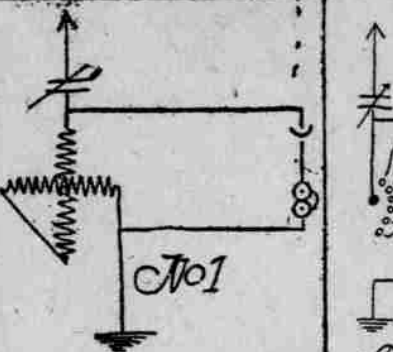


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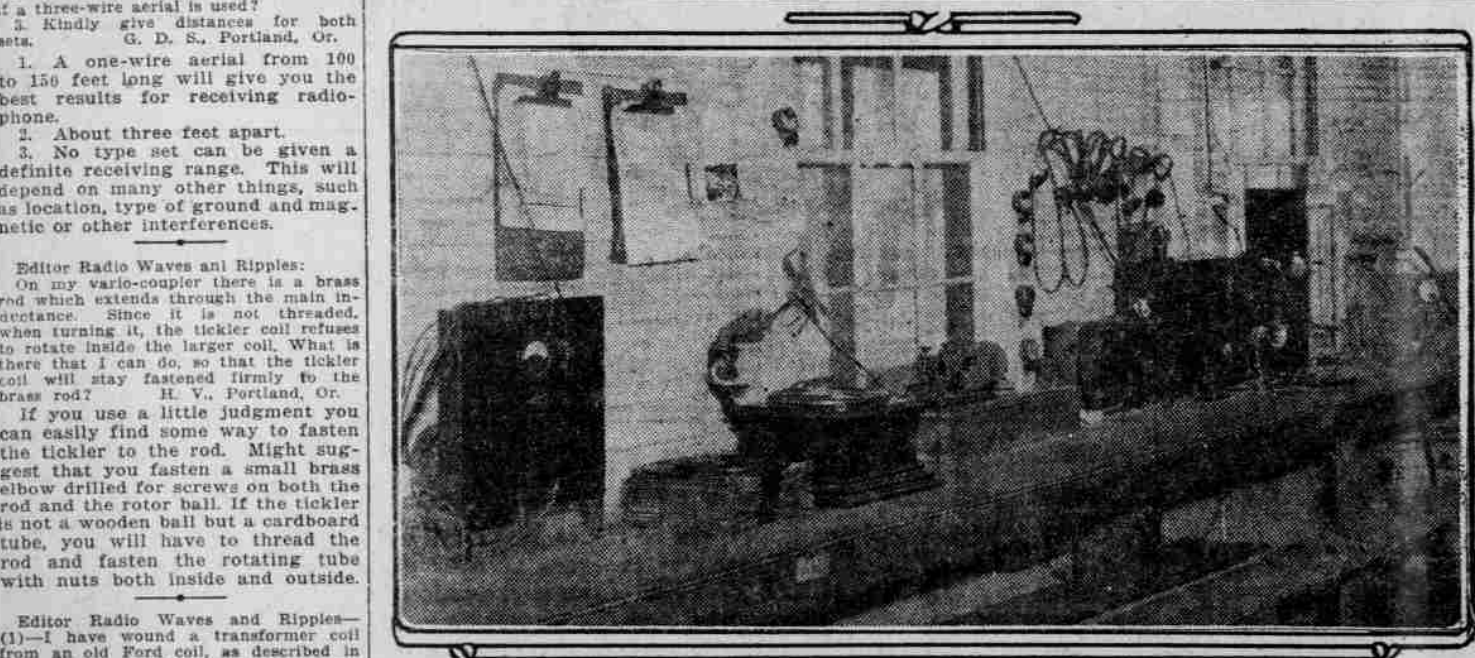
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RADIOPHONE SET AT VANCOUVER BARRACKS NOW IS ON REGULAR BROADCASTING LISTS

Vocal and Instrumental Musical Talent and Phonographic Records Will Serve Audiences Two Nights Each Week, According to Schedule, and Great Concerts Assured to Fans.



VANCOUVER BARRACKS RADIO STATION AT VANCOUVER, WASH., WHICH IS NOW BROADCASTING MUSICAL PROGRAMMES ON A REGULAR SCHEDULE.

going "great guns," according to hundreds of Portland radio fans who report receiving the army station's radio programme extremely well. The apparatus consists of a signal corps set manufactured by the Western Electric company. By means of a few adjustments in the set itself, and the use of a six-wire counterpoise system, surprisingly good results have been obtained. The modulated C. W. radio telegraph signals have been reported heard in Hawaii while the other night will be given over to the broadcasting of newly released phonographic records provided by a local musical firm.

Although station CLS is of low power as compared to several Portland radiophone stations, it has been

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COMPLETE PARTS For a SINGLE CIRCUIT REGENERATIVE RECEIVER \$21.00 INCLUDING HARD RUBBER PANEL

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Beautiful finish panels. Black, brown and mahogany. Best insulation for radio, resists warping.

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WHAT OTHERS SAY
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With your Cramer Receiver I have heard Chicago, Kansas City, Lincoln and Des Moines frequently. Comes in fine. O. W. Warfield, Omaha, Neb.

Had It Working in Ten Minutes
With a loop hung from the ceiling in my room I was hearing a concert ten minutes after the Cramer Receiver reached my home. Ernest Weymuller, Omaha, Neb.

Relieves Loneliness
I am a lease-box for an oil company and I live in a town of 1000 people. My receiver sure is a cure for loneliness. W. T. Blanchard, Rosalia, Kansas.

Music Without Antenna
My set is so efficient I heard (KTV Chicago) music using my body as an aerial. Perry McArthur, Chicago.

Hear Concerts, Music, Ball Scores—Anything Within 500 Miles of You.

The Cramer receiver is a one tube outfit consisting of a variometer and detector tube arranged in a new circuit that excels any hook-up yet discovered. Price so low it will surprise you—not complicated like some. You can't get more than you get with a receiving set before.

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JONES LITTLE WONDER
Crystal Set Mounted—Special

In stock: Double Silk Magnet Wire, Radford E. V. 200 Tubes, Special for One Week, \$4.95.

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We can make immediate delivery on practically all radio equipment.

Complete Installation (if desired). (Installers of Oregonian Radiophone)

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Just received the new Western Electric two-stage amplifier and

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