



The Four Circuit Tuner

By R. M. SHERRILL
(Radio Engineer)

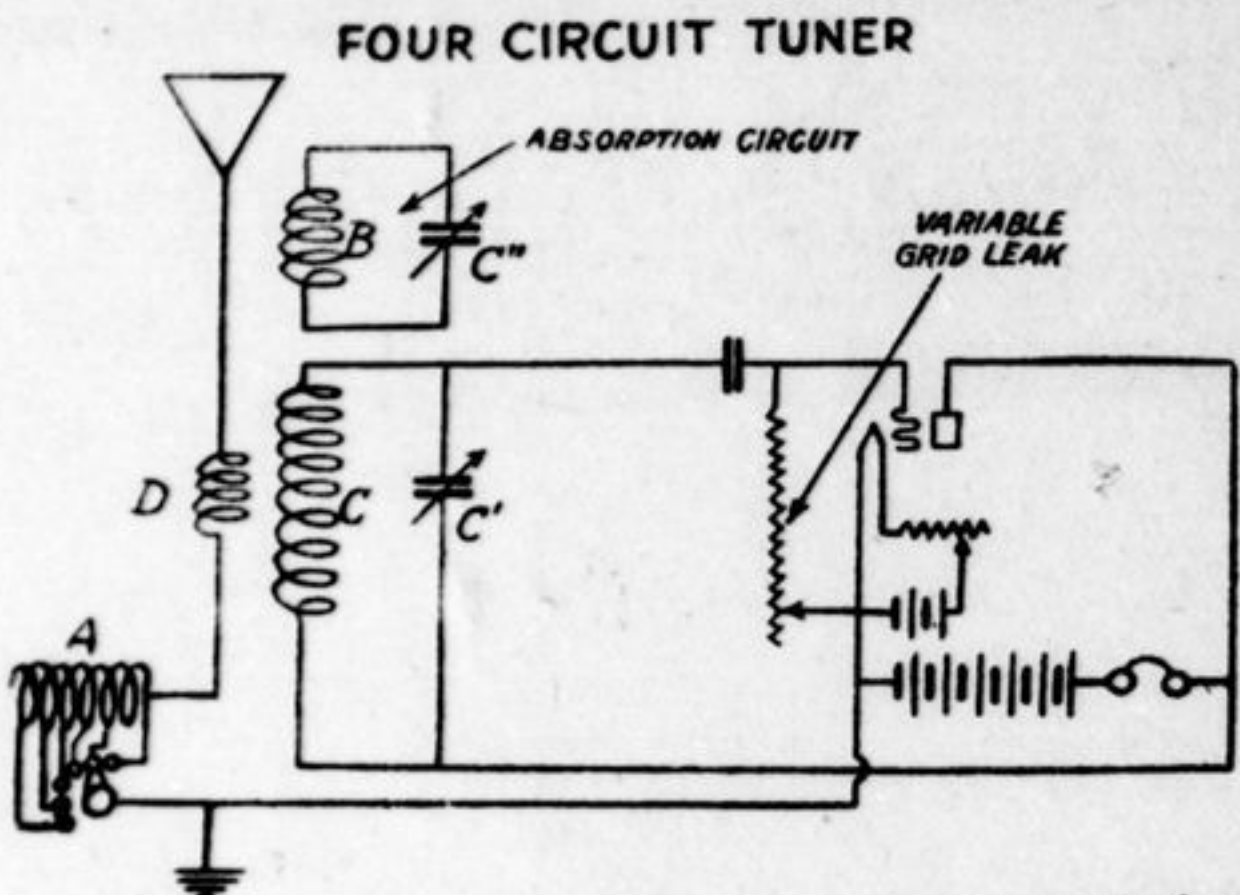
It will be remembered that the Ultra-Audion receiver, which was recently discussed in these columns, had two serious drawbacks. First it did not tune very sharply, and second, it had a tendency to oscillate all of the time. The circuit shown in the diagram is a modification of the Ultra-Audion which removes the above-mentioned drawbacks. It is known as the Four Circuit Tuner or a Cockaday's Tuner.

As shown in the diagram below, the antenna is now on a separate circuit from the main tuner. In addition there is a new circuit con-

of the secondary coil (C). To get the best results from this circuit, high grade variable condensers should be used, and the turns in the (B) and (C) windings should be spaced by the width of the wire itself. The two variable condensers used should have 23 plates each or a capacity of 500 mufds.

Tuning The Circuit

In tuning this circuit, the inductance switch for the coil (A) may be placed on any point as a trial position while the condenser (C) is varied until a signal is brought in.



sisting of a condenser and a coil, which is coupled to the secondary circuit. This new part of the hook-up is known as the absorption circuit, and it is used to keep the detector tube from oscillating when the set is tuned to a particular wavelength. In addition, it may be used as a wave trap.

Specifications For Coils

The primary inductance, shown as (A) in the diagram, consists of 45 turns of 20 gauge DCC wire wound on a 3.5-inch diameter. This inductance should be tapped at every ninth turn, and should be separated from and kept at right angles to the inductance (B). The inductances (B) and (C) are wound on the same cardboard core, 3.5 inches in diameter. (B) consists of 35 turns and (C) of 60 turns—both of 20 gauge DCC wire. There should be a space of 1/2-inch between the (B) and (C) windings. The primary coupling coil (D) consists of 4 turns of the same size wire wound directly over the center

The signal should now be brought to its maximum strength by a readjustment of the inductance switch, the condenser (C) and the variable grid leak.

When the tube starts to oscillate and distort, turn the condenser (C) until the oscillation ceases. This should leave a clear signal in the phones. A final close adjustment may be made by a careful readjustment of the filament and the variable grid leak. A little practice will prove the tuning to be less complicated than it sounds.

The grid condenser should be fixed and should have a capacity of 250 mufds. The variable grid leak should be connected to the filament rather than in its usual position across the grid condenser. If it is desired to add a stage or so of audio frequency amplification, this may be done the same as with any other circuit.

When carefully built and operated, a receiver using this circuit will be very sensitive and selective.

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RADIO QUESTIONS AND ANSWERS

Mr. Sherrill will be glad to help you solve your radio problems. Write him, care of The Durham Chronicle.

D. E. K. wants to know the following: "In making a wavemeter to cover the broadcasting range of wavelengths, how many turns should be used in parallel with a 23-plate variable condenser?"

Ans.—60 turns on a 3.5-inch diameter will be about right.

C. B. A. asks: "Whether in shielding a set, which uses a loop antenna, the shield should be connected to ground or left unconnected?"

Ans.—In this type of receiver, the shield is usually connected to the

negative side of the filament battery.

M. T. wants information on the following point: "Some amplifier circuits show the C battery connected in the circuit next to the grid of the tube while others show it connected in the grid return wire close to where it joins the filament. Are both ways equally satisfactory?"

Ans.—As far as putting the proper voltage on the grid is concerned, either way will do. However, on account of a possible leakage from the C battery to whatever it is resting on, it is better to put this battery in the grid return lead.

Holstein

(Our own Correspondent.)

The annual Sunday School entertainment of the Methodist Church here was held in the hall last Monday evening. The weather was very unfavorable, but a good-sized audience was in attendance, and the programme was pronounced excellent. The proceeds amounted to about \$28 and are to be used for Sunday School purposes.

The schools closed last Friday, and the teachers departed for their homes to enjoy their holidays. Miss Davidson went to Newton, Miss Floyd to Chesley, Miss Edwards to Ottawa and Mr. Koch to Stratford. The following are home for the Christmas festivities: Miss Eunice Tyndale from North Bay Normal School, Ethel Hunt from Toronto Normal and Miss Reta Roberts, teacher, Scotland.

Mr. and Mrs. William Nelson and Miss Marjory have come to spend a few days with relatives in Buffalo.

Mr. Milford Bunston of Toronto is spending a while with his grandparents, Mr. and Mrs. John Manary.

Mr. Roy McLean of the Bank of Montreal visited at his home in Alton for Christmas.

Aberdeen

(Our own Correspondent.)

Misses Isabel and Mary McQuarrie of Toronto are spending the Christmas holidays with their parents here.

Miss Catherine Smith of Toronto

Traverston

(Our own Correspondent.)

Mr. Ronald Martin of Toronto is visiting his sister, Mrs. James Haley. Dr. Thomas McKee of Dundas holidayed at the old home on the 5th Concession. The doctor is doing well down south.

Sorry to learn that Mr. William Baker has been on the sick list of late. Everybody wishes for his speedy recovery.

Mr. Robert Timmins has been holding his own the past few days. Miss Mamie Haley is gradually recovering her old vigour.

Despite the stormy weather, there were many happy family reunions and gatherings of kindred on Christmas. Mr. and Mrs. W. J. Cook and family spent the festive day with Mr. and Mrs. W. J. McFadden of Orange Valley; Mr. and Mrs. H. Holmes and family of Durham and Mrs. Ben Mays with Misses Elsie and Isabel of Guelph were at Mr. William Firth's; Mrs. John A. Beaton's; Mr. and Mrs. Hy Beaton and Miss Blanche of Bunnison and Mr. and Mrs. George E. Pearl's; Mr. and Mrs. T. Ivan Edwards and W. H. of Toronto with Spenser and Keith of Detroit at the Edwards homestead, the latter three remaining until Saturday of this week.

Miss E. J. Allan is holidaying at her home near Chesley, and Miss A. McGarry of No. 5 is at her home near Goderich.

Miss Rebecca Banks of Toronto is holidaying with her sister, Mrs. M. Smith and her brother, Mr. James Banks.

Messrs. Frank and Philip Dunbar of Detroit were over to the old home on the 4th Concession for Christmas and remained for a few days.

"It is always understood that Zion will have a good program and a big turnout to her Christmas concert, so true to her reputation, on Tuesday evening of last week, there was a full house and an entertainment up to the best. The "Little Folk" usually take a big part, and fourteen of them had bright recitations as follows: Catherine Timmins, Charles Timmins, Elvie Hastie, Mary McNab, Ewen McNab, Isabel Mays, Isabel Kleist, Ada Banks, Violet Banks, Clara Jack, Iola Noble, Mary Anderson, George Blair and Viola Neely. Besides a group of seven had a very pleasing "candle" drill, a larger group a most unique and amusing "stocking" drill and the entire school group rendered two appropriate choruses. Violin selections by Messrs. Arthur McNally and James Pearce with Mrs. A. McNally accompanying were well received. The pantomime, "Silent Night, Holy Night," by four fair ones, robed in white, was a taking number, and a "Star" drill by nine maidens was particularly entertaining. The adults had three bright dialogues, well-acted and full of pep, Miss Katherine Firth as usual winning warm applause. They also contributed two choruses. Rev. J. E. Peters was in a most affable mood and handled the long program with dispatch. Santa Claus had gifts galore, and the big trees and Church were beautifully decorated. The proceeds amounted to about \$40.

Though sidewalks were piled full, a goodly crowd gathered at the Township hall on Monday to attend the nomination, some having several miles to trudge. Councillor T. Brodie walked over four miles on snow shoes. The Council of 1924 had a good bridge-building record to their credit, having constructed two fine steel and concrete arched bridges, one at Mr. I. Anderson's corner and the other at St. John's Church at a very reasonable cost. Long stretches of graveling have been completed at an average cost of a little over a dollar a rod. While the best of good fellowship prevailed, there was criticism enough to keep matters fairly lively. Mr. Archie McCaig was nominated to oppose Reeve Weir but wasn't present at the meeting. Besides the four councillors of the past year, Messrs. Malcolm Black, Thomas Brodie, John McGrath and Alex. Aljoe, the following new men were put on the list as candidates: Messrs. George E. Pearl, J. J. Black and Mr. John McKechnie of Durham Road. Mr. John O'Neil, after a spirited speech, had his name withdrawn. Your scribe was in the chair, but his duties were light. Mr. George Binnie, being present, was called upon and spoke to the point on some of the vital items affecting the townships. 'Twas a pleasure to have Mr. Peter Ramage of the Review at the meeting.

CANADIAN JUSTICE

Three Montreal men got five years each in penitentiary for flim-flamming a merchant of Haileybury district out of \$2,500. Seitel got three years for flim-flamming Sir Adam Beck and Mr. Pope out of thirty thousand dollars of public money. The administration of our Canadian laws should be a matter of pride to every Canadian—but, is it?—Flesherton Advance.

Rocky Saugeen

(Our own Correspondent.)

Miss Merron McArthur is spending the holidays with her parents, Mr. and Mrs. Daniel McArthur.

Misses Edna, Cora and Mary Dyer visited with Mr. and Mrs. James Vessie.

Messrs. Clarence and Norman Thompson are spending a few days with their parents.

The teacher and pupils held a very successful school concert last Thursday. The children performed their parts real well, and at the close, the ladies served a dainty lunch that was much enjoyed by all.

It gives us great pleasure to be able to report that Mrs. Walter Clark is improving nicely.

Miss Esther McLean is spending the Christmas holidays with her parents.

Mrs. Lachie McLean left on Tuesday to spend a couple of weeks in Chicago.

Mr. and Mrs. Barclay Thompson of Inglewood are visiting with the former's parents, Mr. and Mrs. A. Thompson.

HE DIDN'T ADVERTISE

In a small town of the American Middle West Region where the "mail order" system of shopping has a tremendous vogue—a good story was recently told of the local shopkeeper. When he came home one night, his wife proudly showed him an unusual type of egg-beater she had just bought from one of the mail order firms. There appeared at once on his face a look of surprise, instead of the pleasure she had expected to find.

She asked him what the trouble was.

"Well," he replied, "I've had half a dozen of these in stock for a year, and I've been wondering how on earth I was ever going to get rid of them." The incident is being used in the press to illustrate the value of "publicity." If, it is argued, a retail trader keeps his stock of household appliances secret even to his own wife, how can he expect to find customers for them.

"The Maple Land"

From sea to sea, our native land, where beavers build their home, I seal these words with wisdom's pen, the Maple Land, my poem; Though leaves do fall on statesmen's graves who rest in peace asleep, For honor of your Country, come fill their noble seat.

Fear not the narrowing lusts of hell and men who walk in pride And trample o'er the souls of men to gain a narrow side. Let old traditions have their sway and prophecy fulfill; Rest on your oars, Ye Maple Land; there's peace on judgment's hill.

Unlock the seals, ye north men bold, but guard the tree of life. There's more to man than dust to dust and narrow, empty strife. Let friendships rule o'er all our land while Europe fights the beast; The evil spirit is in man, so let your envy cease.

Sound loud decrees o'er all our land; let wisdom's voice proclaim. We see the Jews all moving home. I wonder who's to blame! Watch for His coming in this land, a shepherd once was He, To guide a nation by the hand and rule humanity.

Call for your Prince, His herds and flocks are Manna for our race; Set up a kingdom o'er this land, no fame days to face. Ye statesmen bold, from sea to sea, That God may smile upon our land, the little Maple Tree.

—N. Irvine, Grenfell, Sask.

BIG VALUE FOR YOUR MONEY

It is said that the Family Herald and Weekly Star of Montreal works on the principle that nothing but the best will do for its readers. The soundness of this policy is amply demonstrated in the rapidly growing subscription list of this great weekly. The public have been tempted by trashy weeklies at give-away prices, but when it comes down to value for your money and a genuine Canadian flavor to your reading, the Family Herald and Weekly Star has no competitor. This year we see that the publisher is giving each subscriber whose subscription is received in time a large calendar for 1925 entitled "The Sale of Old Dobbin", and a free entry to a contest in which ten thousand dollars will be awarded. The subscription price of the Family Herald and Weekly Star is only Two Dollars a year.

Water in the Melon

"How do you get the water in the water-melons?" asked the small boy. "Oh, I plant the seeds in the spring," answered the gardener.

Many a self-made man started by picking a prosperous wife.

GENE OF THOUGHT FROM MASTER MINDS OF THE AGES

We sometimes think we hate flattery when we only hate the manner in which we have been flattered.—Rochefoucauld.

Blessed is the desperation which catches at God's hand; firm is the trust which leaps from despair.—Alexander MacLaren.

No cord or cable can draw so forcibly, or bind so fast, as love can do with only a single thread.—R. Burton.

O, what a goodly outside falsehood hath; a goodly apple rotten at the heart!—Shakespeare.

If a minister takes one step into the world, his hearers take two.—Cecil.

Hope and happiness are so chummy that when one dies the other commits suicide.

That friendship will not continue to the end.—Quarles.

So live that when your summons comes you won't have to burn the books.

Elevation is to merit what dress is to a handsome person.—Rochefoucauld.

In life there are meetings which seem like fate.—Owen Meredith.

All's well that ends well; still the finish is the crown.—Shakespeare.

A man is his veriest reality, what he loves.—George Tyrell.

The best of all medicines are rest and fasting.—Franklin.

Soft words are frequently more effective than hard facts.

The watchful sentinel is happier than the sleeping soldier.

Maternal love! thou word that sums all bliss.—Pollok.

Sensuality is the grave of the soul.—Channing.

Simple duty hath no place for fear.—Whittier.

Imitation is the sincerest flattery.—Cotton.

None but a fool is always right.—Hare.

LEARNING TO SELL EGGS

Sault Ste. Marie Star)

U. F. O. reports that the egg pool operated by it this year handled 3,000,000 eggs, and that the price paid to the producers was on an average ten cents a dozen higher than the market price for farm eggs. "The U. F. O. has accomplished something in an experiment of this

MRS. B. H. HART SICK FOR YEARS

Wants Women to Know How She Was Made Well by Lydia E. Pinkham's Vegetable Compound

Cornwall, Ontario.—"I am now giving your medicine a fair trial and it surely is doing me good and I am going to keep on taking it. I used to feel so tired in the morning that I didn't want to get up, but that feeling is leaving me now. I also sleep better and feel more like working. For seven or eight years I have had headaches, tired feelings, pains in my back and across my body. I read letters in the newspapers saying what good Lydia E. Pinkham's Vegetable Compound had done others. My husband says I quit too soon, but I am not going to stop taking the Vegetable Compound and Lydia E. Pinkham's Blood Medicine until I am better and haven't an ache or a pain. Isn't that the right way? I have great faith in your medicine. They must be good when those who take them speak so highly of them. I am recommending them to my friends and I will gladly answer to any letters from women asking about them."—Mrs. BERT H. HART, Box 1061, Cornwall, Ontario.

Mrs. Hart wants to help other women and is willing to answer letters from sick women asking about the Vegetable Compound.

nature. It is very easy to talk about co-operative marketing and to pass resolutions urging the Government to assist in the work, but one successful experiment carried on by the farmers themselves marketing on a real basis than all the resolutions that could be moved, seconded and carried in a month. It may have been on a fairly small scale that this egg pool was operated, but it was sufficient to give those who went into it a sense of accomplishment and a profit on the undertaking. Once the farming community thoroughly realizes that it can do its own merchandizing, it will see better days.

USE FOR COLD POTATO

If there is no paste on hand for the label you want to put on the trunk or bag, rub a cold potato over the back of the paper label, and it will stick as firmly as if glued.

Advertise in The Chronicle. It Pays.

RHINO Rubber Footwear is Guaranteed Better Value

Every pair of RHINO Rubber Footwear is guaranteed to be free from defects in workmanship and material.

The guarantee tag which goes with every pair means that RHINO Rubber Footwear is better—in quality of rubber and linings, as well as in the way it is made. It stands the hardest kind of wear because there is extra strength wherever there is extra strain. This footwear is made from RHINO.

"Compare the Wear"

Wm. Brigham



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Durham Machine Shop F. W. MOON, - MACHINIST



Top Left—Eugene... Below—One of the time in his...

Five peaks in the C... quered for the first... students who... guides. The student... peaks in the famous... Frederick Field and... were led by the not... Edward Puez, the... Canadian Rockies. I... have been named M... after the two Americ... The party made an... James Outram, 30, 7... and the unnamed... all this they discov... second highest peak... 12,000 feet, which... twenty-three hours... The Field House... accompanied by the... horses, and travell...

IMPORTANCE PROTECT CANADIAN

George D. McKim... the Quebec Distric... Manufacturers... asked to advise... Plover's Ass... nual language... the Tariff to... subject. He sa... "This evening... sion. I want to... tariff as it... are farmer... tenance of a... tect Canadian... place, it is... asserted that... designed to... and, to some... In past years... issue between... attempting to... professional and... erally that the... their enemy... will show that... for such a... as much, if not... the tariff than... other occupation... sider this... the farmers of... the bec and particu... vicinity of Sherb... "Taking an av... y Mrs. about 80... products of the... remains in the... consumed her... exported. That... from the prairie... the percentage... whole country... Quebec alone... what is grown... in the cities... consumed on the... ince; about 40... It is certain... portion of what... sumed on the... ssequently the... products of the... therefore, not... interests of the... that there shou... suming populat... "If the factor... the cities, down... Quebec what... ulation of these... that when a fa... or closes down... more than the... earners are af... stores, the doctor... dressmakers, mil... chers, newspape... landlords, who... population with... suffer also. The... ers do not escap... ries close down... paid to the em... less money in... earners have not... buy fruit, count... and other farm... many of these... products such... grain, vegetables... the goods which... cease operations... these materials... An Interest... "I was in Ne... week and learn... factory in a sma...