THE HOME RADIO

How to Make and Use It — By A. HYATT VERRILL

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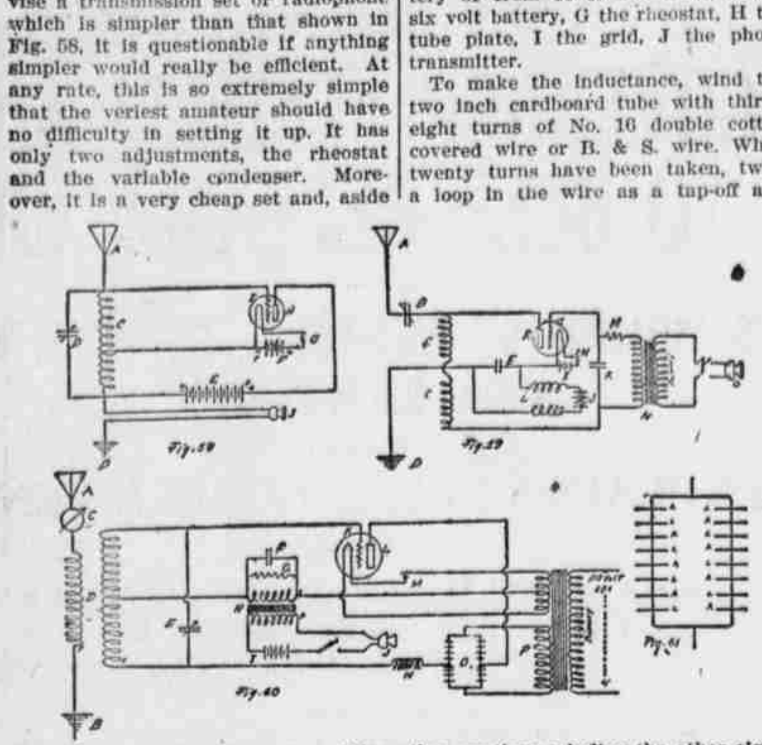
XXII. THE SIMPLEST SENDING SET

Although it may be possible to devise a transmission set or radiophone which is simpler than that shown in Fig. 58, it is questionable if anything simpler would really be efficient. At any rate, this is so extremely simple that the veriest amateur should have no difficulty in setting it up. It has only two adjustments, the rheostat and the variable condenser. Moreover, it is a very cheap set and, aside D the variable condenser, E the B-battery of from 60 to 120 volts, F the six volt battery, G the rheostat, H the tube plate, I the grid, J the phone transmitter.

To make the inductance, wind the two inch cardboard tube with thirty-eight turns of No. 16 double cotton covered wire or B. & S. wire. When twenty turns have been taken, twist a loop in the wire as a tap-off and



from the batteries, there is nothing which need be purchased ready-made (except wire) other than the following:

1 Variable condenser of .0005 mfds.
1 Microphone or telephone transmitter.
1 Rheostat.
1 Vacuum tube and socket.
1 Cardboard tube about two inches in diameter and about three inches long.

The diagram needs no explanation as to details, A being the aerial, B the ground, C the tap-off of inductance, then continue winding the other eighteen turns. The tap-off should have the insulation scraped off in making the connection at C, after which the joint should be covered with adhesive tape. If when using the set, any difficulty is experienced it may be tuned to a different wave length by taking off one or two turns of the wire at top or bottom, or both, of the inductance. For an aerial use No. 14 phosphor bronze 7 strand or No. 14 plain copper, using an aerial at least 150 feet long and of several wires and, if possible, use a counterpoise as described under "Aerials."

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XXIII. ANOTHER SIMPLE TRANSMISSION SET

One of the simplest transmission sets which can be devised for really practical work is that shown in Fig. 59. In this set, the only instruments which are required are as follows:

Vacuum tube with socket.
Variable condenser of .001 mfd.
Telephone transmitter or microphone.
60 volt B-battery.
6 volt storage battery (ordinary dry batteries may be used).
2 Fixed condensers of .0005 mfd.
1 Modulation transformer or an old type Ford spark coil.
1 Rheostat.

In addition, you will need some No. 28 B. & S. double covered cotton insulated wire.

No. 26 B. & S. double covered cotton insulated wire.

2 pasteboard tubes ¾ inch in diameter and 2 inches long.

1 pasteboard tube 3 inches in diameter and 2 inches long.

A supply of ordinary cotton-covered bell wire.

Aerial wire (No. 14), seven-strand phosphor bronze or copper is best, but plain will do.

Also, to secure the best results, use a counterpoise as described under "Aerials."

The diagram shows so plainly how this set is made that no detailed explanation is necessary. The inductance C is merely a single coil made by winding about 50 turns of the No. 26 wire on the pasteboard tube 3 inches in diameter. The radio choke-coil L is made by winding a few layers of the No. 28 wire on the pasteboard tubes ¾ inch in diameter and the modulation transformer N may be bought ready-made or an old style Ford spark plug with the buzzer or contact screwed down hard may be used. In setting up be sure the primary coil of the modulation transformer is connected with the phone transmitter O. One great advantage in this set is that there are only two adjustments to be made, the rheostat H, and the variable condenser B. In the diagram, A is the aerial, B the variable condenser, C the inductance or helix, D the ground, E fixed condenser, F tube plate, G grid, H rheostat, I 6 volt battery, J 60 volt battery, K fixed condenser, L radio choke, M grid leak, N modulation transformer, O phone transmitter.

PIERCE'S RAID ON SCHOOL FUND

Democratic Nominee is Alleged to Have Evaded Law in Securing Loans.

By C. E. Ingalls

Mr. Pierce has been weeping copious tears over the situation of the farmer for many years without offering any remedy for conditions that tend to create the difficulty from which he suffers, but, on the other hand, he has had more to do with increasing taxes—by his legislative votes and by the introduction of foolish bills — than probably any other man in Oregon.

Among the things that Mr. Pierce has prated about to farmer audiences is the difficulty that the farmer has had and still has in obtaining money cheaply enough and for sufficient length of time to enable him to conduct the ordinary transactions of his business affairs. One of the funds which has been created for the farmers of Oregon, from which they might obtain money at a lower rate of interest, is the irreducible school fund.

We have heard a great deal about the sacredness of this fund—both from Mr. Pierce and from some of his Democratic allies. Mr. Pierce has been very fond of this fund in the past—much fonder than even his earnest speeches—in behalf of cheaper money for the farmer—would indicate. Let us illustrate Mr. Pierce's deep affection and abiding love for this source of cheap money.

The creators of the irreducible school fund wished to provide loans for small farmers on the theory that the larger farmers—such as Mr. Pierce is (the assessed value of his property being $253,000.00)—are able to take care of themselves. They passed statutory enactment to the effect that no one individual could borrow from this fund an amount greater than $5,000; nor could he get his loan for a longer period than ten years, and he should be permitted to borrow it at the low rate of 6%.

According to the records of Union County (Book 36 of Deeds, page 521), Walter M. Pierce sold to Charles M. Pierce, his brother, one of his tracts of land, for the sum of $15,600.00. This transaction occurred on November 16th, 1903.

Seven days later, Charles M. Pierce borrowed $5,000.00, the limit that he could get from the school fund, from the State Land Board.

Seven days after the money was borrowed on this farm, Charles Pierce sold it back again to his Brother Walter, for a consideration of $15,600.00—the exact amount that he paid for it and the record states that Walter M. Pierce assumes and agrees to pay the mortgage.

November 16, 1903—on the same day on which Walter sold property to his brother Charles—he also sold another farm to his sister, Minnie Pierce. For this farm he received $16,600.00.

On the same day that Brother Charles borrowed $5,000.00 from the State Land Board, Sister Minnie also borrowed $5,000.00 from the State Board—the acknowledgment of this transaction being taken by Walter M. Pierce, himself, as Notary Public in Union County.

For some reason or other, Minnie B. Pierce did not like the farm she had bought from Walter, any more than Brother Charles liked his farm, for—on December 12 (19 days after she had given the mortgage), she sold the farm back to Walter for $16,600.00, the exact sum that she paid for it, Walter M. Pierce again kindly assuming and agreeing to pay the mortgage.

November 16th, 1903, seems to have been a very busy day for "Walter M."; for, in addition to the farms that he sold to his brother Charles and his sister Minnie, he also sold, on the same day, another farm to his brother George, for the consideration of $15,600.00.

By a strange coincidence, George also had to borrow some money on his newly purchased farm and, on November 23, 1903—the same day that his brother Charles borrowed $5,000.00 from the State Land Board—brother George also borrows $5,000.00 from the State Land Board.

Evidently brother George didn't like his bargain any better than the other relatives for, a few days later—to-wit: December 16th, 1903, he sold the farm back to Walter for $15,600.00, the same amount that he paid for it, Walter again assuming the $5,000.00 mortgage. This sum seems to be a favorite in the Pierce family—for it is the same amount that Brother Charles had paid for his farm, on the same day. Evidently Walter did not care to show any partiality between his two brothers. It may not be of any benefit to the account of this transaction, but nevertheless it should be noted that these considerations, received by Walter for the sale of these farms to his relatives, is slightly over three times the $5,000.00 mortgage. The State Law requires that the State Land Board can make no loans from the Irreducible School Fund for more than one-third the value of the property involved, but that Walter should always sell for thrice the limit he could borrow, may be a mere incident.

November 16, 1903, was apparently a remarkable day in Walter's Real Estate career for, in addition to the three farms above mentioned, which he sold that day to his brothers and sister he also sold a farm to Thomas J. Tweedy, a near friend of his, for the flat consideration of $16,000.00.

It seems too strang to be true, but Thomas Tweedy, on November 23rd—the same day that other mortgages were made to the State Land Board, also borrows $5,000.00 of the sacred irreducible school fund, and, to make the coincidence still more remarkable, on December 12th, he sold the place back to Walter M. Pierce for $16,000.00—the exact amount he paid for it—the affable Mr. Pierce agreeing to assume and to pay the $5,000.00 mortgage.

But this does not account for all Mr. Pierce's transactions on that busy day. Evidently, they were having a "sell-your-farm" day on November 16th, in Union County, for Walter on that day sells to one George W. Tate, a business associate, another one of his numerous Union County farms, receiving for this one $17,200.00. This amount received for this place would indicate that Walter drove a harder bargain with his business associates than he did with his relatives.

But, if November 16th was "sell-your-farm-day" in Union County, November 23rd was also "mortgage-your-farm-day" for the State Land Board. For the records show that George W. Tate, on that day, borrowed $5,000.00 from the State Land Board—the mortgage note being acknowledged in statutory form before Walter M. Pierce himself, as Notary Public for Union County.

How the minds of the purchasers of these various tracts ran "willingly along" together, is indicated by the fact that Mr. Tate, on November 30th, seven days after he made his real estate deal, sold his newly-purchased place back to Walter M. Pierce, for $17,200.00—the same amount he had paid for it, Mr. Pierce again kindly agreeing to assume and pay the mortgage.

In spite of these large transactions in Real Estate that occurred at that time, it will be noted that none of the parties to these transactions made any money off each other—all of them reselling the farms bought from Walter back to him, for the same prices they paid for them.

Evidently Walter did not propose to be outdone by those to whom he had sold his property for, on November 23rd, the same day that the others borrowed money from the State Land Board, Book 29 of Mortgages for Union County, shows that the future non-partisan candidate of the Democratic Party for Governor, also borrowed $5,000.00 from the State Land Board, and, having assumed the mortgages of the other five farms which he had sold to his relatives and friends, Mr. Pierce now had $30,000.00 of the State's Sacred Irreducible School Fund for which he was paying interest at the insignificant rate of 6%.

There were other farmers, however, in Eastern Oregon who were not so fortunate as to secure even $5,000.00, or smaller sums, from the State Land Board, or any other board, at 6%; but the records of that section show that loans were being made extensively at that time, at rates of interest carrying from 8 to 10 per cent. In fact, the mortgage records show that John M. Lightfoot and wife, on the 9th day of November of that same year, borrowed from Walter M. Pierce, the sum of $750.00, for a period of five years, at 8% interest, giving a mortgage on their farm therefor. Hundreds of other mortgage records show that no money was being loaned in Walter's section of the country at that time for less than 8%.

The state law requires that money borrowed from the sacred irreducible school fund must not be held for more than a ten-year period. The records show, however, that all of the six mortgages, held by Walter M. Pierce, were not paid until September 1, 1915. In other words, because their relatives unloaded their mortgages on him, Walter had $30,000 of the state's irreducible School Fund—when he was entitled to only $5,000 for not more than ten years. Other farmers, in Mr. Pierce's section of the country, and other parts of Oregon, were making applications for loans to the State School Fund, and were unable to secure money because of the fact that the available money in the fund was all loaned out.

The records in Umatilla County show that, during this period, Eastern Oregon farmers, however, were not allowed to go without money entirely

(Continued on Page Five.)