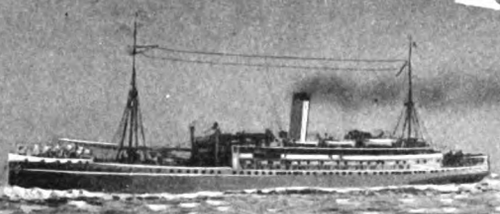
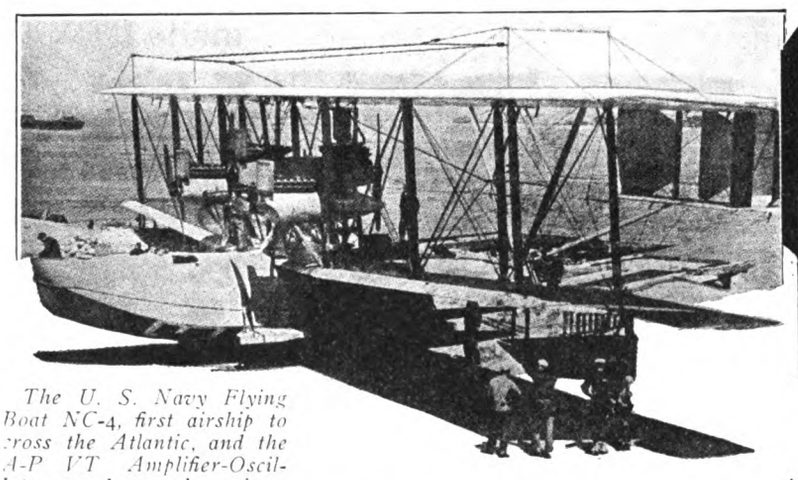
OCTOBER, 1920 B6. 20 CENT

PACIFIC RADIO NEWS

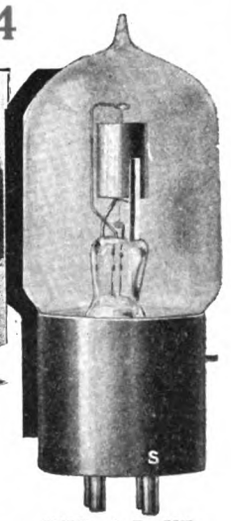


Pioneer Journal of Western Radio News and Development.

A-P TUBES CROSS WITH NC-4



The U. S. Navy Flying Boat NC-4, first airship to cross the Atlantic, and the A-P VT Amplifier-Oscillator used on the trip.



THE A-P VT
AMPLIFIER - OSCILLATOR

USE THE TUBE THE NAVY USES

So efficiently did these A-P VT tubes serve on this flight, so much did they contribute to the success of this great achievement, that voluntarily the Bureau of Engineering of the U. S. Navy wrote our Laboratories a letter of appreciation. Descriptive Pamphlet Free on Request.

AMATEURS—"Use the Tube the Navy Uses"—the A-P VT Amplifier Oscillator—equipped with the SHAW standard four-prong base—price $7. Order from your dealer.

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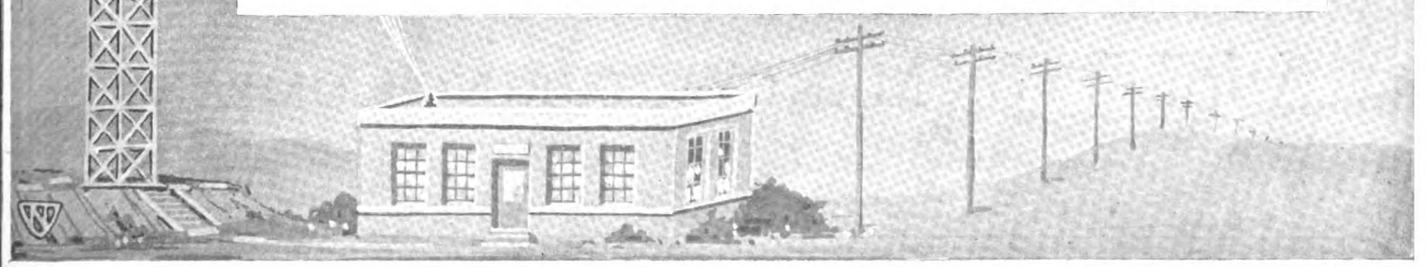

READ THE EXTRAORDINARY OFFER ON PAGE 61

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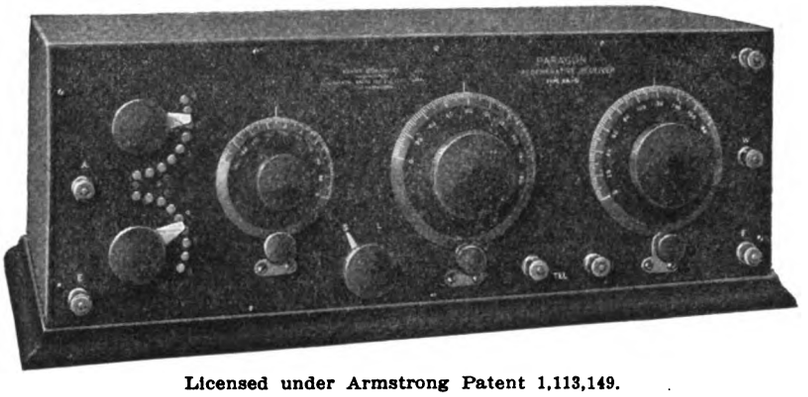
From Nothing to Something
You will do it——
with this new Paragon RA-10

Signals which on actual tests are inaudible with any other type of receiver, become easily readable. "Coming from Nothing and amplifying to something."



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AND HERE IT IS
The Paragon RA-10
Greatest Improvement in Modern Radio

Do you remember the super-service of the old original Paragon RA-6 amplifying short-wave receiver? This new set surpasses it in every respect.

And the original RA-6 was the only one of its kind.

150 per cent improvement over the old original Paragon, away ahead of all other receivers and excels the most serviceable set on the market today.

Here are the 150 per cent Pointers

A wave length range of 150 to 1000 meters.
25 per cent more sensitive and selective than the RA-6.
All amplification obtained without change of spark tone.
Objectionable effect of change in note entirely eliminated.
Coupling has scale of 180° instead of 90° giving wider range of coupling.
Controls on all adjustments fitted with vernier attachments permitting of very fine tuning and control.
No dead end losses.
Cabinet of quartered oak; overall size 205, 8x8x7½ inches; white filled engraving, bakelite panel, knobs and dials.
Every set sealed before leaving factory, which is a guarantee for two years.
A super product of Adams Morgan Co's unapproachable engineers.
And the price $85.00.

Startling surprises in store for you if you will send for special bulletin describing this set. Remember the old Paragon—this one beats it and others by miles—our special bulletin tells you how, send for it—its free.

Our word of honor to you is our guarantee. Let us prove it.

Continental Radio and Electric Corp.

Sole distributors of the New Paragon R.A. 10.

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VOLUME II OCTOBER, 1920 NUMBER 3

WHAT IS THE RADIO OPERATOR?

HERE is a question which has the wide world for an answer, "What is the radio operator?"

There are radio operators in the Navy, there are those in the Army, there are land operators and there are ship's operators, there are amateur radio operators and there are radio operators who experiment with new radio equipment, and so on, down the various tributaries of the radio field, we find radio operators of many and sundry kinds. But let us single out, from among all of these men, the operator who is THE MOST IMPORTANT. Now, this is a broad and presuming statement to place on any one of the various classes of radio operators, but we put it without question on the ship radio operator.

Our reason for saying that the ship radio operator is THE MOST IMPORTANT is because he is called upon to save human lives when the occasion demands. If any of the other class of radio men can claim the duty of saving human lives (you will note plural: lives) they can then consider themselves upon an equal footing with ship radio men.

It has come before the public eye more and more that the operator on shipboard is the only man who, of necessity, sticks to his post as long as the captain of the ship and in some cases longer. We have in mind a particular instance, where, in mid-Atlantic, the steamship "Denver," of the Mallory Line, called for help. The weather was stormy and the inaccuracy of the position given was about ninety miles. It was during the war and captains were exceedingly suspicious of false SOS signals. If it had not been for the two radio men sticking to their posts till the last, even after the rest of the crew had left, all hands would probably have been lost, as there was a heavy sea and the boats could not have weathered it long. As it was, the sun came out long enough to take a new position, and the operators stuck to their posts until the new position had been transmitted to nearby steamers, with the result that all hands were saved.

The character of the ship's radio operator is important. If his importance demands his maintaining his position in time of emergency, it requires a man of fearless and courageous type; one who will not "fall down" when he is called upon to stick to a sinking ship. If the steamship companies are not willing to maintain men of the type who will stick to the ship in time of peril to the lives of crew and passengers, they are over looking a bet.

But this is not a question which is entirely in the hands of the companies and corporations who control the radio service on ships at sea. Is the government going to stand by and allow men to be placed in charge of the radio service on board vessels carrying many human lives without even placing these radio men on a par with the third mates?

What is the radio operator? Is he a man who gets a deckhand's salary and does the work of a ship's officer? Is he a man who is forced to check freight or cargo at the end of each trip to make both ends meet? Is he entitled to the knocks and buffets of the crew and officers, and in the same breath, almost, required to save these very men from Davy Jones' Locker? Fairminded humans can answer these questions.

A man, first of all, and a gentlemen. A ship's officer, and a capable one. A man who is ready to remain at his post of duty in time of disaster at sea, to save his fellow man from death. A man, who, through experience gained through the years, is designated by his government license; first, second, third, or fourth grade. A man, who, because his position demands and deserves it, receives a salary more nearly $200.00 a month than $125.00. THAT, is the radio operator.

WE TAKE PLEASURE IN

ANNOUNCING

that the first of a series of highly interesting articles on receiving apparatus will appear in the next issue of **"PACIFIC RADIO NEWS."** The author of the series is Mr. Wm. F. Diehl, Chief Engineer of the A. H. Grebe Radio Mfg. Co.

WE FURTHER

ANNOUNCE

that additional offices of the PACIFIC RADIO PUBLISHING CO., have been opened in the following cities:

New York City....147 Sixth Ave.
Seattle, Wash.,..419 Pioneer Bldg.
Southern Cal. 432 Palos Verdes St. San Pedro, Cal.

Entered as second class matter January 22, 1920, at the Post Office at San Francisco, Cal., under the Act of March 3, 1879.

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DOWN TO THE MINUTE

Current Radio News

UP TO THE STANDARD

GOAT ISLAND GETS WIRELESS From France

Naval Radio Station Receives Signals From Bordeau, 7,200 Miles; Test is World Record

LINKED with the great 1,000-kilowatt Lafayette station at Bordeau, France, 7,200 miles away, the naval radio station at Goat Island participated in a series of the most wonderful tests hitherto attempted in the wireless field.

Under the supervision of Commander S. C. Hooper, Lieutenant Commander G. C. Sweet and Lieutenant Commander A. M. Stevens, the station received and recorded a set of previously agreed upon signals, covering four test periods of fifteen minutes each. The object of the test was to establish the efficiency of the Lafayette plant prior to its being taken over by the French government.

The officers in charge declared the test to have been satisfactory in the extreme. The signals were received with an audibility of 100 without amplification, static was 400.

Other stations participating in the experiment were those at Washington, Annapolis, Bar Harbor, Philadelphia, New Orleans, Point Isabel, Tex.; Darien, Canal Zone; San Diego, Puget Sound, Honolulu, Cavite, P. I.; Cordova, Alaska.

Schedule For Tests

According to the arrangements, all of which were carried out without a hitch, the Lafayette call was scheduled to come first. Conventional signals were to follow with sub-tests of four fifteen-minute periods.

The test was scheduled to come at a wave length of 23,500 meters. Chief Electrician Richard H. Fanning was chosen to operate the Mare Island set.

Over the world at the tapping of the key in France, was to be recorded simultaneously the audibility and the clearness of signals. A check was to be kept on wave lengths in receiving.

The success of the big test means France's acceptance of the Lafayette station as it stands. For thirty days the tests will be continued, the last period to cover a five-hour stretch.

In point of equipment the Lafayette station exceeds anything in powerful apparatus in the United States or France.

Americans Built Plant

Its eight 950 feet towers support many miles of copper strands.

The Lafayette station is built on the plan of continuous or undamped wave systems, discovered by science to be the best negotiator of long distance.

It was constructed by American engineers commissioned by the government.—S. F. "Examiner."

A DANISH inventor, Mr. Andersen by name, has devised and exhibited a practical method of transmitting pictures by radio. Photographs were transmitted by land wire from Paris to Rouen fifteen years ago. If Mr. Andersen's invention is practical, the whole future of illustrated journalism will be revolutionized, and photographs taken in the United States will be printed simultaneously in foreign papers with the news which they illustrate.

A VERY compact radio equipment has been developed by an Eastern manufacturer for use on lifeboats. Hitherto, in case of accident befalling a ship, resulting in her sinking, means of communication was destroyed as soon as the vessel went down and very often the ability of sending distress signals ceased some time before the actual sinking of the ship. Many lifeboats have been adrift for days before being picked up by rescuing craft, but future misfortunes of this character will be mitigated by the use of radio.

TWO MORE RADIOPHONE STATIONS FOR SOUTHERN CALIFORNIA

BY the first of October, two radiophones will be installed in Pasadena, California; one at Mt. Wilson observatory, and another at the observatory laboratory in order to effect reliable communication between these two places during the winter months when the telephone lines in the mountains suffer damage from the usual heavy storms.

THE Radio Corporation of America is planning on the erection of ship-to-shore radio stations in Seattle, Los Angeles, Portland and San Francisco. The San Francisco station will be erected at Marshall, California. No attempt will be made to buy the former Marconi stations, taken over by the navy in 1917.

Local mariners, in commenting on the wreck of the Dutch steamer "Arakan" off Point Reyes, California, declare that the vessel would not have hit the beach had the government's new radio compass station been in operation. It was pointed out that the master of the ship would have found his bearings by use of his radio with the Farallon station and that there would have been no mishap.

WIRELESS PUT TO SUPREME WAR TEST

Navy Begins Secret Experiment. Directing Torpedoes by Radio Believed Solved

WASHINGTON, Aug. 18.—The Navy Department is conducting a series of experiments by which it hopes to direct the movement of battleships by application of wireless telegraph to the steering gear. Several battleships, including the Iowa and Ohio, are engaged in these operations off Norfolk.

Efforts to direct torpedoes by radio have been tried without satisfactory results. The Navy Department believes, however, that it has hit upon an invention that will bring about satisfactory results. Details will not be made public for some time. Similar experiments are now being made by the English navy.

PHILADELPHIA, Aug. 18.—Carrying out a secret experiment, the control of one large battleship with no person aboard by another warship through wireless, two United States battleships left the Philadelphia Navy Yard and arrived at their manoeuvering position off the Delaware Capes before dawn. The effort to practise war vessel control by radio will be made today.

Coast battleship No. 4, once the Iowa of Spanish-American War fame, will plow through the seas with her engines and helm controlled from the radio room especially fitted on the warship Ohio.

Both vessels have been fitted out for the last two months with secret radio apparatus, under the supervision of John Hays Hammond, Jr., originator of the idea. Manned by a skeleton crew, the Iowa proceeded to the Delaware Capes under her own steam. The crew will abandon the ship, and wireless control of the speed, direction and even the smoke barrage will be instituted.

Meanwhile, the Indiana, sister ship of the Iowa, also a hero ship of the Spanish-American War, is being fitted out with a similar equipment at the Philadelphia Navy Yard, and if the experiment turns out the success it promises to be the surrendered German warships, will also have the equipment installed on them, thus affording the American Navy an ideal opportunity for target practice under war conditions.

—N. Y. "Evening Journal."

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Arc Radio Apparatus

By Jennings B. Dow

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PART II.

(Continued from September Issue)

N order that the condenser will charge rapidly, as high a potential as can be obtained must be impressed upon it, and in order to obtain this high charging potential which is the arc potential, the arc resistance must be great during the charging period. This requires an arc the temperature of which is such that electrode disintegration and the volatilization and distribution of the products of this disintegration by the heat of the arc are reduced to a minimum. To facilitate this a water cooled copper electrode is substituted for the positive carbon of the musical arc. This substitution of copper for carbon plays another important role in the operation of the arc as an oscillating current generator. Almost all electric arcs formed between carbon electrodes possess what is properly termed negative resistance and the extent of this varies with the temperature of the arc and the composition of the electrodes. Just what is meant by this may be seen by referring to Fig. 3. Curve A shows the variation of current corresponding to a variation in applied electro-motive-force which is typical of most conductors. Curve B shows a similar curve which is typical of an electric arc. In the latter case, the first derivative of voltage with respect to current is negative, and this is a necessary condition if the arc is to be used as a converter. Copper has the property of increasing the slope of the curve very materially, which results in a small decrease in current, causing a large increase in voltage—a very desirable condition during the charging period.

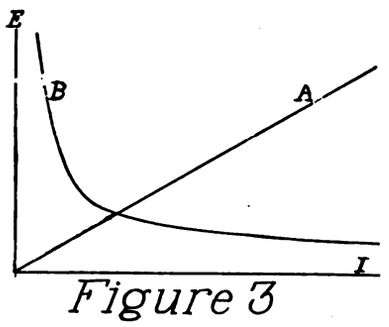


Figure 3

A hydrocarbon gas, such as alcohol vapor, administered into the arc has the property of increasing arc resistance also. In doing this, the value,—dv-di, is made still greater. Gas also performs another very valuable purpose, in that arc hysteresis, or loss of power within the arc, is greatly minimized. Fig 4 shows typical arc hysteresis curves. The shades areas denote the variation in these losses with and without the use of a hydrocarbon gas.

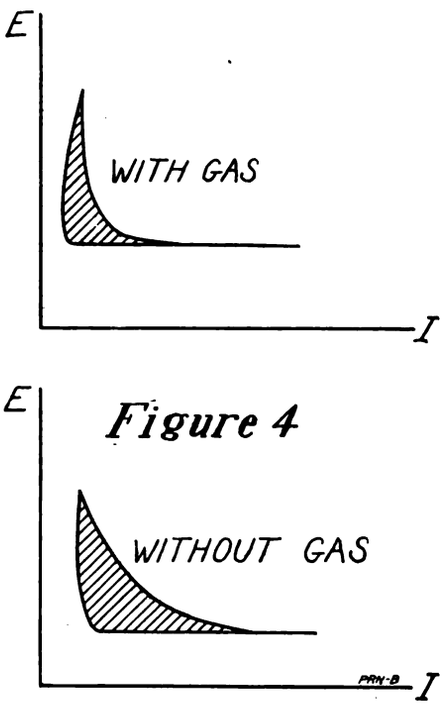
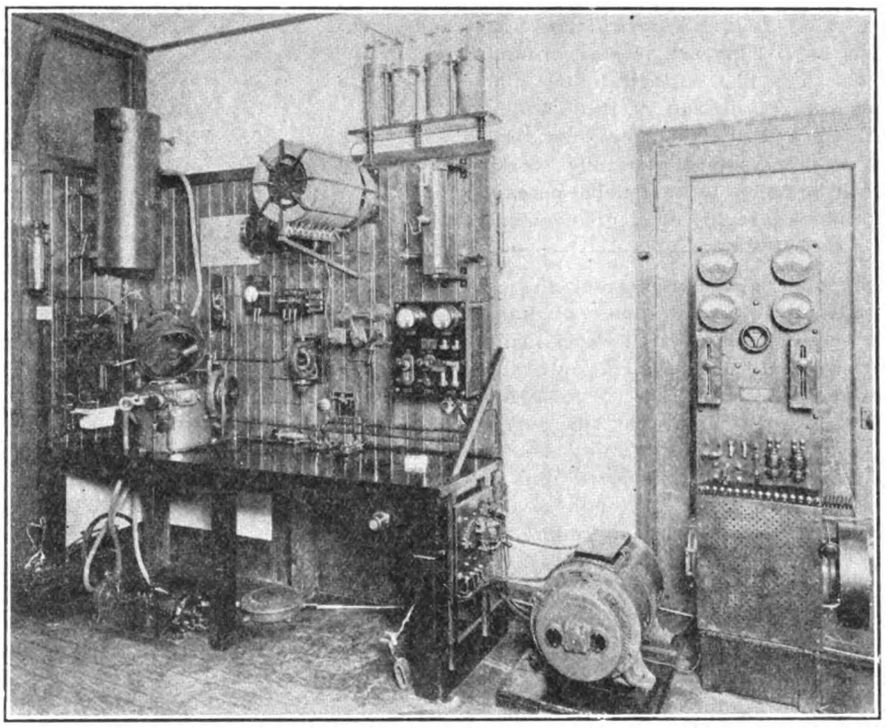


Figure 4

The magnetic field has the following effect upon the arc: Owing to the presence of carbon particles within the arc, resulting from electrode disintegration and the breaking down of the hydrocarbon gas, the arc may be considered as being made up of a great number of minute current paths all of which must be surrounded by a magnetic field. If the effect of the blow-out coils were not present, these particles would arrange themselves, because of the magnetic moment possessed by each, in a path of least possible electrical resistance between the electrodes. During the process of arranging themselves, each decrease in resistance, however small, would be accompanied by an increase in current, and the magnetic moment possessed by each particle would be further increased, resulting in a continued rearrangement of particles

(Continued on page 61)



A General View of the 2 K.W. Federal Arc Transmitter Installed at the Pacific Radio School in San Francisco

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HAND-WOUND HONEYCOMB INDUCTANCES

By C. R. TINSLEY

Instructor of Applied Electricity, Polytechnic High School, Radio Instructor, High School of Commerce, San Francisco

MUCH has been published recently on the winding of the type of inductance commonly known as the "honeycomb" coil, a greater part of which has been misleading, as those who have followed instructions have found out. This article was prompted by the fact that a logical and simple guide for the making of these coils by amateurs and experimenters was needed and is the result of carefully working out in practice those details necessary to producing highly efficient inductances for receiving circuit uses.

The materials necessary for the construction of standard sizes of honeycomb coils are as follows: Paper mailing tube, wooden mandrel to fit into paper mailing tube snugly, Nos. 24 to 28 magnet wire double cotton or silk covered, finishing nails, and for finishing the coils, 6-32 round head brass screws, nuts and washers and some neat tough covering material such as leatheroid, empire tape, etc.

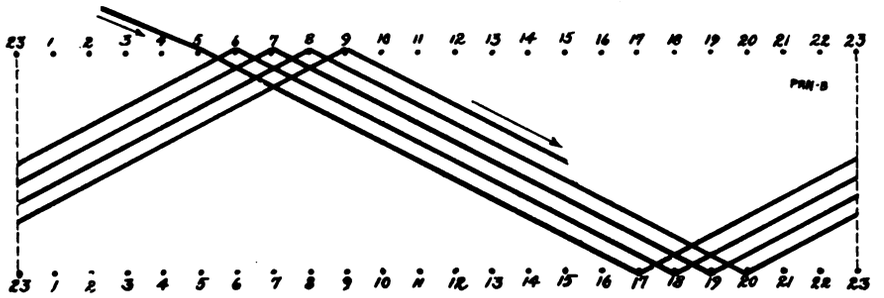

Figure 1.

In order to find the number of spokes to be used, which must always be an odd number, the following formula is employed.

$(axb)\pm1=\times$.

Where $\times$=the number of spokes.

a=the number of diagonals in one turn of wire and b=the number of spokes advanced by each diagonal.

Figure 1 shows an extended winding started, according to formula, where the wires run diagonally twice in one turn and advance twelve spokes in each diagonal. $(2\times12)-1=23$.

Figure 2 shows a winding started, where the wire diagonals four times in one turn and advances six spokes for each diagonal. $(4\times6)+1=25$.

For coils of large diameter or periphery, use six diagonals. Example, $(6\times6)=1=35$ or 37. This retains the right angle cross over to better advantage. Using the above formula, the diamond shaped cells or holes in the finished coils will be perfectly coincident or open and clear all the way from periphery to core, with no criss-crosses. This is absolutely essential and failure to consider this point will mean "mushy" coils.

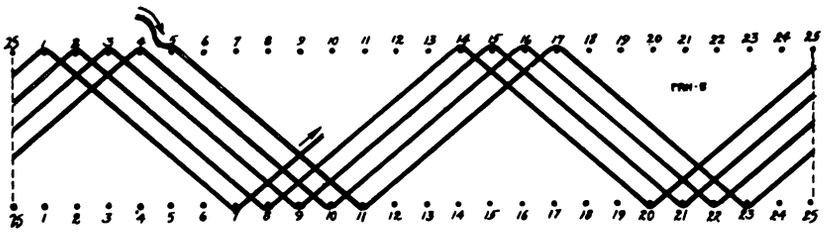

Figure 2.

Coils may be made of any size but for a guide to making standard sized coils a certain size will be described herewith.

Cut a two inch, inside diameter, mailing tube into lengths 13/16" long. Then, having decided on the number of spokes to use cut a strip of paper 13/16" wide and just exactly long enough to reach around the wooden mandrel, which, as described above, must be of a size to fit the mailing tube snugly. Lay this strip of paper out flat and mark off on each edge, very carefully and accurately, the number and position of the spokes to be used. For example, if 23 spokes are to be used the paper is marked off in 23 equal parts on each edge. The spokes must come exactly opposite to each other. This paper is now pasted on the wooden mandrel and finishing nails are driven into the mandrel opposite each one of the marks on the paper. The nails must be long enough to allow enough of the nail to protrude out of the mandrel to wind the desired amount of wire on. The nails need only to be driven in far enough so that they are firm in the wood. A better way to put the nails in is to drill holes opposite the marks on the paper of such a size so that the nails can be easily driven in (driving fit). The mandrel can be used over and over.

The form now resembles the spokes of two wheels, 13/16" apart, fastened to a single hub. Pull out one set of spokes and slip on a section of cardboard tube. Repiace the spokes, and the coil is ready to wind.

Figure 1 represents the form as it would appear flattened out. Following the winding in Figure 2, the wire is started at any spoke, in this case Number 5, and run diagonally across and around the sixth spoke ahead, Number 11. This process is continued by making another diagonal around spoke Number 17, other side, then around 23, opposite side, and so on.

It will be noted, upon making the first revolution that the wire will go around spoke Number 4, which is one spoke behind the one from which the wire was started. This is called "retarded winding." Had 23 spokes been chosen, on completing one revolution or turn of wire, it would have come out one spoke ahead of the starting point. This is called "advanced winding." Retarded winding will give slightly more inductance for the same amount of wire than the advanced winding.

Upon the completion of one turn of wire the winding is continued without counting, it only being necessary to keep the conductors (wires) parallel. If, at any time, one of the wires crosses one of the diamond shaped cells or holes, a "stitch has been dropped" somewhere.

Having wound the inductance desired the coil may be covered by wrapping tightly with empire tape or leatheroid fibre paper. It may be best fastened with shellac or glue. After a few turns of string are wound around the coil to hold the covering material until the shellac or glue is dry, the spokes are withdrawn and the coil slipped easily off the mandrel. The coil of this type stands a surprising amount of knocking around and abuse without harm.

If the mounting shown in Figure 3 is desired, holes to fit a 6-32 machine screw should have been punched in the cardboard before winding. Before covering, gently press the wires slightly to one side, leaving a clear hole for the screw. The terminals of the coil are soldered to the heads of the machine screw.

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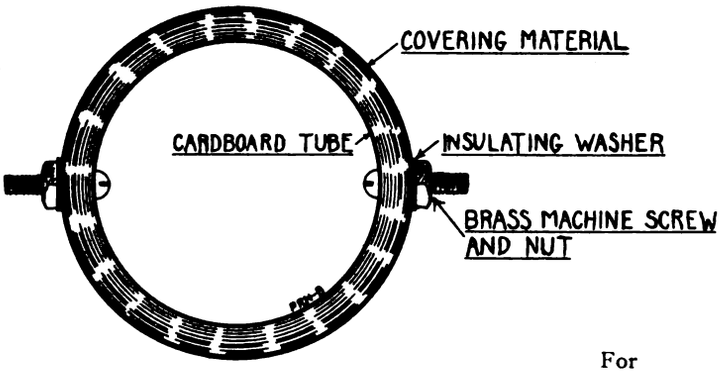


Figure 3.

Another very durable method of mounting coils is shown in Figure 4.

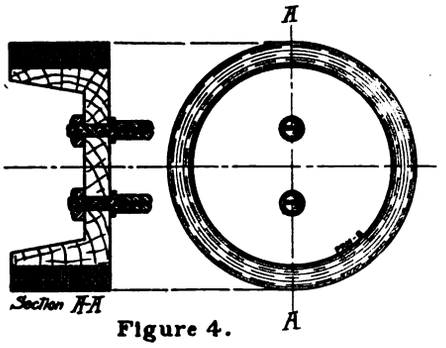


Figure 4.

A hardwood center or hub of the cross-section shown is turned out to fit the cardboard tube on which the coil is wound. The cardboard should be glued to the wooden center piece. The plugs are shown fastened to the hardwood piece. These are to fit into two sockets in the receiving apparatus. This idea makes for speed in changing coils and has been used with much success.

The coils may be arranged so that they are all connected to a control panel or switch so that any one of them may be connected into the receiving circuit without moving them. This method is not to be recommended since in using it, most experimenters would be apt to lose sight of the fact that the inductive dead-end effect of the coils, if they were close together, would decrease the efficiency of receiving. Plugging the coils in separately is the best method; then the unused coils are out of interfering range with the receiving set.

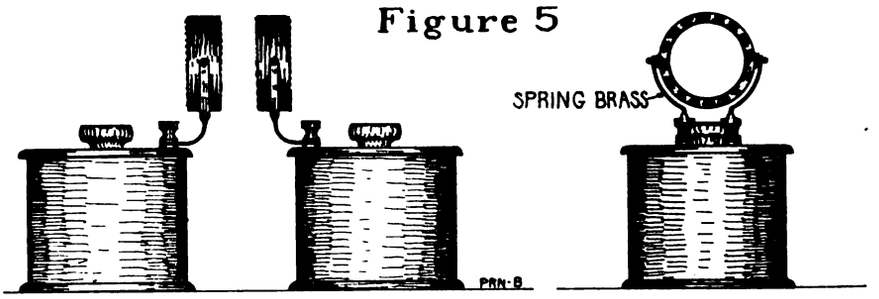
Figure 5 shows a suggestion for using the coils made with the terminals shown in Figure 2. For the amateur who has not a great deal of money to spend on a receiving set, this way of using honeycomb coils with variable condensers is an efficient means of securing remarkably good results at a very low cost.

Using the described coils the author used the following with a three hundred foot antenna.

For Wavelength of	Primary Coil of	Secondary Coil of
200 meters	*2 layers	3 layers
600 meters	2 layers	5 layers
950 meters	4 layers	6 layers
2400 meters	12 layers	24 layers

*This circuit using series "short-wave" condensers. The other three using parallel condensers.

Figure 5



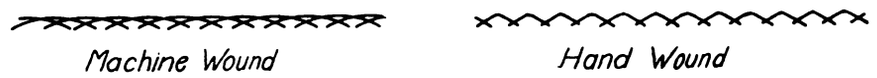


Figure 6.

The "homemade" hand wound coils described in this article have a distinct advantage over the manufactured product as shown by Figure 6. Note the parallel wires at the edge of the machine wound coils. This increases distributed capacity which is lowering the efficiency. Note the hand wound coils with the distinct right angle cross overs tending to secure the very lowest distributed capacity. The distributed capacity is so small with these inductances that 200 meter signals will be heard with some of the larger sizes, with the condenser at 0°, while from 10° to 180° a most wonderful selection can be obtained.

The coils cost only from four to twenty cents to make as against several dollars for the commercially manufactured product.

Get four of your radio friends to subscribe to "Pacific Radio News" for one year and we will send you a genuine vacuum tube detector. Read the offer on page 61.

MEXICAN GOVERNMENT TO ERECT 30 NEW STATIONS

THE daily press has had much to say of late in regard to the new plans of the Mexican government that call for the erection of thirty high-power and semi-high-power stations in various parts of the rebellious Republic.

Official confirmation has recently been obtained from Washington, according to advices to the Department of Commerce from Trade Commissioner Cunningham at Mexico City. It is estimated that the cost of the new project will run in excess of $250,000. It has not been learned what system of apparatus will be employed. The purpose of the new chain of stations is primarily to enable rapid communication between the principal cities of the Republic.

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THE UPS AND DOWNS OF RADIO ON THE PACIFIC

BY THE STATIC HOUND

A month ago we heard faint remarks from Sunnyvale, Cal. Last Sunday a noise that sounded like distant thunder was leaking out of the aforementioned metropolis. Mr. Bessey (6BR) say we might expect a real clap of thunder from his wireless plant at any time as things are set to go full blast. After a good tuning of his transmitter, the station will be open for business. We do not quite understand what you mean by that "real clap of thunder," Mr. Bessey. You told us in no too delicate words that you were having trouble tuning your set. We forgot to ask you whether this real clap of thunder would be in the form of wireless waves or cuss words. Make "Mc" our Assistant Radio Inspector, do it, Bessey. Holy Smoke—you know the old saying: No man ever gets fat working hard." Have you seen "Mc" lately? He's falling away to the size of an elephant.

All radio eyes on the Pacific Coast are focused on Mr.—, pardon us, we mean Sergeant Lufkin, Chairman of the Amateur Radio Convention that will be held in San Francisco during the Thanksgiving holidays. Sergeant Lufkin is getting things whipped into shape nicely, and from all appearances the big Convention is going to be a knock-out. Three days of it, too. Oh boy! Good fellows, good speeches, good sight-seeing trips to the various local radio stations, good dancing, good music by radio telephone, good eats, good—good night.

All you radio clubs that have not already written to the Convention Committee had better get busy. Address Sergeant Lufkin in care of the S. F. Radio Club, San Francisco Gymnastic Club. Sutter and Steiner Sts., San Francisco. If you don't belong to a radio club, come anyway. You are as welcome as a static-less night in August. All good felows will be there, and if you are a good fellow, come. Well, so long, will see you at the Convention.

The Radio Telephone Shop has moved to new quarters at 175 Steuart street, San Francisco. In the very near future a housewarming celebration will be held and "over-the-counter" business will start in earnest. Delays in the arrival of heavy machinery from the East and renovation of the new quarters are holding up the present business.

We have heard many amateurs remark that they hear fellows using call letters other than their own. In the past week the writer has heard two stations using call letters of stations outside the State of California. We would suggest that these fellows get licenses and get them quick. The penalty for operating without a license or using fictitious call letters is enough to make any amateur hold his fingers on his spark gap.

Mr. Edgcomb, owner of the Wireless Shop of Los Angeles, was a recent visitor in San Francisco. Mr. Edgcomb was on a vacation trip, but he carried a few variable condensers in his suit case, besides his collars and shirt. He is taking orders for December delivery at present. He tells us that he will soon be in a position to manufacture variable condensers for radio telephone transmitters.

Just a little hint to those amateurs who contemplate new or additional equipment for the winter work. Get busy right now and get what you can. Place an order for what you want and can't get. "There ain't gonna be" no such thing as running down town and getting what you want when you want it. The shortage of radio apparatus will not be as acute this year as it was last year but at the same time there will be a shortage of good apparatus. The late-comers are going to get what they don't want—in other words they are going to be a year behind the times.

The bankruptcy sale of the Halcun Radio Company was held on September 1. Several amateurs were present, but did little bidding. If the amateurs would have been present in a body with a few dollars in their pockets they could have purchased some real bargains in radio and electrical apparatus. Most of the items that were of use to the average amateur sold for a third of the regular retail price. Among the largest buyers were the Leo J. Meyberg Company, the Radio Telephone Shop, Gray & Danielson Manufacturing Company, Mr. G. Haller and the Federal Telegraph Co.

Concerts by radiophone are transmitted from the California Theatre in San Francisco at the following intervals: Daily, except Sunday, 2:10 PM, 3:55 PM, 7:15 PM and 9 PM. The Sunday morning concerts can be heard from 11 to 11:45 A. M.

6ZE BREAKS RECORD FOR LONG DISTANCE TRANSMISSION ON LOW POWER

Using a power input of only twenty watts and a wave length of exactly 200 meters, Mr. D. B. McGown (6ZE) communicated successfully with 7CU, the station of Royal Mumford, Vancouver, Washington. That this was no "freak work" is evident from a series of tests that led to the raising of the northern station. Mr. McGown's station is located at 1247 Forty-seventh Avenue, San Francisco. The transmitting equipment used for the record-breaking test consisted of the new Cesco 1 K. W transformer, Dubilier condenser of 0.003 MF. capacity, a 12 plug rotary gap running at a speed of 3,600 R.P.M., a helical type oscillation transformer with one turn in the primary and eight in the secondary, a "T" type antenna with a natural period of 160 meters and a capacity of 0.0006 MF.

Mr. Mumford, upon hearing 6ZE working local amateur stations, gave him a call. 6ZE "came back" on 600 watts, the power that he was using at the time, and then reduced his power to twenty watts. Signals from 6ZE at 7CU were of low audibility on low power but were readable at all times when no local interference was encountered. 7CU was using a single vacuum tube and a regenerative receiver without amplification when 6ZE was heard. The normal radiation of 6ZE with a power input of 600 watts is about 4.2 amperes.

6BN STATION DOES EXCELLENT WORK DURING ENTIRE SUMMER SEASON

6BN, owned and operated by H. Holliway and H. R. Shaw, has communicated with the following: 6AK, 6BQ, 6CV, 7CV, 6DP, 6EA, 6ED, 6EJ, 6ER, 6FE, 6FS, 6GI, 6HZ, 6JD, 6JG, 6JI, 6JJ, 6JM, 6KA, 6KP, 6NY, 6OH, 6QR, and 6UM. The following stations were heard but not worked by 6BN, 6AD, 6AY, 7BC, 6CL, 6CM, 6CQ, 7CC, 7CR, 7CW, 6DK, 7DK, 6EF, 6EM, 6EN, 6FI, 6GN, 6HY, 6IH, 6IY, 6MZ, 6PQ, 6SK, 6TC, 6TX, 6XY, 7YS, 6ZA and 7ZB. A single Audiotrun was used in the reception of the stations just mentioned. 6BN has also been heard by the following: 6EB, 6ZA, 6DK, 6SK, 6CM, 6XZ, 6IY, 6AY, 6EN, 6PQ, 6HY, 6CR, 6IL and 7YS.

The temporary call letters of the De-Forest radiophone station at the California Theatre in San Francisco are 6XA.

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DE FOREST BUZZER RADIOPHONE OPERATES ON TWO SIX VOLT STORAGE BATTERIES

NO "B" battery is required for the operation of the new DeForest Radiophone. Dr. DeForest, in a recent demonstration of the newly perfected device, has claimed a range of at least ten miles and the speech heard is much clearer than with his well-known 110 volt A. C. set. The device incor-

porates a transformer operated by one of the storage batteries as well as two rectifier bulbs. The transformer differs from the usual spark coil type inasmuch as the vibrator is of a rocker-arm style and two cores are in the transformer proper. When one side of the vibrator is attracted, the other side is away from the magnet. Whereupon the other side is immediately attracted and the first side moves away. In this manner a phase difference of 180 degrees is obtained. Two audion bulbs, which act as rectifiers, step up the current. For transmitting purposes a single bulb is used. The entire transmitter weighs, including two six volt storage batteries, about 60 pounds. It is suitable for use in automobiles, small motor boats, sailboats, camping outfits, surveying and exploration parties, Forest Patrol, or ranches, between farms, etc. The entire outfit can be easily transported on horseback, or motorcycle. It operates with any suitable type of receiver and audion detector; with or without an audion amplifier, depending on the range to be covered and the loudness of reception desired.

"Pacific Radio News" can be bought at news stands in all important cities. If your news dealer cannot supply you, write and give us his name. He will have a copy for you in a hurry.

ANOTHER TRIBUTE TO THE AMATEUR

That the amateur radio man of today does not devote his entire time to cluttering up the ether with unnecessary conversation on a half dozen different wavelengths, and that his sole ambition is not to make more noise than the other fellow, is shown in the form of recent press reports that deal with the disabling of the U. S. Submarine S-5 off the New England Coast on September 2nd.

We publish herewith extracts from the Dayton Journal of September 3rd in which the amateur radio man has received deserving recognition in the daily papers.

UNDERSEA BOAT AND HER LARGE CREW IN DANGER

For 35 Hours Her 24 Men and Six Officers Are Held Prisoners Below Sea in Submersible Off Cape Henlopen—Rescuers Are at Work

HURRY CALL SENT FOR WAR CRAFT TO PREVENT LOSS OF MANY LIVES

Demand for Aid Picked Up on Private Wireless Plant and Same Station Hears Air Is Being Pumped Into Hold of Vessel

NEW HAVEN, Conn., Sept. 2.—A wireless message from the U. S. S. General Goethals, picked up at Farmington, Conn., tonight says the U. S. submarine S-5 has been submerged 35 hours and asks that destroyers be sent to her rescue.

The radio was received by David L. Moore, who has a wireless outfit at his home in Farmington. It read as follows:

"On board U. S. S. General Goethals, at sea, Sept. 2.—Send destroyers with gear to relieve crew in submerged submarine. They have been submerged 35 hours. Bring material for cutting through hull."

From the above it will be seen that David L. Moore has played a valuable part in the rescue of the crew of the distressed submersible. This humanitarian service will undoubtedly be the direct means of adding additional weight to the scales in favor of amateur radio. It shows that we, as amateur radio operators, are taking a keen interest in aiding our government in time of need and that we regard our equipment as something more than a stack of toys. Let's all stick together, fellow amateurs, we are not half as bad as they think we are.

SIXTH DISTRICT AMATEUR STATIONS—Continued.

6ABF	C. S. Smith	3512 Parl Blvd	Oakland, Cal.
6ABG	J. F. Hopkinson	309 S. Flower St	Los Angeles, Cal.
6ABH	G. K. Spencer	1324 Weber St	Alameda, Cal.
6ABI	C. E. Segrove	716 E. 22nd St	Oakland, Cal.
6ABJ	E. R. Shanpe		Martinez, Cal.
6ABK	G. Fensky	689 62nd St	Oakland, Cal.
6ABL	E. C. Reynolds		Paso Robles, Cal.
6ABM	S. March	98 Wilkes Circle	Santa Cruz, Cal.
6ABN	R. C. Saunders	1528 Cambria St	Los Angeles, Cal.
6ABO	E. E. Smith	537 N. Greenleaf Ave	Whittier, Cal.
6ABP	R. C. Anderson	1919 Lime Ave	Long Beach, Cal.
6ABQ	C. Schneider	76 Caselli Ave	San Francisco, Cal.
6ABR	S. Inselman	57 Douglas St	San Francisco, Cal.
6ABS	N. Ashima	1474 Nuuanu St	Honolulu, T. H.
6ABT	J. D. Shea	5158 Birch St	Oakland, Cal.
6ABU	A. Stokes	2812 35th Ave	Oakland, Cal.
6ABV	E. J. Conroy	3650 Penniman Ave	Oakland, Cal.
6ABW	W. B. Donnewith	1235 Weber St	Sacramento, Cal.
6ABX	W. Huston		Woodland, Cal.
6ABY	G. S. Clark	127 N. H. St	Imperial, Cal.
6ABZ	F. S. Hannah		Puente, Cal.
6ACA	C. R. Henry	626 3d St	Napa, Cal.
6ACB	M. P. Gilliland	117 Foothill St	Pasadena, Cal.
6ACC	W. D. Johnson	4346 Townsend Ave	Oakland, Cal.
6ACD	A. L. Walker	6th & Lay Sts	Winnemucca, Nevada
6ACE	W. H. Westerman	3219B Adeline St	Berkeley, Cal.
6ACF	E. Pack	6451 San Pablo Ave	Oakland, Cal.
6ACG	M. H. Hurt	289 W. 14th St	Riverside, Cal.
6ACH	C. E. Thompson	1876 15th St	S. F. (Portable Sta.)
6ACI	I. A. Coffey	75 E. Santa Clara St	San Jose, Cal.
6ACJ	M. H. Hurt	289 W. 14th St	Riverside, Cal.
6ACK	L. H. Atkinson	1306 Fillmore St	San Francisco, Cal.
6ACL	A. Brooks	432 Lyon St	San Francisco, Cal.
6ACM	L. Newman	1700 Sonoma Ave	Berkeley, Cal.
6ACN	R. W. Kerrigan	2843 Harrison St	San Francisco, Cal.
6ACO	H. C. Robom	2069 O'Farrell St	San Francisco, Cal.
6ACP	R. K. Salisbury	400 Wilcox Ave	Oroville, Cal.
6ACQ	H. W. Scribner	23 Presidio Terrace	San Francisco, Cal.
6ACR	T. A. Work, Jr.	181 Central Ave	Pacific Grove, Cal.
6ACS	H. F. Thornton		Arcata, Cal.

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A SHORT-WAVE REGENERATIVE RECEIVER

By T. LAMBERT,
Manager The Radio Shop.

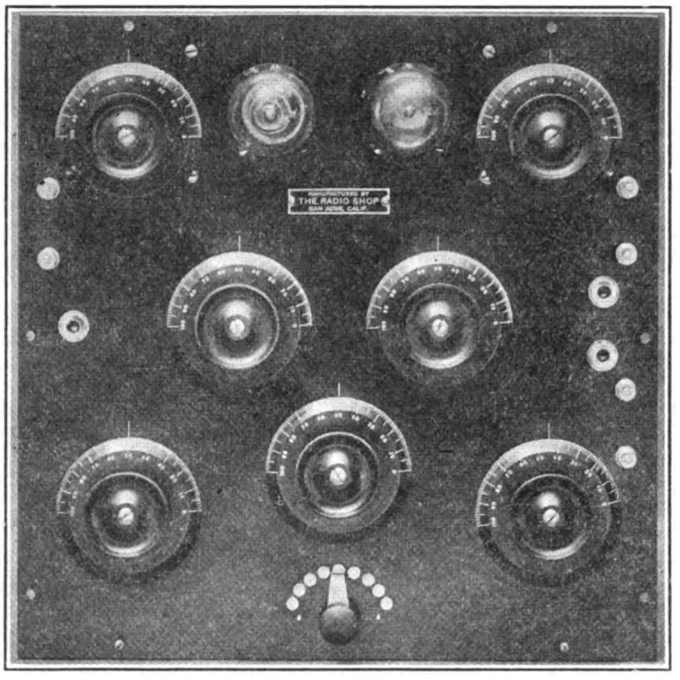
While many so-called portable receivers have been described from time to time in various periodicals, it appears that in many of the designs offered only one factor was considered, namely, compactness.

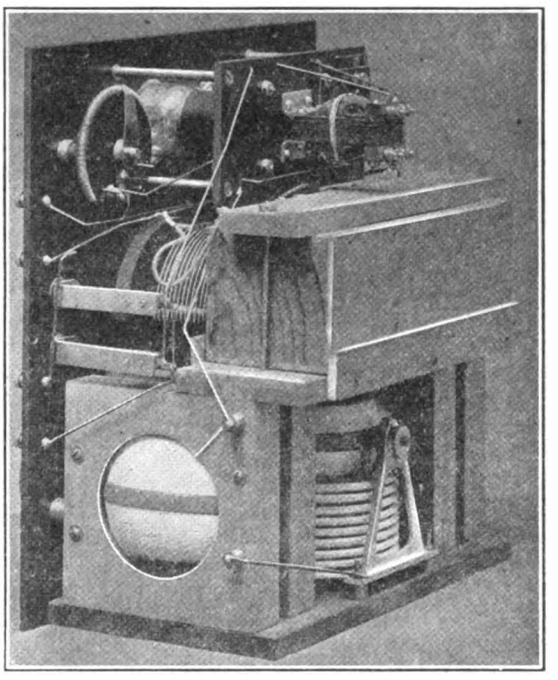
This, of course, is a very important and desirable feature, but what advantage is gained if efficiency is sacrificed? It is true that the component parts of a modern radio receiver can be compressed into a minimum of space, but when this is done without regard to the many unwanted "feedback" effects possible in vacuum valve circuits it stands to reason that the best results will not be obtained. And as the portable receiver usually operates under the handicap of a limited antenna, it is most assuredly essential that we endeavor to eliminate all detrimental features.

Therefore, the author desires to offer a suggestion of arrangement for a receiver which is adaptable to portable duty and at the same time possessing design for the best possible efficiency. This apparatus was built for one of our most exacting Western experimenters,* expressly for automobile duty, but has proven so pleasing of design and efficiency that it is now doing duty as one of the regular receivers in his experimental station.

It is not intended to give detailed specifications for construction. This has been found impracticable. The material on hand will govern the smaller details and can be best worked out by the builder of the apparatus. The author has learned, from experience, that the average amateur constructor, when given the location of the various units, can best work out the smaller details to his particular taste and pocketbook.

The greatest stumbling block seems to be in arrangement of panels. Usually this is done in a "haphazard" fashion with no thought of what will occur in the interior of the set when the various units are assembled in their intended positions. For this reason the drilling dimensions are given.





Close scrutiny of the photos will reveal that practically everything entering into the construction of the sets is composed of standard parts available on the market. The only machine work required is that on the panel, high tension control switch, and the valve mounting. This simplifies construction for shops with limited tool equipment.

All controls, with the exception of the primary inductance switch, are by means of graduated dials. Not only is this method applied to variometers, vario-coupler, rheostats, and variable condenser, but also to the high-tension battery control switch. This latter is accomplished by mounting the contacts on a sub-panel with such spacing that connection is made to "live" points when the dial indicates 20, 40, 60, 80 and 100. "Dead" points are interposed to insure a smooth running switch.

The arrangement of controls is as follows:

Upper left and right, detector and amplifier rheostats respectively.
Center left, high tension battery control, as described.
Center right, Antenna series condenser.
Lower left, Plate Variometer.
Lower center, vario-coupler.
Lower right, Grid variometer.

Three telephone jacks are employed, the plugs being connected directly to the telephone cords. The single jack to the left is for detector only. The two on the right are for the amplifier and are merely connected in parallel with each other to allow the use of an extra pair of telephones.

Reference to the rear view photo will give a good idea of the method employed for mounting the valves. The sockets are mounted on the sub-panel, which, in turn, is arranged at such a distance behind the main panel as will allow the valves to project just sufficiently far to permit grasping with the fingers for removal. This sub-panel also mounts the amplifying transformer and fixed grid condenser for the detector tube.

The variometers are attached to the panel by means of screws from the front and also up through the bottom sub-base, which also holds the vario-coupler in position. The photo shows a special bank winding on the coupler primary. This has been found unnecessary.

*Mr. A. E. Bessey, Sunnyvale, Calif., Radio 6-BR.

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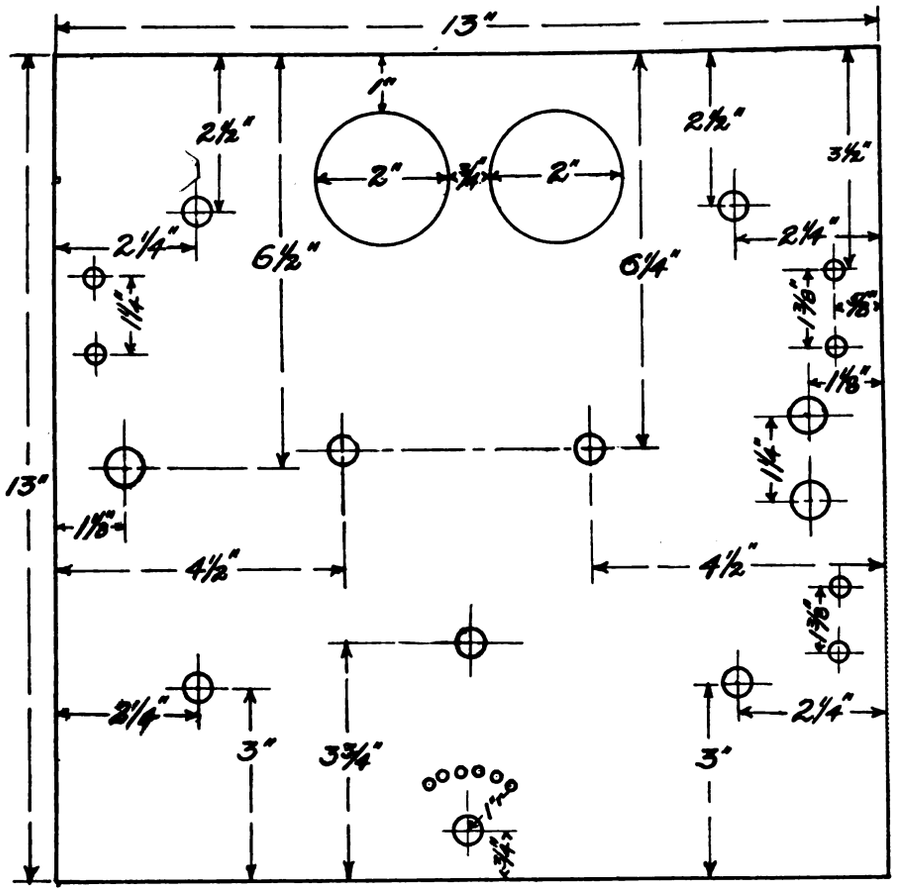

PANEL DRILLING DIMENSIONS

A small shelf across the top of the variometers provides a space to mount a standard 45-volt "B" battery. This is securely clamped in place by means of a wooden piece across the top, bolted through to the shelf.

Binding posts are arranged at the left for connection to antenna and earth. The uppermost pair ot the right are for the introduction of an extra plate battery when extremely hard amplifying valves are employed. The lower right hand posts connect to the filament battery.

Wiring of the set is by means of No. 14 hard drawn copper throughout with the exception of the plate battery leads. These are of flexible telephone cord, fitted with connection lugs.

For portable use the complete set is housed in a heavy box with inside dimensions to fit the panel and seven inches deep. A cover two inches deep is sufficient to clear all controls and also provides a space for tuning data, calls, etc.

For use on the experimenter's table a nicely finished mahogany cabinet will give a pleasing appearance.

RADIO EXPERT DOUBTS THAT CALIFORNIA AMATEURS CAN REACH HAWAII

N the July 1920 issue of "Pacific Radio News" we published an account of amateur radio stations heard in Hawaii. Several weeks later we received a letter from the Expert Radio Aide at the Pearl Harbor Naval Station wherein he states that the leading article of our July issue is an absolute "fable." Only a few days ago the operator of the S. S. "Brookdale" reported to us that not only California amateur stations are being heard in Hawaii but stations in Washington and Idaho are being heard as well.

We publish herewith the letter received from Mr. T. Hall, the first Honolulu amateur who has succeeded in copying signals from the sixth and seventh district stations:

THE BLAISDELL HOTEL
Honolulu, Hawaii
April 9, 1920.

Dear Dickow:

I am looking for information which, no doubt, you can supply. Is there a California amateur station that signs 6EA, also a station that signs 7GB or 7GC? I have read 6EA here on 200 meters using an eight stage amplifier and he "came in" with an audibility of from 4 to 7. This constitutes a readable signal.

We are in the thick of the game here now and we have the agencies for several radio manufacturers.

I have just fitted out the "KH" stations here with DeForest tuners, audion panels and two stage amplifiers, including your old station at "KHK." Let me hear how the game is in California and tell the gang that "IAL" is going strong.

We have a 700-foot aerial on the Young Hotel building and we will soon install a 2 K.W. DeForest Radiophone set Some of your long distance men might "listen in" for me during the next few months. Aloha from "HU."

T. C. HALL.

Mr. Mulrony, the expert Radio aide, has this to say in regard to the account:

U. S. Naval Station,
Pearl Harbor, T. H.
July 6, 1920.

My Dear Dickow:

I have received the copy of your July, 1920, "Pacific Radio News." I feel sure that your leading article is an absolute "Fable" about these Seefred Brothers communicating with Hall.

There are many reasons why this was not done on 200 meters and 500 watts. You ought to encourage amateurs to establish real direct communication between Honolulu and the Coast.

At present all three high power stations are in operation; at least one is working at all times and we, of course, know what the local interference from induction in the Young Hotel building amounts to. NPG cannot be read there, only under great difficulties—so such nonsense as this article should not be encouraged. Your paper ought to offer a reward for the first amateur who can successfully send a message to the Hawaiian Islands. I am seeing Hall today with intentions of challenging this article and "bawl him out" for trying to spoil a good game.

If some good live amateur over there wants to have a go at trying to work across the Pacific I can arrange to "listen in" as an amateur myself and have several others do the same. All transmitters on the Island will be silenced for the test. We will then have a pretty good chance to hear the California amateurs.

With best wishes and kind regards,

M. A. MULRONY.

Well, boys, who wants to get in the swim and work Honolulu with every arc on the Island shut down for the test? We are going to arrange a schedule with Mr. Mulrony if the necessary cooperation is received from amateurs in the sixth and seventh districts. Send us your application to partake of the test and we will ask Mr. Mulrony to listen for you. Substantial prizes will be awarded the winners of the contest.

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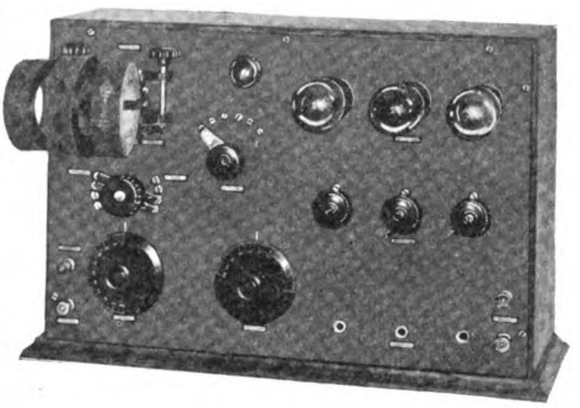
RADIO DEVELOPMENT & STANDARDIZATION

A COMPACT LONG AND SHORT WAVE RECEIVER

Mr. S. N. Petersen, manager of the Leo J. Meyberg Company of San Francisco, has developed a combined long and short wave receiver, detector and two step amplifier. The wave length range of the new receiver is from 175 to 25,000 meters and by means of a plugging arrangement the receiver is made to function on either a vacuum tube detector circuit or as an amplifier of one or two steps. A three-coil mounting for honeycomb inductances is provided and a set of 16 honeycomb coils is supplied with the set. The receiving range of this new instrument is practically unlimited. During a recent four hour test the following stations were heard: YN, POZ, LAF, NPO, NPM, NPH, NBA, NFF, NSS, NPP and others too numerous to mention. The radio telephone at Avalon, Catalina Island, can be heard in San Francisco at all hours of the day.

Dead-end losses are eliminated and all tuning is done with variable condensers and coupling adjustment. The receiver is mounted in a quartered oak cabinet, 13-in.x18-in.x6-in. The wiring is of switch board bus bar type.



A purchaser of one of the new receivers states that he copied the following stations in Honolulu, where his receiving apparatus is located: NPE, NPD, NPB, NPF, NPG, NPX and NPL. All stations heard were transmitting on a 600 meter wave and the distances vary from 2,000 to 3,000 miles. The Canadian stations (VAK, VAE, VAF) were also heard with good audibility. Ships 4,000 miles at sea were also copied in Honolulu.

A NEW GRID LEAK

The Radio Telephone Shop has perfected a new grid leak of novel constructional design. It can be mounted on any vacuum tube panel with ease.

THE RECEIVING APPARATUS USED ABOARD SHIPS CONTROLLED BY THE INDEPENDENT WIRELESS TELEGRAPH COMPANY

The illustration shows an efficient and compact receiver manufactured by the Independent Wireless Telegraph Company of New York. Over 100 vessels have this type of receiver installed and sharp tuning as well as compactness are its outstanding features. The lower portion of the cabinet is provided with two drawers for holding miscellaneous small spare parts.

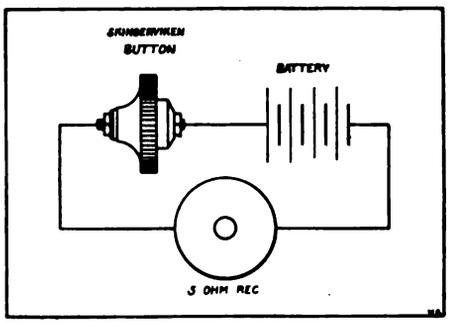
The Independent Wireless Telegraph Company is one of the largest marine radio companies in the field today.

A NOVEL SOUND DETECTING DEVICE

The General Sound Transmission Corporation of New York, sole manufacturers of the Skinderviken Transmitter Button, announces that the new device can be used to exceptional advantage in Radio Telephony. The button is also valuable in detecting bad bearings on an electric motor or for discovering the missing cylinder of an automobile engine. The only operation necessary for detecting faults is to place the rod of the instrument on the faulty apparatus or machinery. The device is extremely sensitive. The tick of a watch can be heard distinctly by touching the button to the back of the case. As a matter of fact, any fault can be detected in moving parts of motors or other machinery.

The design of the button is such that it will not be rendered inoperative regardless of the position in which it is placed. The conical construction of both electrodes of the button allows a larger contact surface for the variable resistance material used, thereby allowing no particle of same to be idle when the button is placed into vibration. It can therefore be readily seen that there is no possibility of "packing" of carbon in the button—a very important feature.

The adaptability to expansion and contraction is another feature as it prevents the familiar heating of a transmitter while in use.



The accompanying diagram shows the new Skinderviken Mechanical Stethoscope. It will be seen that the instrument consists of a Skinderviken Button, dry cell, low resistance receiver and the necessary connecting cords. Due to the portability of the device it can be carried in the pocket and is of much value to the "trouble shooter." A stethoscope for medical purposes will soon be developed by the manufacturer.

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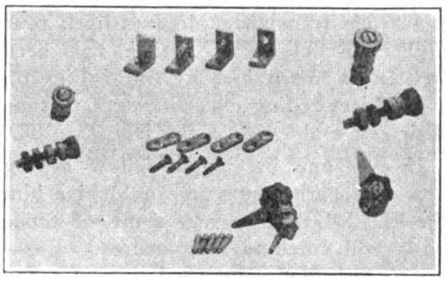
STANDARDIZED MATERIALS FOR RADIO APPARATUS

THE new line of standardized raw material products, including cabinets, panels, knobs and dials and small parts, as announced by the American Radio and Research Corporation, is particularly interesting to the operator who builds his own apparatus. This equipment has been designed, it is said, so that an operator desiring to make one piece of apparatus and then purchase another may build an article that will closely resemble the completed Amrad Unit which he may wish to add to his set at a later date. That is, an operator may begin with two or three simple units and, at very slight expense, add other units as he wishes, at all times preserving the neatness and uniform appearance of the entire set and also obviating the necessity of any special construction work.

Among the three types of cabinets now available is a 10-in. x 10-in. x 10-in. size with a removable front. This construction makes the Cabinet adaptable for a complete receiver, VT amplifier or CW transmitter units for either stationary or portable purposes. This model is designed to receive the standard 10-in. x 10-in. Formica panel, furnished separately or two of the 10-in. x 5-in. Cabinets or four of the 5-in. x 5-in. Cabinets, which may be mounted flush or below flush as desired.

The two smaller models, both 6¼-in. deep are furnished complete with standard 10-in. x 5-in. or 5-in. x 5-in. panels already attached. The same panels undrilled are also furnished separately. All the cabinets are rigidly constructed of first grade Chestnut and given a smooth, natural gloss finish, which in addition to the attractive appearance, insures that Cabinets purchased at different periods will exactly match. If preferred, the constructor may give the Cabinets any special finish desired without difficulty.



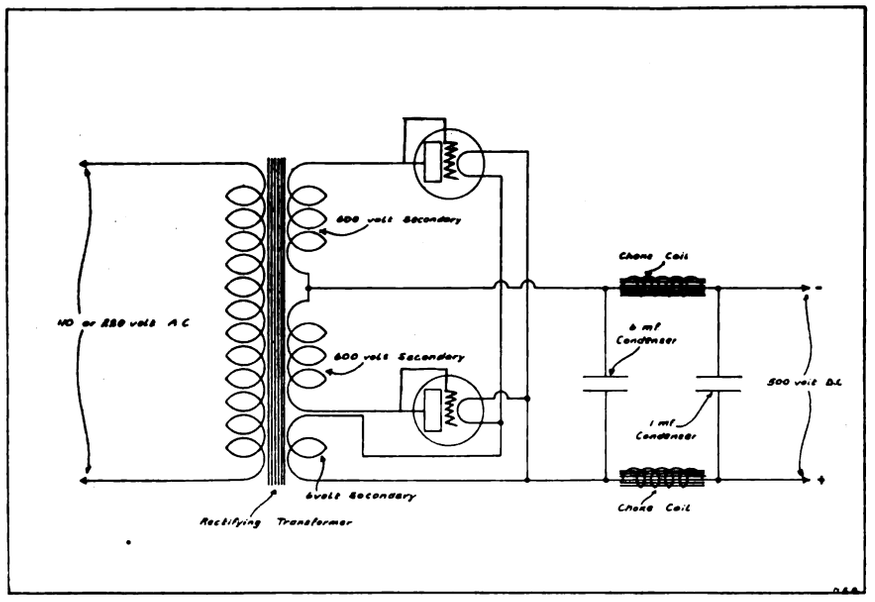
Of equal interest is the new Amrad Knob and Dial. The latter is made of a non-magnetic alloy, which, in addition to its durability, acts as a shield from the capacity effects of the hand when adjusting the apparatus. The design is such that the dial is always insulated from actual electrical contact with any part of the circuits. It will be noted that the Amrad Knob and Dial is the first indicating device of its kind designed to be turned in a clockwise direction for increase of current, capacity or coupling. This will be especially appreciated by those accustomed to the confusion which results where this detail is not standardized.

The Amrad Knob, which also can be obtained separately, adapts itself to all sorts of construction with equal facility. A long, round head 8-32 screw may be secured to the knob through the threaded upper portion if desired. As in the case of the dial, the shank of the knob is drilled to pass standard ¼-in. shaft, a set screw threaded through the shank securing the connection.

The Amrad Switch Knob is designed for use where space is a factor. Contact points are also listed. The high quality binding posts used on all Amrad equipment will be available everywhere soon. These have non-removable tops and like all other metal parts are finished in dull nickle.

All the parts, panels and cabinets are identical to the stock that will be employed in the manufacture of standard Amrad Receiving Units which are now in the final stages of development. By means of simple connectors, supplied at a nominal cost, any number of the 10-in. x 5-in. and 5-in. x 5-in. cabinets may be fastened rigidly together as a single unit and thus effect a very attractive, efficient and economical set until such time as the complete Amrad Unit may be desired.

HOW TO USE A TRANSMITTER TUBE FOR RECTIFYING PURPOSES



THE Pacific Radio Supplies Company, distributors of the A-P tubes, announces that the A-P transmitter tube is well adapted for a rectifying circuit, provided that the grid and plate of each tube is connected together as shown in the accompanying diagram.

COLIN B. KENNEDY RECEIVING SETS DOING GOOD WORK

S. F. Nielsen, radio operator on the S. S. NEWPORT, reports the reception of signals from Nauen, Germany, off the Mexican Coast with the use of a Colin B. Kennedy receiving set. The receiving was accomplished without any means of amplification.

Signals from Cavite, Lyons, Bordeaux and Rome were also heard with good audibility during the entire cruise along the West Coast as far south as Panama.

A-P VACUUM TUBE CIRCUITS

For the benefit of our readers who desire to experiment with various hook-ups of vacuum tube apparatus we will publish a monthly diagram of the best circuits available. The diagrams have been selected by the Pacific Radio Supplies Company and cover the use of vacuum tubes in both transmitting and receiving circuits.

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THE EDITOR'S MAIL BAG

OUR READERS ARE INVITED TO SEND CONTRIBUTIONS FOR PUBLICATION IN THIS DEPARTMENT

San Francisco, Cal.,
September 4, 1920.

Editor, "PACIFIC RADIO NEWS,"
San Francisco, Calif.

Dear Editor:

This is an opportune time to publish the following paragraph taken from an article about the S. S. "Arakan" that recently went ashore at Point Reyes. It appeared in the S. F. "Chronicle" September 2nd, page thirteen, column three.

"Radio Inspector of the Department of Commerce has been unable to locate the wireless operator who insisted on testing his apparatus Sunday, while the "Arakan" was trying to send out an SOS call. The testing was heard at the Department's office in the Custom House but there was no clue to the operator."

What I would like to know if it was one of those "air hogs" I heard Sunday morning. In fact, testers were going all day Sunday. Most testing was absolutely unnecessary. Such a show of thoughtlessness and selfishness * * I sincerely trust that the offender in the above case will be located and substantially punished. A good, stiff Editorial on unnecessary testing would, or should, bring some of these young gentlemen to realize that there are others who have to listen to their testing or prattle. I am one of the many who amuse themselves with radio and who is interested in the study of it. I have no transmitting set, but have often thought that I would get one for self protection, to get some of those chaps who are now getting me.

If you could explain to these fellows, through the colums of your valued paper that there is more fun and amusement tuning for distances than talking to their next-door neighbor and at the same time spoiling an evening for someone else, I think everybody would be better satisfied.

Sincerely,
Ed. Newall.

San Francisco, Cal.,
September 1, 1920.

The Editor,
"Pacific Radio News".
San Francisco, Cal.

Dear Ed:

I do not want to appear as a kicker or an old grouch, but I have something very heavy on my chest and I must get it off. It is about these chronic QRK? hams. "How do I come in today?" "This is low power—this is full power." "Do you get me as loud as 6—?" etc. The extent of conversation of at least half of the amateurs that I have heard in the last three days has been relative to their sets. Why, if this is all that they can talk about why don't they quit worrying by getting out of the game?

This small-league stuff can be expected from beginners but when I "listen-in" and hear the old-timers of five or six years experience pull that stuff, it makes my blood boil. One would think that a wireless transmitter detunes itself over night. Article after article has been written in magazines by authorities on the subject telling experimenters to tune their sets and LEAVE THEM TUNED.

If everyone hearing a fellow asking how his spark comes in would give him the HI HI, believe me, some of those birds will come to their senses.

Give them a little spiel on this subject in your paper. It will help a good cause. Distance is starting to come in fine these days and if a little more listening rather than sending is done, many long distance records will be broken.

With best wishes to the success of the "PRN", I am,

Yours very sincerely,
"KICKER."

Many letters have been received by us of late on the QRM question in and around San Francisco. The two letters published in this issue are examples. We know that the radio club in Oakland is making a strong stand against this kind of interference and in a short while the San Francisco Radio Club will take a like hand in the matter. Instead of waiting for the drive, why not start in right now, and, as "KICKER" says, "Give some of these interferers the HI."—Ed.

RADIO TELEPHONE SET OF 6UV HEARD 850 MILES WEST OF SAN FRANCISCO

Radiating only .4 ampere, Mr. A. F. Pendleton (6UV) has succeeded in transmitting speech and music to a vessel 850 miles out of San Francisco. Pendleton also reports hearing the following sixth and seventh district stations: 6AJ, 6CM, 6CQ, 6CV, 6DP, 6EA, 6EB, 6EM, 6ER, 6FE, 6FI, 6FS, 6GR, 6GQ, 6HY, 6JD, 6JI, 6MZ, 6OH, 6PQ, 6UM, 7CW, and 7CC. Stations worked include 6AK, 6BQ, 6EJ, 6JM, 6KP and 7CU.

Every amateur needs two items of importance in order to have an efficient station. These items are a vacuum tube and a subscription to "Pacific Radio News." We will give you a tube free of charge if you subscribe. Read the offer on page 61.

BAY COUNTIES RADIO CLUB HAS NINETY MEMBERS

After an adjournment of several weeks, due to the vacation season, the Bay Counties Radio Club has resumed its former activities. Meetings are now held in a large hall at 59th and San Pablo Ave., Oakland. A drive to eliminate "QRM" is contemplated and many circular letters have been sent to the Bay District amateurs. The following schedule has been suggested:

6 A. M. to 6 P. M.....Sets may be tuned
6 P. M. to 8:30 P. M.....
.....Local unimportant work
8:30 P. M. to 10 P. M...Local business
10 P. M. to 6 A. M...Long distance work

After 10 P. M. all local work will cease and anyone desiring to work distance will first send the letters "AW". If another amateur has the air he will respond with the letters "IM", meaning "I am doing long distance work, please QRX". "AW" means "Is anyone working?"

Members and non-members are requested to give the circular wide publicity and the co-operation of every Bay District amateur is asked in order to insure better working conditions on the air.

COMMENCING Wednesday, September first, at 11:30 A. M., San Francisco time, and continuing every day except Sunday throughout the month, the DeForest radiophone station at the California Theatre will transmit press on a wavelength of 1,425 meters, using a buzzer modulated continuous wave. These signals are readable on either audion or crystal receiving sets. The press transmitted should prove of considerable interest to ship operators as it will consist almost entirely of baseball scores and sporting news, given in greater detail than is the case at present.

The co-operation of the ship operator is asked in this work and he is kindly requested to forward a report to the DeForest office at 451 Third St., San Francisco, giving data on the strength of speech, strength of buzzer, strength of beat note, static conditions, distance from San Francisco and other remarks that are of interest. The schedule will commence each day at 11:30 A. M. and will be completed by 11:55 A. M.

If you have something to sell, if you want to buy something or, if you have something that you want to exchange, use the Classified Advertising section of "Pacific Radio News." The rate is three cents per word. Advertisements for the November issue must reach us no later than October third.

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PACIFIC COAST RADIO CONVENTION IS DISCUSSED AT OPEN HOUSE MEETING OF SAN FRANCISCO RADIO CLUB

At the last open house meeting of the San Francisco Radio Club, Inc., held on August 24th, it was proposed to ask the co-operation of local radio manufacturers in making the coming convention a phenomenal success. From all indications the convention will be held either in the latter part of October or the early part of November. Several Pacific Coast Radio Clubs have already expressed their desire to take an active part in the affair and various manufacturers of radio apparatus have promised their support.

Sgt. A. Lufkin, formerly a lieutenant in the Signal Corps, has been appointed Chairman of the Convention Committee. The radio raffle, held on open house night, was a marked financial success. Over $127.00 was realized from the sale of tickets and apparatus valued at almost $200.00 was raffled. The customary refreshments were served and lectures were delivered by U. S. Assistant Radio Inspector, Mr. D. B. McGown; Mr. S. N. Petersen of the Leo J. Meyberg Company; Mr. Colin B. Kennedy; Mr. Hall Berringer (6BJ); Mr. A. F. Pendleton; Mr. A. E. Bessey, and others.

The club rooms at 355 Presidio Avenue have been vacated, due to the recent growth in membership. All future meetings will be held in the new club room in the San Francisco Gymnastic Club, Sutter and Steiner Streets. Correspondence should be forwarded to the new address.

A COMPLETE transmitting and receiving equipment was installed by the Monterey Radio Association at the Monterey Chamber of Commerce during recent festivities. Apparatus from the European battlefields, valued at several

thousand dollars, was on display. Some of the noteworthy instruments were a three stage French amplifier, various makes of French and German vacuum tubes, a French field set and a French wavemeter. The half-tone, shown herewith, will give the reader a fair example of the interesting display of radio apparatus staged by the Monterey amateurs. Press dispatches of the Democratic Convention were copies daily and visitors were afforded the opportunity of hearing time signals from the naval radio station at San Francisco.

RADIO LEAGUE IS ORGANIZED IN GALVESTON

Amateur radio men of Galveston, Texas, met recently and formed a radio league. The following officers have been elected to office:

Le Roy Wallin.....President
Bennett Duble.....Vice President
Louis Ratisseau .....Treasurer
Merlin McGivney .....Member
Peter Blakeman .....Member
A. Koehler .....Member
Louis Tisell.....Member

Meetings are held on Tuesday and Thursday nights of every week. Prospective members should communicate with the Vice President, 3828 Avenue P, Galveston, Texas.

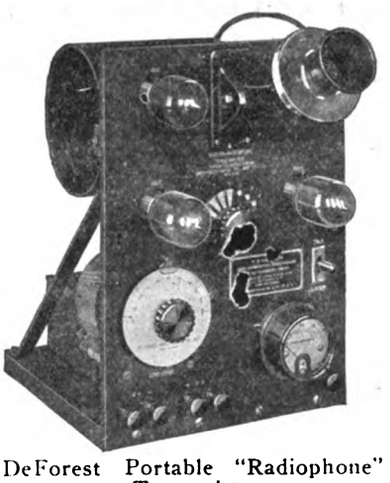
Are you looking for a rheostat or variable condenser? We will give them to you free of charge if you subscribe to P. R. N. Turn to page 61 and see how to get them.

DE FOREST

The Newest Radio Development

The DeForest Portable Buzzer

"Radiophone"*



DeForest Portable "Radiophone" Transmitter Buzzer Type O T—5

TYPE OT-5

THE LATEST development of the famous De Forest Oscillion Transmitter (Wireless Telephone). For Automobiles, Motor and Sail Boats, Camps, Surveying and Exploring Parties, Forest Patrol, Farms, and all isolated places, this new "Radiophone" set offers sure, quick, practical word-of-mouth communication. Operates on two 6-volt storage batteries; no "B" battery or other outside source of high potential is required. Can be easily transported; entire Transmitter, including batteries, weighs less than 60 pounds. Range on ordinary Amateur aerial, is 5 to 10 miles, and can be materially exceeded under proper conditions. Operates with any suitable type of Receiver and Audion Detector; with or without an Audion Amplifier, depending on the range to be covered and loudness of reception desired.

Price Without Storage Batteries Including Vacuum Tubes F. O. B.—New York **$135.00**

Investigate this new DeForest production now. Order at once to insure early delivery, either through your regular dealer or direct from us.

DeForest Radio Telephone and Telegraph Co.

Inventors and Manufacturers of High Grade Radio Apparatus

1415 SEDGWICK AVENUE NEW YORK CITY, N. Y.

Lee DeForest, Inc.

451 Third Street, San Francisco Western Distributors

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DE FOREST

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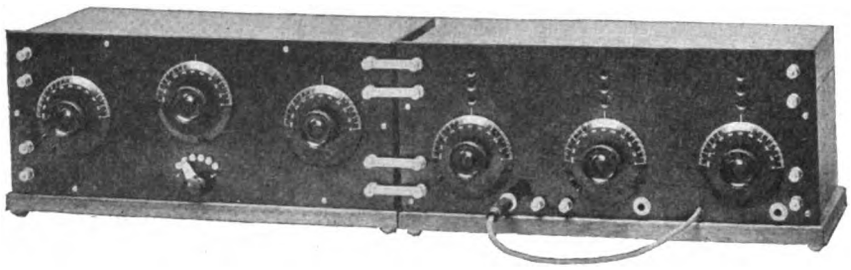
Speaking About Combinations——



The RADIO SHOP Short Wave Regenerative Receiver combined with the latest addition to an already well established line.

THE "RADIO SHOP" DETECTOR AND TWO STEP AMPLIFIER

A unit possessing features not found in other sets available on the market today. Scientifically designed for amateur wave-lengths. Magnetically screened throughout for **complete** elimination of "feedback" howling. Transformers of correct proportions for present day tubes. Non-heating rheostats. Tube sockets which take either standard V-Ts or Navy type valves. Hinged cabinet top for easy access to interior for removal of valves. Mica fixed condenser in detector circuit of correct capacity for regenerative circuits. Separate plate battery control for detector and amplifier valves. Extreme simplicity of connections. Connection strips furnished for connection to short wave receiver. Furnished without valves or batteries.

PRICE.....$75.00

THE "RADIO SHOP" SHORT WAVE REGENERATIVE RECEIVER

Now licensed under Armstrong U. S. patent No. 1,113,149. Described in detail in previous issues of "Pacific Radio News."

NEW PRICE.....$45.00

Both sets sold with the distinct understanding that your money will be immediately refunded if you are not satisfied. We will shortly have interesting literature on the above and other "RADIO SHOP" products. A stamp will put your name on our mailing list.

THE RADIO SHOP

BANK OF ITALY BUILDING **Dept 5.** **SAN JOSE, CALIFORNIA**

YOU men who live in the West are as near to the G-A House as your nearest mail box. Mail your orders.

G. A. Standardized Supplies

If you could see the enormous quantity of wire, and the thousands of bakelite panels in the stock room of the G-A Company, you would feel insured against delays in the shipment of your orders.

G. A. STANDARDIZES OF HIGH FREQUENCY CABLE

All receiving inductances for wave lengths up to 3,000 meters and vacuum tube transmitters should be wound with high frequency cable if maximum signal intensity and sharpest tuning is required.

10—No. 38, 50 turns per inch **$.60** 20—No. 38, 38 turns per inch **$.95** 3x16 No. 38, 20 turns per inch **$2**

Prices are per 100 feet. The finest enamel covered wire is used. Covered with two wrappings of unbleached Italian silk threads.

G. A. STANDARDIZED BAKELITE PANELS

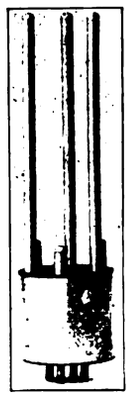
Sizes for everything from detector bases to complete sets. Every panel smoothly and squarely cut to an accuracy of 1/32 inch.

Thick	2½x5 Ins.	5x5 Ins.	5x10 Ins.	10x10 Ins.	10x15 Ins.
⅛ In.	$0.30 2 oz.	$0.60 4 oz.	$1.18 8 oz.	$2.35 1 lb.	$3.50 2 lbs.
3/16	$0.44 3 oz.	$0.88 6 oz.	$1.76 12 oz	$3.50 1½ lbs.	$5.25 3 lbs.
¼ In.	$0.58 4 oz.	$1,16 8 oz.	$2.30 1 lb.	$4.60 2 lbs.	$6.85 4 lbs.

G.A.

THE GENERAL APPARATUS CO., Inc.

570-P West 184th St., at St. Nicholos Avenue NEW YORK CITY.



AUDIOTRON ADAPTOR

Consists of standard 4 prong base with brass supporting connectors. Permits mounting tube in vertical position so filament will not sag and touch grid.

$1.75 POSTPAID

NEW "VT" SOCKET

Mica-Copper-Foil Grid Condenser, 40c.

We strongly recommend our 44 Volt Variable "B" Battery for use with Detector "VT's," $3.60.

Moorhead Electron Relays, $6.00. (With standard base. See Moorhead adv.)

$10 General Radio Ammeters, $5. (0-2½ amps. for antenna radiation or filament current indication.)

PARAGON RHEOSTAT

The 6 ohm resistancepermits fine filament control with 4 or 6 volts. 2⅛-in. dia. See March R. A. N., page 467, for details. Shaft reversible for back mounting.

$1.75 POSTPAID

Western Electric P-11 Army-Navy Phones $12

Special Acme Amplifying Transformers to use with above phones, $4.50 unmounted. With stands, $5.

Ground Wire, 8c per ft., $7 per 100 ft. Good 100 Amp. 600 V. Lightning Switches ——$4.00——

RADIO EQUIPMENT CO.

630 Washington St. Boston-11, Mass.

When writing to Advertisers please mention this Magazine

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THE LOG OF THE S. S. "DURANGO"

Wherein the Operator of the Vessel, E. M. Sargent, Records the Reception of Radiophone Music From the California Theatre at a Distance of 725 Miles North of San Francisco

July 27th, 2:30 P. M.—Undamped telegraph signals audible four inches from phones. Good typewriter signals. Speech audible but weak. Not able to understand it. Wavelength about 1540 meters. Weather overcast, foggy. Light static. Temperature 55. Ships position 150 miles south of San Francisco. 9:30 P. M.—No signals sent out. At 9:20 beat note was loud, about same as in afternoon. Unable to hear the music. Ship's position 77 miles south of San Francisco.

July 28th, 2:30 P. M.—No signals sent out. 4:30 P. M.—Beat note very loud. Speech barely audible. High notes in orchestra and singing coming through very faintly Other notes unheard. Weather clear. No static. Temperature 60. Ship's position 72 miles north of San Francisco. 9:30 P. M. No signals heard.

July 29th, 2:30 P. M.—Beat note good. Weaker than yesterday but fair typewriter signals. Wavelength about 1520 meters. Weather clear and warm. Light static. Ship's position 290 miles north of San Francisco. 9:30 P. M.—No signals received.

July 30th, 2:30 P. M.—No signals received. 9:30 P. M.—No signals received.

July 31st, 2:30 P. M.—Missed schedule. Ashore in Seattle. 9:30 P M.—Beat note fair. Too weak for typewriter but easily readable. Wavelength about 1540 meters. Heavy static, drowning signals at times. Weather clear and warm. Ship's position—in Seattle harbor at Gen. Petroleum dock.

August 2nd, 2:30 P. M.—Beat note good. Typewriter signals. Speech good, loud and clear. Would be excellent with one step amplifier. Buzzer signals louder than beat note. Fine typewriter signals. Beat note has slightly rough characteristic, but not enough to affect its working. Sounds like alternating current in the filaments. Wavelength 1720 and 1780 meters. Both good. Ship's position—in eastern part of Juan de Fuca straits, 725 miles north of San Francisco.

9:15 P. M.—Beat note weak. Unreadable through static. Much weaker than in afternoon. Can't hear music.

9:30 P. M.—Beat note growing weaker.

9:47 P. M.—Beat note has faded completely out. Am also unable to hear beat note from Los Angeles wireless phones. Usually very loud. Note:—At 9:30 ship passed into mouth of Juan de Fuca straits. In this position there is a range of heavily wooded hills, averaging 2200 feet high, five miles directly to south of us. This probably accounts for fading of signals.

August 3rd, 2:30 P. M.—No signals heard. 9:30 P. M.—Beat note fair when running steady, fading as soon as sending commenced. Static very heavy. Unable read sending. Wave about 1670 meters. Weather clear. Ship's position 460 miles north of San Francisco.

August 4th, 2:30 P. M.—No signals received. 4:30 P. M.—No signals received. 9:30 P. M—Beat note very loud. Good typewriter signals. 9:42 P. M.—Beat note getting louder. Weather overcast, foggy. Heavy static. Wavelength about 1660 meters. Ship's position 120 miles north of San Francisco. No music heard tonight.

PEN BRAND GRID CONDENSERS

When buying a grid condenser buy the best, even if you have to pay a little more. It is the one piece of apparatus on a receiving set that must be right to get best results and once installed will last for years. A mica condenser properly made is the best. A poor condenser in the grid circuit is as bad as none at all.

We can safely recommend PEN BRAND GRID CONDENSERS to the discriminating amateur who prefers the best. Made of the best grade bakelite, copper foil, separated by the best grade India Mica.

Three sizes—.0002, .0004 and .0005 mfd. capacities. Each size sells for one dollar, postpaid to any part of the United States.

Dealers Inquiries Invited

THE RADIO TELEPHONE SHOP
175 Steuart St., San Francisco, Cal.

Radio Club Directory

Published every month. It keeps you posted on important meetings.

United Radio Telegraphers' Association, Pacific Coast Division—Rooms 418-420, 24 California St., San Francisco Cal. Phone Douglas 706. All commercial operators eligible for membership. Address communications to above address.

San Francisco Radio Club, Inc., S. F. Gymnastic Club, Sutter and Steiner Sts., San Francisco, Calif. Meetings every Tuesday evening at 8:30 P. M. Visitors welcome at any meeting except first meeting of the month. Initiation fee $2.50. Monthly dues 50c. For experimental and commercial radio operators, address communications to the secretary. —adv.

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ALL THAT ITS NAME IMPLIES
THE MAGAZINE OF EXPERIMENTAL AND PRACTICALLY APPLIED SCIENCE

Monthly articles on the design, construction and operation of radio telephony and telegraphy apparatus, chemistry, construction of apparatus, analysis, etc.; physics, popular science, physical phenomena, etc., etc. Literature sent on request. 15c a copy at most newsstands. $1.50 yearly.
EXPERIMENTAL SCIENCE PUB. CO., 710 14th Street, Washington, D. C.

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Wesrad Mail Order Service

A real live, up-to-the-minute and always-on-the-job mail order radio supply house, west of the Rockies, is a real necessity and will fill a long-felt want. Hence—our new mail order department—and now you won't have to shut down while Uncle Sam's Post Office Department saunters across the continent with your order.

The Pacific Radio News will be our official mouthpiece—Look for our ad each month and we will look out for you. Let's go!

IMMEDIATE DELIVERIES ON THE FOLLOWING ITEMS, DELIVERED POSTPAID WEST OF THE ROCKIES:

RHEOSTATS

Paragon	$1.75
Remler, back mounting	1.75
Remler, Junior, back mounting	1.00
Parkin, front mounting	1.00

SOCKETS

DeForest	$1.60
Remler, back or table mounting	1.50

SWITCHES

DeForest, Anti-Capacity	$3.00
Remler, Large bearing	1.00
Remler, Small bearing	.60

WAVEMETERS

Amrad	$8.50

MODULATION TRANSFORMERS

Acme, A-3 semi-mounted	$5.10

AMPLIFYING TRANSFORMERS

Acme, Semi-mounted	$5.10
Acme, Unmounted	4.60
Federal	7.60
Federal, without base and terminals	6.10

DETECTORS

DeForest, D-101 Dust proof	$3.00
Grebe, Dust proof	2.80
Murdock, No. 324	.75
Adams Morgan	1.75

MAGNET WIRE

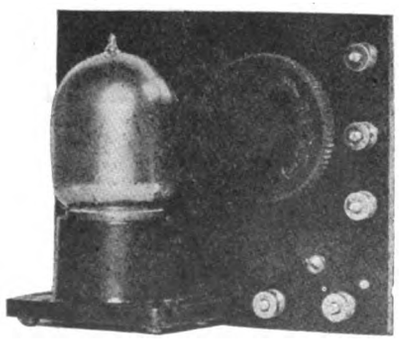
No. 18 Single Cotton, per lb.	$1.20
No. 20 Single Cotton, per lb.	1.45
No. 22 Single Cotton, per lb.	1.90
No. 24 Single Cotton, per lb.	2.30
No. 28 Single Cotton, per lb.	3.00
No. 30 Single Cotton, per lb.	4.70
No. 34 Single Cotton, per lb.	4.80

Also a complete line of Grebe and Amrad products, delivered to us by freight and sold to you on our list plus actual transportation basis. If what you want is not listed—send in your order anyway—We no doubt can fill it—or we will get it for you pronto.

Western Radio Electric Company

550 SOUTH FLOWER ST. LOS ANGELES, CALIF.

ONE STAGE AMPLIFIER PANEL



$13.75 WITHOUT TUBES SHIPPED POSTPAID TO ANY ADDRESS

An ideal instrument for long distance receiving during the winter months. Complete with amplifying transformer, highly polished genuine, Bakelite Panel, smooth running filament rheostat, latest model, V.T. socket, brackets for table mounting and nickel plated binding posts. Completely wired—ready for use.

WRITE FOR PRICES ON OTHER STYLES

Immediate Deliveries

Radio Development Company

P. O. BOX 2114 SAN FRANCISCO, CALIF.

When writing to Advertisers please mention this Magazine

"TUNING IN" ON THE WIRELESS

"Tuning in" on some of the wireless telephone communications floating about southern California's sunny atmosphere is becoming quite a sport. All of which, it might be added, is illustrative of the fact that wireless telephone communication is far from a private means of intercourse.

Recently this new and modern system has been installed at Catalina Island. Switch board operators at San Pedro and on the island are able to connect up parties with the main land telephone system and points on the resort island via wireless. In fact it is now possible to communicate from Redlands via long distance and wireless to a friend, sweetheart, mother-in-law or otherwise, who perchance may be stopping at the St. Catherines Hotel. It is beyond the experimental stage and is proving quite popular and commercially satisfactory.

However, don't get the idea that one can't listen in on a wireless message. That's where the "tuning in" comes in. It's a part of the mechanical equipment which permits anyone familiar with the game to pick up messages passing through the air within range of his receiving apparatus. It also is possible for a third party to "butt into" the conversation.

As an illustration. Yesterday afternoon, a young lady, at least her voice was that of a young lady, called the room clerk at the St. Catherines Hotel from Los Angeles. She requested that a room with twin beds be reserved for her over the week end. And just then, some big gruff voiced gob, presumably on one of Uncle Sam's destroyers, somewhere in the Pacific, broke in and inquired what caused the argument. The room clerk is trying yet to square himself with the prospective customer.

Then another example. Late last evening another conversation was overheard. A young lady in Pasadena was conversing with her fiance at Catalina. "Did you get my last letter?" she asked. "Yes," he replied. "Well, John, don't pay any attention to what I said in that letter because I didn't mean a word of it and I'm sorry," she said. And John said that was all right as he was used to getting such letters—and bang again, went the second receiver and all communication was lost.

Shortly afterward a staff member of a Los Angeles afternoon newspaper was heard to relay via wireless baseball scores from the eastern leagues. And immediately following he dispatched a few late stock market quotations. Yes—after all—it's a fascinating game. But take warning. There are any number of amateur wireless telephone operators

(Continued on page 60)

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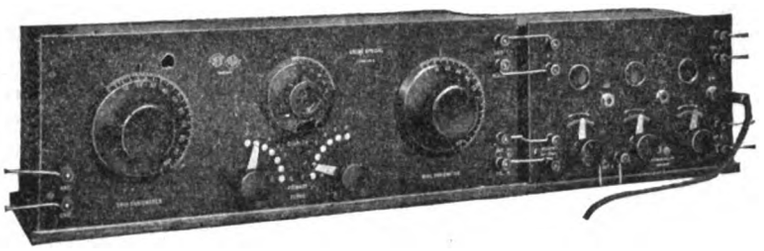
A Combination that Can't be Beaten

For Results—real long-distance signals on short wave lengths you can't beat the



This is the Outfit which made a reputation for itself in the recent QSS tests.

GREBE RADIO

Relay Receiver (Type CR-3)
and
Detector and 2-Stage Amplifier (Type RORD)

You can get into the Big Relay Game and become one of the dependable long-distance men with this outfit.

Inspect this Outfit at your Dealer's. If he doesn't carry our line as yet, drop us a postal for catalogue, mentioning his name.

GREBE RADIO apparatus is licensed under the original Armstrong and Marconi patents.

Central Radio Institute, Independence, Mo.

Continental Radio and Electric Corp., New York

Doubleday-Hill Electric Co., Pittsburgh, Pa.

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Kelly and Phillips, Brooklyn, N. Y.

Klaus Radio Company, Eureka, Ill.

Manhattan Electrical Supply Co., New York, Chicago, St. Louis

Maurice Raphael, 414-5 Walter P. Story Bldg., Los Angeles, Calif.

F. D. Pitts Co., Inc., Boston, Mass..

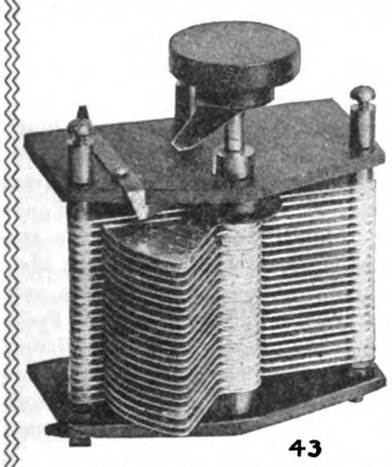
Leo J. Meyberg Co., San Francisco, Cal.

Pacent Electric Co., Inc., New York City

Phila. School of Wireless Telegraphy, Philadelphia, Pa.

Western Radio Electric Co., Los Angeles, Cal.

A. H. GREBE & CO., Inc., 73 Van Wyck Blvd., Richmond Hill, N. Y



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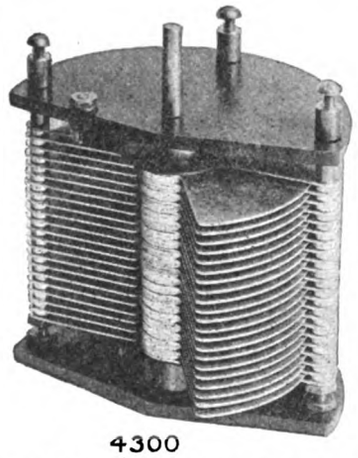

4300

Announcing a New

Variable Condenser

Built along the same general lines as our SERIES "S" condenser, but heavier construction throughout. The plates are die-stamped from 1/32" hard rolled aluminum, and are separated by heavier spacers. Extreme regidity, best of materials, accurate machine work and careful assembly are the outstanding features of construction. At the present time we are unable to fill orders for the SERIES "S" condenser, as we are unable to obtain materials for its construction, but we can ship the NEW SERIES "T" and the SERIES "L" VARIABLE CONDENSER from stock.

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No. 70	7 " .0001 m.f.	.....	2.35
No. 130	13 " .0002 m.f.	.....	2.75
No. 170	17 " .0003 m.f.	.....	3.15
No. 230	23 " .0005 m.f.	.....	3.60
No. 310	31 " .0007 m.f.	.....	4.30
No. 430	43 " .001 m.f.	.....	5.25
No. 630	63 " .0015 m.f.	.....	7.50

Include postage for one pound

No. 2300	23 plate, .00075	.....	$ 6.00
No. 4300	43 plate, .0013	.....	8.00
No. 6300	63 plate, .002	.....	10.00

Either style of condenser fitted with indicating dial at additional cost of 75c.

Include postage for two pounds

The Wireless Shop

511 W. WASHINGTON STREET — A. J. Edgcomb — LOS ANGELES, CAL.

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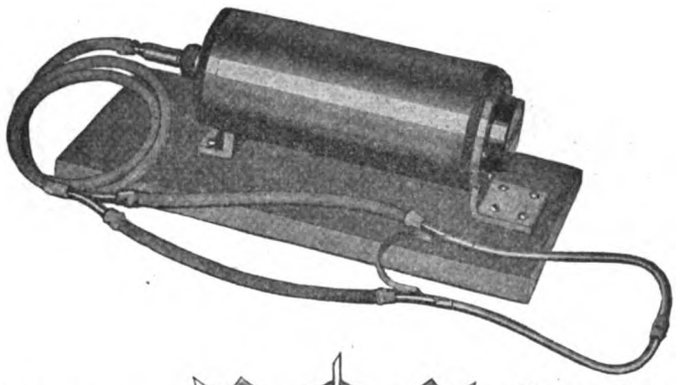

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See Radio dept. June and July Popular Science, Radio Amateur News and Pacific Radio News for my first new stories.

PARTIAL CONTENTS

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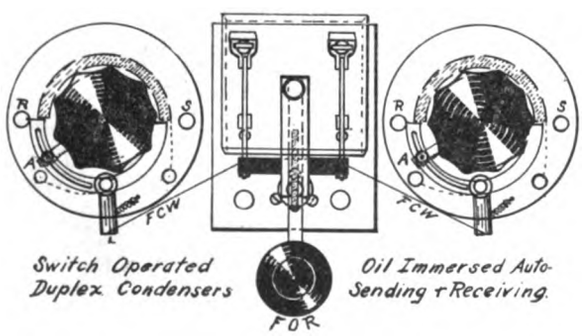

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INSPECTION INVITED. SEND FOR DESCRIPTIVE CIRCULAR.

433 NEW CALL BUILDING SAN FRANCISCO

When writing to Advertisers please mention this Magazine

(Continued from page 58)

in the community who can steal your message. It's done by "tuning in," a mechanical process which is highly entertaining.

PLANES FLY OVER PROJECT
Wireless Telephone and Telegraph for Benefit of Guests

Colonel H. H Arnold, in charge of the Department of Air Service, announced that the airplanes of the local Forest Patrol Station would fly to Auberry and maneuver over the Kerckhoff power project at the dedication ceremonies at Kerckhoff Power House.

Public to Use Wireless Phones

He has instructed Lieutenant Morgan, in charge of the local patrol service, to carry out these arrangements and he has also detailed Lieutenant H. E. Metcalf, radio officer in charge of all radio work in the forest patrol service from Bakersfield to Medford, Ore., with headquarters at Mather Field, Sacramento, to install two sets of radio telephones so that the visitors to the Kerckhoff Project may hold conversations over this newest of wireless inventions. One set will be placed at the top of the hoist leading to Kerckhoff Dam and the other set will be at Camp No. 4, just above the Kerckhoff Power House, a distance of three and one-half miles. These new type air service radio phones permit a two-way conversation at one time and are the very latest in radio communication.

Lieutenant Metcalf Wins Much Renown

Lieutenant Metcalf has won much renown in the army service as a radio officer and has been given a great deal of credit for the high state of perfection to which this branch of the service has been worked. Lieutenant Metcalf achieved national prominence a year ago last April when he delivered President Wilson's speech for the Victory Loan Drive, which was cabled from France while the President was at work there on the peace treaty. Lieutenant Metcalf delivered this speech by radio telephone from an airplane to thousands of people who were gathered around the Treasury Building in Washington. He has been in the radio service for more than two and a half years and previous to entering the army was a radio engineer and also assistant professor at the North Dakota Agricultural college. He will be assisted with the radio phones by Sergeant Lang of the local radio station. Sergeant Lang will be in charge of one of the sets and Lieutenant Metcalf of the other.

The guests will be given the opportunity of talking over the wireless telephone.

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ARC RADIO APPARATUS

(Continued from page 45)

and consequent decrease in resistance. The presence of the magnetic field prevents this arrangement of particles in the path of least resistance by exerting a powerful torque upon these minute magnetic bodies. Because of the motor action resulting from the effect of the transverse field upon the field of the arc itself, the arc is blown out to the side and its path is materially lengthened further increasing the resistance. Another function performed by the magnetic field is the generation of a high potential in the supply circuit following the extinction of the arc and the collapse of the field. This increases the condenser charging potential at the end of the charge which aids the inductance in the oscillating circuit in overcharging the condenser. Since the magnetic field has no effect upon the arc path during the time that the arc is extinguished, the resistance falls very rapidly and the potential difference across the electrodes due to condenser charge, breaks down the gap. The condenser then begins its discharge.

Briefly, the action of the arc throughout a complete cycle is as follows: The condenser circuit begins to charge, robbing the arc of a portion of its current. This increases the arc potential, and owing to the slope,—dv-di, of the current-voltage curve, the charging of the condenser is greatly accelerated. As the condenser electro-motive force resulting from the charge increases, the current falls, but when the condenser is fully charged, the current still continues to flow into it because it cannot stop instantly owing to the inductance in the circuit. This overcharges the condenser, and results in a potential sufficiently great to break down the gap between the electrodes, when the discharge begins. The successful operation of the arc as a source of oscillating currents is very much dependent upon the overcharging of the condenser and this is borne out by the fact that arcs operate best with oscillating circuits having a fairly high value of inductance.

(To be continued)

Six new stations will be erected in various cities of the United States for communication with the planes of the aerial mail service. It has been learned that the new type 2 K.W. Federal Arc transmitter will be employed.

Send us eight dollars and we will send you six or seven dollars' worth of radio apparatus and a four-year subscription to "Pacific Radio News," valued at eight dollars.

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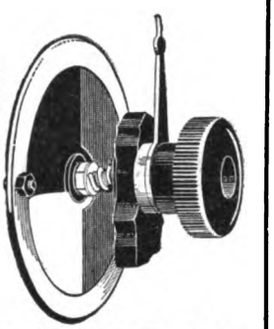

This Condenser Regularly Sells For $2.00

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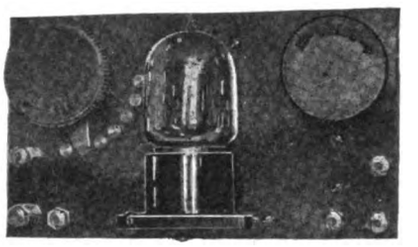
BAKELITE AUDION CONTROL PANEL



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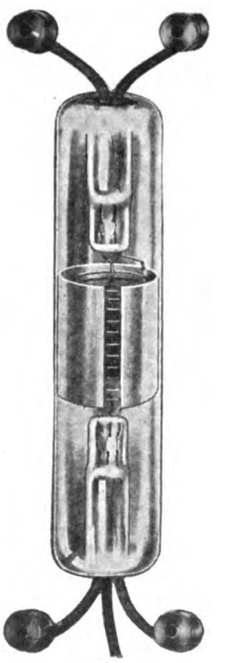
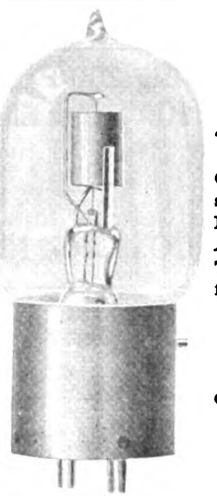


Given free with a four-year subscription to "Pacific Radio News." All tubes are genuine and fully guaranteed by the manufacturer. Add 25 cents for mailing charges.

This Audiotron Regularly sells for $6.00.



Combination No. 5

The A. P. V. T. TUBE

Given Free with a four year subscription to "Pacific Radio News." Specify whether an Amplifier-Oscillator or Detector Tube is desired. Add 25 cents for mailing charges.

These Tubes Regularly Sell For $6.00 and $7.00

All Tubes are Genuine and Guaranteed.

These Instruments will be Awarded on Extensions, Renewals or New Subscriptions. Subscription Rate $2.00 per year.

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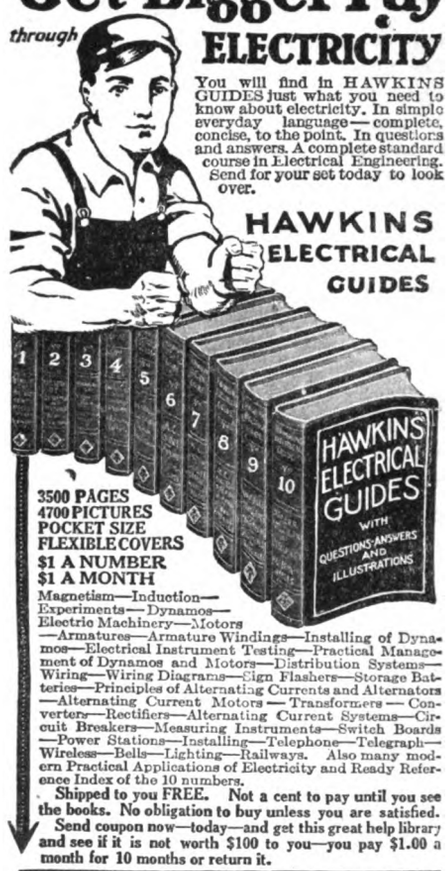

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"Y" RADIO CLUB CELEBRATES ITS FIRST ANNIVERSARY

The first anniversary of the "Y" Radio Club of Santa Barbara was celebrated September 7th with the election of officers for the coming six months, at the club rooms in the Y. M. C. A.

One year ago, the club was organized with a membership of six. The only equipment consisted of a buzzer practice set with which they had code practice every Tuesday evening. During the past year the club has increased in membership to twenty, and by Y. M. C. A. and a few private contributions it now has a complete transmitting and receiving set, second to none in the city.

Not only has this set been installed at the club, but due to the untiring efforts of J. C. Lewis, vice-president and instructor of the club, and R. H. Schauer, retiring president, who is assisting most of the members who now have receiving sets in their homes, while some, a little further advanced, have transmitters.

The officers elected last night for the coming six months are, Geoffry Lawford, president; J. C. Lewis, vice-president; R. H. Schauer, secretary, and Maurice Jones, treasurer.

Max Meyers, formerly First Class Radio electrician, U. S. N., gave a short talk on the proper way to transmit a message, after which light refreshments were served.

The club is planning to send delegates to the Pacific Coast Amateur Radio convention which is to be held in San Francisco during the early part of November.

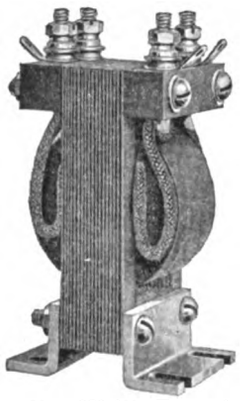
Beginning Saturday, September 11th, time signal will be sent every evening at seven o'clock from the club station, followed by weather report and press messages. All communications to the club should be addressed to R. H. Schauer, secretary, 1009 E. Haley street, Santa Barbara, Calif.

IN order to be of mutual assistance to one another in promoting the science of radio communication, a number of Riverside amateurs have organized a radio club. They will meet at the home of the president, Mr. Howard C. Gates, No. 1 Cloyne court on the 1st, 10th, and 20th days of each month. "Riverside Wireless Club" is the name of the new organization.

Turn to page 61 before you lay this issue aside. The extraordinary offer is of such importance to every radio amateur that he should not fail to take advantage of one or more of the advertised combinations.

To obtain the very best results use

Federal Standard Accessories



No. 226-W—Type A Audio Frequency Transformer

THEY ARE USED by the leading Experimenters, Manufacturers and by the Government.

The standard 226-W Audio Frequency TRANSFORMER is more popular and efficient than any other because it GIVES RESULTS. YOU SHOULD USE IT.

Our new Bulletin 102 W-B is now ready for mailing. Send 4c in stamps.

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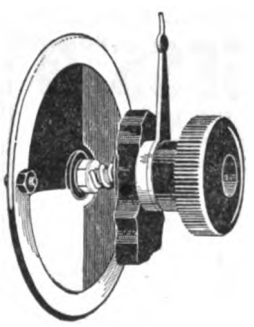

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The Parkin .001 mf Variable Condenser (pat. applied for) fills the long felt want for a rugged, low priced, balanced variable condenser for panel mounting. No plates to bend and short circuit. Cannot get out of order. Has very low minimum capacity. Easily mounted, only one small hole being necessary in the panel.

Guarantee: All Parkin Condensers are sold subject to return within five days if not fully satisfactory.

No. 50 .001 mf Unit alone, may be mounted on any shaft....$1.50 postpaid
No. 51 .001 mf Unit with knob, pointer, etc., as shown.....$2.00 postpaid
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Write for full description of this new invention

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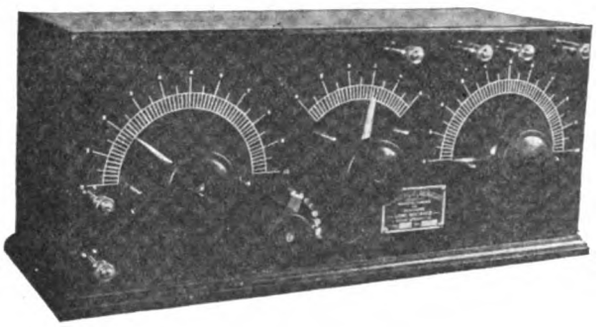

C. R. L. Paragon Short-Wave Regenerative Receiver

During the week of July 26th, L. J. Simms of station KBC, Billings, Montana, copied radio telephone conversation from **Alaska**, using our famous C. R. L. Paragon and Amplifigon combination. And this in **summer!**

Think of what the C. R. L. Paragon can do for **your** relay work this winter!

The C. R. L. Paragon can now be used to receive **long wave time signals.** Watch for our announcement of the Paragon Time Adapter next month.

C. R. L. Paragon Short Wage Regenerative Receiver, F.O.B. Chicago, **$55.00.**

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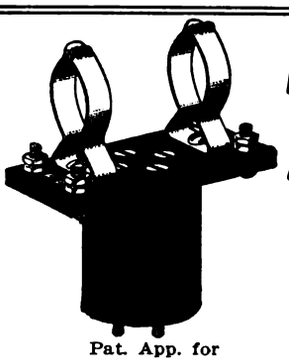

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The Radio Telephone Shop begs to announce that it has purchased a large portion of the stock of a bankrupt concern, and has decided to give the amateurs the benefit of this purchase as a means of advertising our company. This one advertisement will be the only one inserted in any magazine. And furthermore, this sale of goods will be at an end on the twentieth of October. This will give everybody a chance to get in on it. After the above mentioned date all the items listed here will go back into the new article class. This is a good chance for those making up their own sets to get in and get their knobs, etc., at a good price. No C.O.D. orders will be accepted. Money order or cash must accompany each order. The following list is all new stock.

1⅝ in. commercial type knobs 8-32 bushing 25c; our price 15c.

1¼ in. rounded face, hole through center knob 25c; our price 15c.

⅝ knob, commonly used on detectors, 10c; our price 5c.

½ knob, commonly used on binding posts, 10c; our price 5c.

1⅛ telegraph key knob, good for speed keys, 15c; our price 8c.

We have several other knobs, write us what you want we have it.

We have a limited number of detectors, ranging in prices from $1.50 to $3.00. We will sell these for $1.25 each. First come gets most expensive. In A-1 condition. Tuning coil sliders Nickeled 20c each. Detector cups ready to mount 25c. Nickel plated pointers and switch levers 10c each. Aerial switch supports moulded bakelite 50c. Loose coupler and tuning coil ends, moulded bakelite, takes 3¼ inch tube 75c each. Loose coupler runner supports, nickel finish, 20c each. Small Junior spark gaps $2.00 regular price, our price $1.25 each. Fixed receiving condensers $1.00 regular price, our price 50c. Black indicating dials with brass letters for condensers, couplers and switch point scales, commercial type regular 50c our price 25c. Name plates for antenna, ground, audion and every description: black enamel finish with brass lettering 10c each or $1.00 a dozen. Loose coupler primary ends, take 3¾ inch tube, 10c each. Ground clamps 30c each. We have numerous other articles that are required in every amateur station, including hot wire meters, voltmeters, ammeters, switchboard switches, etc. Also three Clapp Eastham 1 K. W. sending condensers, second hand but in perfect condition, $20.00 each. Besides the above we stock a line of parts and equipment too numerous to mention. Write for prices on any apparatus that you require.

No orders accepted for less than one dollar.

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RADIO PHONISTS ATTENTION. HIGH VOLTAGE GENERATORS. We supply these motor generator sets in various capacities, especially designed for radio phone work, also low powered rotary converters, dynamotors, fractional H. P. motors and storage batteries. We are in a position to solve your generator problems and supply machines to fill your requirements. We also have the standard RAY-DI-CO phone sets complete, or furnish any part thereof. In fact, if it is radio equipment of any kind, or a set of your own design, write us stating your requirements and become acquainted with our SERVICE. RAY-DI-CO (Not Inc.) 2653 C, N. Clark St., Chicago, Ill.

GENUINE AUDIOTRONS, Double Filament, double life. Used as detector, oscillator and amplifier. Stock of Audiotron Mfg. Co. nearly exhausted.

Order for one.....$5.50 each
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Satisfaction guaranteed. The Kehler Radio Laboratories, 901 West First Street, Abilene, Kansas.

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A WONDERFUL BARGAIN! Three thousand meter receiving set in mahogany cabinet with hard rubber front containing loose coupler, loading coil, variable condenser, fixed condenser and crystal detector. Has hard rubber switch handles and loose coupler as well as loading coil are tapped. No sliding contacts. In good condition and neat workmanship. Will sell for $20.00

Also sell one variable condenser, 27-plate mounted in oak cabinet with scale and rubber knob and short circuiting switch. Sell for $6.00. Two battery motors, sell both for $4.00. One hard rubber tube, ⅛-inch thick, 7-inch diameter and 14 inches long $5.00 One marble switch board 14x24 inches with large aerial switch, 3 D.P.S.T. switches and 1 S.P.S.T. switch $6.00. One telegraph key, nickel plated $1.00. 1 United Wireless transmitting key with large contacts, mounted on marble base $3.00. Wm. M. Griffith, 205 Downey Street, San Francisco. Telephone Park 3953.

THREE STEP AMPLIFIER. Can be used either as a detector and two-stage amplifier or straight three stage amplifier. This amplifier is of the French three "TER" model. In perfect condition. Price, less tubes, $98.00. H. E. Matt, 1701 Franklin St., San Francisco.

TRANSFORMER FOR SALE. 1-4 K. W. in good condition. A snap. C. Henn. 1620 48th avenue, San Francisco, Calif.

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You want our new ACE Unicoil set. Any wave range from 150 to 20,000 meters; uses unmounted Honeycomb or Duo-Lateral coils, brings the sigs; and the price without coil is only $40.00.

Order coils for wave length wanted, we have them. 10,000 to 20,000 meter coil $3.35. 1,000 to 3,500 meters, $2.25. 400-1200 meter coil $1.45. Amateur wave length coil $1.30. We have the best C-W sets going.

REMEMBER, "You may pay more, but you can't buy better."

THE PRECISION EQUIPMENT CO.
2437 GILBERT AVE., Dept. F
CINCINNATTI, OHIO

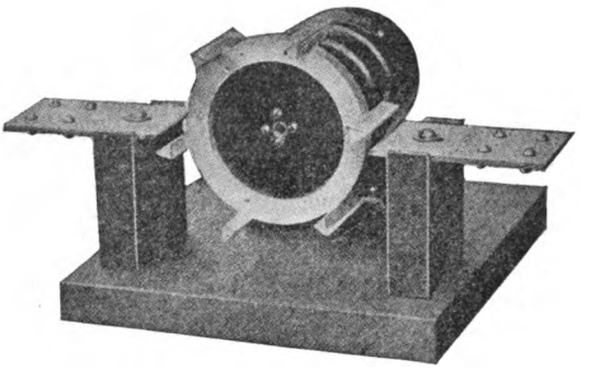
RADIOPHONE & "CW" ACCESSORIES

Our Rectifier-Transformer outfit supplies 350 V.D.C. to power VT's, and Low Voltage A.C. for heating filaments of Rectifier and power VT's.

Unmounted 50-Watt Rectifier Transformer $12.00
2 Electrodyne Rectifier VT's..... 14.00
2 Non-Melting Bakelite V.T. Sockets 2.50
Immediate delivery, include 10-lb. postage
Type J. 0-300 Milliammeter, 3-inch dia. Flush Type $6.00
New Honeycomb Coil Adapter..... .75
Has adjustable arms, permitting many new uses.
10,000 Ohm Transmitting Grid Leak 2.25
Send 4c for bulletins describing a new Variable Condenser, and all parts and building supplies for "VT" Transmitters, etc.

SOMERVILLE RADIO LABORATORY
102 Heath Street Somerville, 45, Mass.

GIVE YOUR SPARK A CHANCE



Our New Rotary allows all of the energy in the closed circuit a free discharge surface. Electrodes are 2½ inches wide and 1-16th inch thick, accurately shaped on a milling machine. Made with 6 or 12 points for high or low note. You can't beat the combination of an Acme transformer and our 12 point rotary. Absolutely highest efficient gap ever offered, fully guaranteed.

PRICED AT $50.00 WITH EITHER ROTOR
Literature ready for distribution June first and IMMEDIATE DELIVERIES

Wireless Manufacturing Co. Canton, Ohio

HOOK 'ER TO YER BULB

THE MOST WONDERFUL TUNER IN THE WORLD FOR $15

It weighs but two pounds—size about 4½x4½x3 inches. It has a primary and secondary coil only and receives all arc signals from 5,000 M to 20,000 M. It will not work with a crystal detector. The wiring diagram is on the bottom of each tuner. Do not remove top of tuner or you will destroy it—the coils are waxed in and leads are short. Tests all over the world show this tuner will receive efficiently arc signals on the smallest aerial. We recommend a single wire 25 feet high by 40 feet long. Three variable condensers and an audion are needed for the circuit.

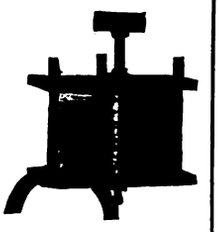
Don't take our word for it—write us for name of nearest Amateur using one; add Parcel Post.

N A A—ARLINGTON TUNER—5,000 M.

This tuner is same size as above tuner only it has a tickler coil and uses the straight audion hook-up with tickler in series with phones. It is the only spark tuner that gets NAA on a small aerial without any variable manuel coupling. This tuner also gets the arc signals at 5,000 meters and records easily wireless phone talk from 600 to 5,000 meters. Priced at $15.00 plus parcel post.

KNOCKED DOWN OR ASSEMBLED CONDENSERS

Which kind do you want? Made for panel mounting and are complete with scale, pointer and knob. Used all over the world. No C. O. D. orders, add Parcel Post. Buy from your local dealer or send us his name if he can't supply you. Formica tops and bases. Movable plates are now held by nuts and not clamped with washer as formerly



11 Plate K.D.	$1.80
21 Plate K.D.	2.25
41 Plate K.D.	3.20
11 Plate assembled	2.75
21 Plate assembled	3.25
41 Plate assembled	4.25

UNIVERSAL CONDENSER

The only fool proof, complete assembled condenser in the world that will fit any cabinet, and take the place of any and all the condensers that you may be using. IT HAS A CONTINUOUSLY VARIABLE CAPACITY FROM .00025 MF TO .001 MF. Studs are so mounted as to prevent any leakage and to fit any holes you may have already drilled in your panels. Size 3x3x1 inches and shipping weight one pound. Priced at $2.50 and add Parcel Post.

Sold by

TRESCO, Davenport, Ia.

or your dealer.

Be a sport and send 5c for our Catalog. Foreign orders solicited. Canadian Amateurs buy from Canadian Dealers. All products licensed under Marconi and Armstrong Patents.

ERRATA

The tenth line of the Tresco advertisement in the September number of "Pacific Radio News" should have read as follows: We recommend a single wire 25 feet high by 40 feet long. Dimensions were given in inches instead of feet in the last issue due to a typographical error.

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ANNOUNCEMENT

KENNEDY EQUIPMENT

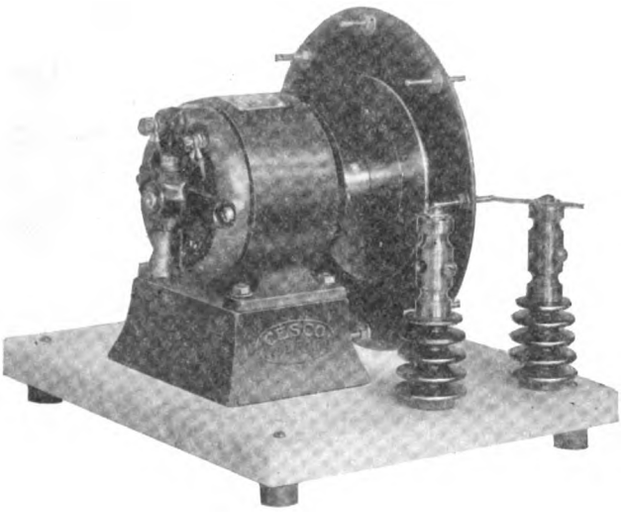
THE Kennedy Line of Receiving Equipment has made an enviable reputation for design, workmanship and performance wherever used.

OUR recently augmented engineering staff now includes electrical and mechanical engineers with wide experience in the design and operation of such well-known High Power Stations as BORDEAUX, ANNAPOLIS, SAYVILLE, ARLINGTON, PEARL HARBOR, CAVITE, SAN DIEGO and EL CAYEY, which transmit across the Atlantic and Pacific Oceans.

THE purpose of this enlarged organization is to supply even more effectively the transmitting and receiving requirements of the radio experimenter who is satisfied with nothing short of the best. Kennedy equipment is being sold by leading dealers in some localities; other territory is still open.

THE COLIN B. KENNEDY COMPANY

RIALTO BUILDING SAN FRANCISCO



CESCO R300—Price $75.00

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A Clean, Sharp Break

Give That Little
Condenser a Chance

Our dealers now carry our lines

WE DISTRIBUTE HIGH-GRADE RADIO APPARATUS

California Electrical Supply Company

643 MISSION STREET SAN FRANCISCO, CALIF.

When writing to Advertisers please mention this Magazine

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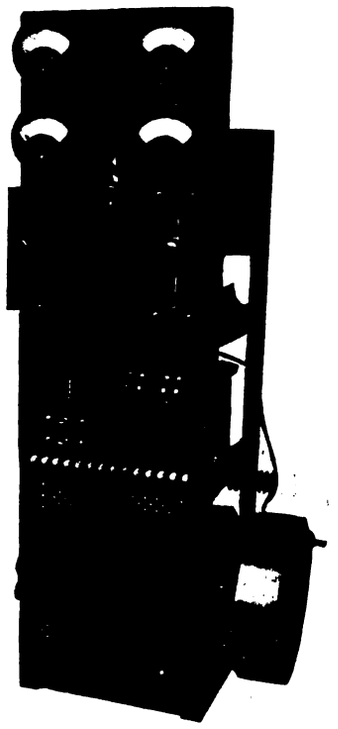

do you know

that the Independent Wireless Telegraph Company operates and controls the radio equipment on more vessels under the American flag than any other wireless company.

that the Independent has the most up-to-date commercial radio station in the U. S. from ship to shore communication.

that Independent equipment has been designed by pioneer radio engineers.

that Independent apparatus gives greater efficiency in proportion of power input than any other similar wireless equipment.

that the Independent was organized by leading steamship owners who realize the value of efficient and reliable radio service.

that the Independent will lease or sell outright wireless equipment for vessels. The Independent offers to ship owners a service that will take over the entire operation and maintenance of wireless equipment regardless of type or manufacture.

INDEPENDENT WIRELESS TELEGRAPH CO.

GENERAL OFFICES—42 BROADWAY, NEW YORK

Pacific Division—110 Market St., San Francisco

BRANCH OFFICES IN ALL PRINCIPAL PORTS OF THE UNITED STATES

Dealers and Amateurs!

On and after October 1, 1920
the price of

BALDWIN TYPE "E" PHONES

will be TWENTY DOLLARS

DEALERS:

WRITE FOR OUR NEW PROPOSITION ON BALDWIN PHONES
AND NEW FIRTH SPECIALTIES

JOHN FIRTH & COMPANY

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THE ONE TRANSMITTER THAT STANDS UP UNDER HIGH AMPERAGES

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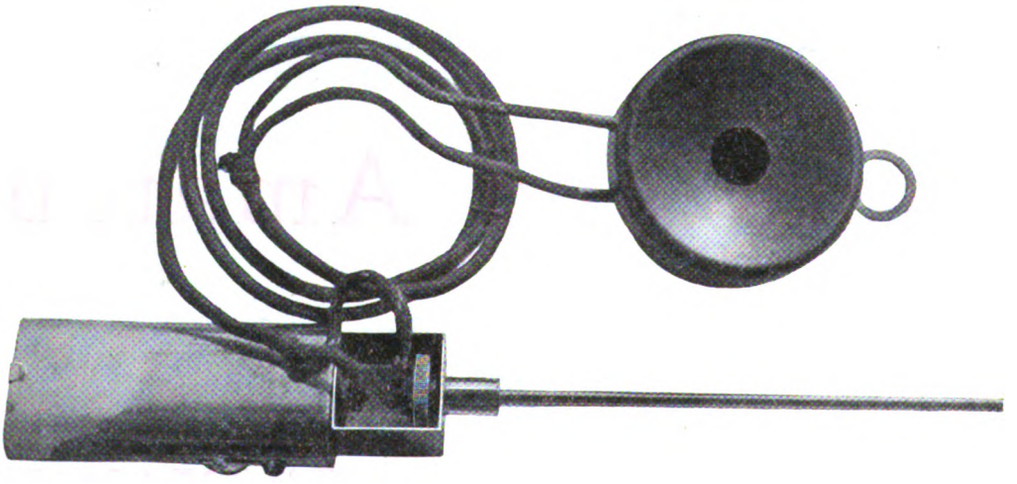
$1.00 SEND FOR ONE OR ASK YOUR DEALER $1.00

SKINDERVIKEN MECHANICAL STETHOSCOPE



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