

THE HOME RADIO

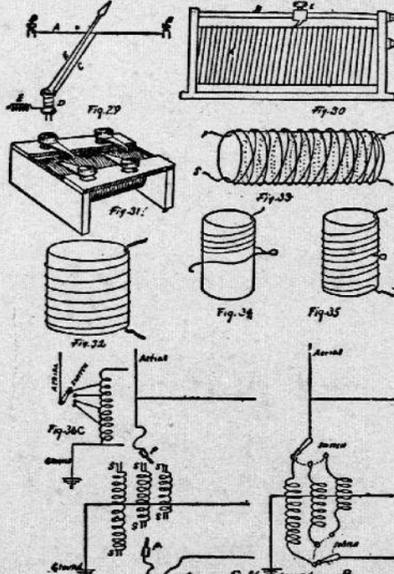
How to Make and Use It

By A. HYATT VERRILL
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AMMETERS

Ammeters are instruments designed to measure the flow of electricity through the wires and are often very essential parts of a radio outfit. They consist, as far as exterior appearances go, of a dial marked with figures and a hand or needle. Although they are not high priced and it is not advisable to try to make them, still there is nothing mysterious or complicated about them and the amateur, who likes to experiment with home-made instruments, can readily construct an ammeter which will work and is fairly reliable. This instrument is known as a "hot-wire ammeter" (Fig. 29).

and consists of a fine platinum wire A, secured between two fixed supports B, B, a thread C, fastened to the center of the wire and passed around a spool or spindle D, a spring attached to the end of the thread E, and a pointer or hand fastened immovably to the top of the spindle F. The electrical connections are made at B, B, and as soon as a current passes through the platinum wire, A, the wire becomes heated and expands, thus allowing the thread to slacken. The slack is instantly taken up by the spring E, thus revolving the spindle and swinging the needle to one side.



The greater the current the more the pointer swings and so, by arranging a dial with marks under the needle and testing the device with currents of known force, a fairly accurate instrument can be made. Needless to say, the parts must be small and neatly and accurately made and the spring must be adjusted to merely hold the thread tightly without pulling or bending the wire appreciably. Also, the length of the wire is a great factor for the longer the wire the greater will be the amount it expands, and consequently, the greater the movement of the needle; but, on the other hand, it will be more difficult to adjust a long wire to remain tight than a shorter one and the only way to determine the proportion of the various parts is to experiment.

INDUCTANCES, AND TUNING COILS

In order to receive and hear sounds sent from transmitting stations by radiophones clearly and without interference or confusion, a device of some sort is required which will cut out all waves save those desired. This is known as "tuning" and the instruments or appliances used to accomplish it are called "tuners." There are now a great many different devices for tuning, such as tuning-coils, loose couplers, vario-couplers, variometers, variable condensers, etc. Of these, all but the variable condensers (which see) are coils of various types, the simplest, but by no means the most efficient, being the simple tuning-coils. These consist of a coil of bare wire wound about a core or cylinder of wood, fibre or pasteboard and provided with sliding contacts as shown in Fig. 30, in which A is the coil, B, the slide rod and C, the slider.

wire should be scraped free of insulation to make the joint, after which it should be wrapped with adhesive tape. In making these simple inductance coils it is best to put on more turns of wire than you think is actually required, as it is far easier to remove one turn at a time, until the desired wave length is obtained, than it is to add turns after the instruments are set up. Similar simple coils are used in many parts of receiving sets, such as the radio-choke in Fig. 59, L, etc.

By moving the slider from coil to coil of the wire the wave length of the receiving instruments may be adjusted to catch the desired sounds of that wave length. Such coils are very easily made by winding a pasteboard tube—which should be soaked in melted paraffine to render it waterproof—with bare copper wire about No. 18, making about 40 turns and leaving a space of about 1-16 inch between the turns. If two or more sliders or contacts are arranged still finer adjustment will be attainable while, by providing rotary switches with five contacts as shown in Fig. 31, still better results will be secured. Although, as stated, these coils are easily made, yet they are so cheap that many prefer to purchase them ready made rather than bother making them. Simple coils or inductances, however, are even simpler, as they consist merely of a few turns of insulated copper wire wound on a pasteboard tube, the number of turns depending upon the wave lengths to be received. In some sets there is but one coil or helix Fig. 32, while in other sets there are two, a primary and secondary Fig. 33, and as a rule the coil should be tapped and the circuit connected at the tap-off Fig. 34. This is best done by taking a loop or twist in the wire at the desired point and then continuing winding as Fig. 35. Of course, in making the connection at this tap-off the

By making several tap-offs and then leading them to the various contacts of a multiple-point switch, Fig. 36, C, excellent results may be obtained especially with the smaller crystal sets with a single simple coil. Another way by which waves of varying lengths may be received by means of simple coils without tuning devices, is to have several coils of various sizes so arranged that they may be connected or disconnected with your set at will. This may be done, either by means of plugs and sockets as in Fig. 36, A, or by switches with several contacts as shown in Fig. 36, B. Still finer adjustment may be obtained by providing each coil with a slider or similar tuning device. This will give a wide range of wave lengths and will obviate all need of taking turns off the coils and as such coils are very easy to make you can have as many as you desire of different sizes.

Another very different type of inductance-coil consists of two windings, known as primary and secondary, and are similar to the ordinary sparking coils used in older type automobiles, in power boats, etc. These are known also as transformers (which see) and while they can be made at home yet it is a tedious and difficult job to wind on the hundreds of turns of wire properly and as such coils are expensive it is never advisable to attempt it, unless you wish to make everything yourself, just for the practice and fun of it. Coils of this type may be purchased which are made especially for radio use, but an ordinary spark-coil with the contact-breaker screwed or fastened down will answer every purpose. The same type of coil, using only the secondary winding, may be successfully employed as a choke-coil, as shown in Fig. 60, N.

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A SIMPLE VACUUM TUBE RECEIVING SET

This set is one of the simplest that can be devised to use a vacuum tube detector and it may be set up by anyone at a lower cost than the ordinary crystal sets may be purchased ready-made. Moreover, tuning in this set is simplified to the minimum, there being but two adjustments to be made, the variable condenser and the rheostat. The whole set is plainly shown in Fig. 54, A being the aerial, B the ground, C the variable condenser, D the inductance, E the grid-leak, F the fixed condenser, G the grid, H the plate of tube, I the rheostat, J the six-volt battery, K the phone receivers and L the 22 volt B-battery.

suits, should be variable, which is easily arranged by using a paper and pencil leak and by adding lines or erasing them as described under "condensers." The fixed condenser should be about .001 mfd. and the variable condenser of from .0003 to .0007 mfd. Be sure to place the phone receivers and B-battery in series, the positive pole of the battery being connected to the tap-off on the inductance and the negative pole being led to the receivers as shown. In setting up and tuning you will very likely find it necessary to take one or two turns of wire from the upper end of the coil, which is easily done. In operating this set first bring the tube filament to a point where the oscillations produce a squeal or howl with the variable condenser set at zero. Then, by moving the condenser pointer over the scale slowly and carefully, you can determine the best point to receive signals. When this is determined, adjust the rheostat until the filament oscillates and then decrease the brightness a little. With a little practice and by marking the knobs you will be able to readily adjust the set very accurately and quickly.

The single inductance used is easily made by winding a pasteboard tube about three inches in diameter and two inches long with about forty-six turns of No. 26 double-covered, cotton-insulated copper wire. There should be a tap-off taken at the twenty-third turn (this is done by making a loop in the wire) and then the next twenty-three turns wound on. The fixed condenser and grid leak can be made as described in the article on "condensers" and the grid-leak, for best re-

STATE FACTORIES SHOW BIG GAIN

PRODUCTS EXCEED VALUE OF AGRICULTURAL PRODUCTS BY NEARLY \$400,000

MORE THAN HALF BILLION

Value Of Various Products Of The State Given In Interesting Report Of The Wonderful Resources Of State.

The value of manufactured products in Louisiana in 1921 exceeded the value of agricultural products by \$388,171,000, according to a report completed by the research department of the New Orleans Association of Commerce. The total value of all manufactured products during the year was \$676,190,000, against a value of \$287,919,000 for agricultural products. Oil and gas valued at \$32,016,085 led the list of mineral products. Total mineral production amounted to \$44,337,168. Sulphur came second with a production value of \$10,000,000 and salt, valued at \$1,529,926, is third. Sand and gravel output was valued at \$791,147.

The report gives detailed comparison of output of dairy products and poultry. The value of poultry and poultry products amounted to \$7,058,664, against dairy products valued at \$4,509,985. The state's wool production for the twelve-month period amounted to \$175,770, and the honey and wax production value for the year is given as \$62,090.

The value of fish, oyster and shrimp products was \$6,365,244, and furs and pelts reached a total of \$3,449,825.

Appropriation Bill Passed. Baton Rouge.—The Senate finance committee completed its consideration of the general appropriation bill for the next two years.

The Senate committee added \$996,300 to the appropriation bill as it came from the House and took \$54,000 out of the bill, making a net addition to the bill of \$942,300.

Baton Rouge.—The following important bills have passed the Legislature. A bill authorizing meetings of boards of drainage commissioners to be held at places other than the domicile. Passed without opposition. A bill prohibiting any corporation, person or receiver operating a line of electric street railway to employ more than 100 men in the twenty-four hours of a day. Rare tribute was paid to Mr. Reilly when he spoke for the bill. The House has been in confusion all day but quiet prevailed as he made his plea for the passage of the bill. He said it was the only real labor bill offered at this session. A bill providing that the payment and collection of all taxes, interest and penalties assessed and due for the year 1921, to the state of Louisiana and to the various political subdivisions of that state, except such as may be due to municipalities, be, and the same are hereby suspended and postponed until October 15, 1922, upon and after which date the same shall be due, and from which said date the payment and collection of the same shall be enforced under the provisions of existing laws.

Monroe.—J. E. Doughtie, manager of the Monroe Hotel, will ask for bids within a few days for the construction of a \$70,000 addition to the present structure. The building will include fifty bedrooms, each equipped with bath.

Lake Charles.—A get-together meeting was conducted at the new Goussport Park for planning a number of new undertakings for the northern part of the city.

New Orleans.—From owner of a prosperous merchandise establishment on Canal street to a jail cell, facing a murder charge, is the tragic story of Mrs. Julia Kern, 55, of Bucktown, who fired four bullets into the body of Charles Mann, 50, a neighbor. The killing was the culmination of a neighborhood quarrel.

Monroe.—The Ouachita National Bank's ten-story building has been "officially" completed by the Underwood Contracting Corporation of New Orleans and turned over to the bank. The finishing touches were put on the building recently. The structure cost in excess of \$750,000.

New Iberia.—The Iberia Game and Fish Protective Association has been formed, Donald R. Burke was elected president, W. C. Segura, vice-president, and George J. Cousins, secretary and treasurer.

Amite City.—Two 20,000-gallon oil and gas tanks for Amite City are in early prospect and Bird and Spring, independent operators of Poplarville, Miss., will seek a site for the two tanks here.

Monroe, La.—Seven farmers living on the Louisiana-Arkansas line near Hamburg, who were arrested the first of the month on charges of failure to comply with the state and federal laws relative to dipping cattle, have been released under bond varying from \$500 to \$1000.

Arcadia.—The rig which brought in the Haynesville field will be used to drill the first well on the Smituer-man test in Bienville parish.

Monroe.—J. T. Smith, who was arrested at Olla a week or more ago on a charge of kidnapping Miss Corinne Holmes so his son, Willie, might marry her, was fined \$100 and costs and given a jail sentence of five days.

Lafayette.—The Lafayette life-saving corps of the American Red Cross was organized through the Community Council. A committee was appointed to draw up a constitution and by-laws.

Abbeville.—The first three sacks of Blue Rose rice of the 1922 season, raised by Otto Trahan of the Sixth Ward of Vermilion parish, was shipped to the New Orleans Board of Trade by Vallee Warehouse of Abbeville.

Amite City.—The Central Light and Power Company is expanding north and south with highpower lines from Amite City, over which other sections of the parish will be served with electric current.

Glennora.—Twenty-five masked men attended services at the First Methodist Church in Glennora and while the services were in progress five members walked up the aisle and presented the pastor, the Rev. D. B. Boddie, an envelope containing a note commending him for the splendid work he had been doing in Glennora. The envelope also contained \$300, which they declared that they presented him to assist in the erection of a new church building.

Alexandria.—The State Gravel Company, which has a capital stock of \$200,000 has opened offices here, and will maintain a large organization for the operation of its big gravel pit which was found near Pollock. This pit will be opened about August 1 and a washing plant will be installed and in operation January 1. The plant will be in a position to turn out 150 cars road material a day.

New Orleans.—While the prices of watermelons were just beyond the reach of the average pocketbook in New Orleans, 146 carloads of prime melons were rotting in one local railroad yard. Congestion of other food-stuffs just outside the threshold of New Orleans markets and a wide discrepancy between prices asked there seemed to be the cause. According to statements of several restaurants and fruit dealers the prices of watermelons are as high as they were at this time last year when they were not so plentiful down on the farm.

New Orleans.—Mrs. Georgine Thomas, of New York, daughter of the late D. H. Holmes, founder of the big Canal street department store, and widow of the late Chas. H. Thomas, has set aside a trust fund of between \$700,000 and \$800,000 for the erection and endowment of a home for worthy old people and convalescent mothers in New Orleans in memory of her father and her husband. A square of ground has been purchased in Carrillon by Mrs. Thomas on which the home will be erected. One third of the trust fund is to be used in the construction of the home and the balance for maintenance.

Monroe.—The contract for rebuilding the American Legion building on St. John street in Monroe preparatory to constructing a \$60,000 legion home and community building, was awarded to Lee A. Ellis at a meeting of the general building committee. A number of firms have donated material for the work. The legion's campaign to raise a \$60,000 fund for building will start within a few weeks.

Monroe.—More than 200 acres for five factory sites have been offered to the Chamber of Commerce by land owners south of Monroe, where efforts are being made to build up an important factory center.

New Orleans.—Financial and industrial New Orleans centered its interest in the announcement that the new financing of the Jahnecke Dry Docks, Inc., consisting of a bond issue totaling \$1,500,000, has been handled in New Orleans without the assistance of Northern or Eastern bankers.

Jeanerette.—The members of Jeanerette Lodge No. 255, F. and A. M. celebrated St. John's feast with a reception on the lawn of Mr. and Mrs. J. E. Whitworth's home.

Alexandria.—Fauqa Trotter, a young white man from Lake Charles, was struck with an iron coupling pin in the local railroad yards by an unidentified person which resulted in his death.

Monroe.—The Farmerville school board has tabulated the returns of the election held in the Farmerville school district on the bond issue of \$35,000 for the construction of a new brick school building, showing that out of sixty-five votes cast sixty-three were in favor of the bond issue.

Baton Rouge.—Approximately \$2,000,000 of revenue from the motor vehicle and the gasoline sales tax will be available for the construction and maintenance of the highways during 1922, according to the first report of the state highway commission.

Oak Grove.—The election in Ponder school district No. 4 on bonds of \$20,000 for erecting and improving schools buildings and necessary equipment was carried 40 to 20. The majority of assessed valuation was \$33,740.

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Boston and Montgomery.
The lady from Boston and the lady from Montgomery had taken a decided dislike to each other on the occasion of their first meeting, and it was at a fashionable reception, at which they chanced to meet, that the Bostonian seized an opportunity to publicly show her contempt for the Montgomeryer. "You are from Alabama, where they still lynch people, aren't you, dear?" The Alabama girl replied: "Yes, and you just must come down some time." —Boston Transcript.

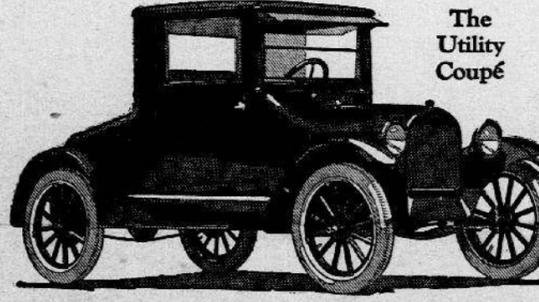
The Star Act.
Lillian Letzel, acrobat and solo performer in the circus, was giving an exhibition of trapeze work, high above the floor of the darkened arena. Her acrobatics are of the most violent sort and in the stunt she had just finished she had thrown her body back and forth with jerks that looked as though they would tear her arm from its socket. At the end she hung motionless by one arm, facing the glare of the spotlight. "Mamma," piped a small voice anxiously, "I should think she'd strain her eyes." —Pittsburgh Dispatch.

In 1950.
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"What! A live one?" —Life.

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