

RADIO

CHANGE POTENTIAL TO OBTAIN SIGNALS

Way in Which This May Be Done With Three-Electrode Vacuum Tube.

For every filament current there is a definite plate potential that will give the strongest signals. When using fairly hard tubes—high vacuum—bringing out taps from the individual cells of the plate of "B" battery will give variations that are fine enough. For very soft, gaseous tubes, low

vacuum, a finer regulation of "B" battery potential is required and is most easily obtained by means of an "A" battery potentiometer. Fig. 14 shows how an "A" battery potentiometer is connected in the circuit of a three-electrode vacuum tube to give fine variations in the plate circuit potential. The resistance of an "A" battery potentiometer should be between 200 and 500 ohms. By moving the slider on the "A" battery potentiometer, a variation of plate voltage equal to the "A" battery, or about six volts, can be secured. If the tube contains gas, too high a plate voltage will cause the tube to "buck-over"—that is, the gas is ionized and becomes a conductor, al-

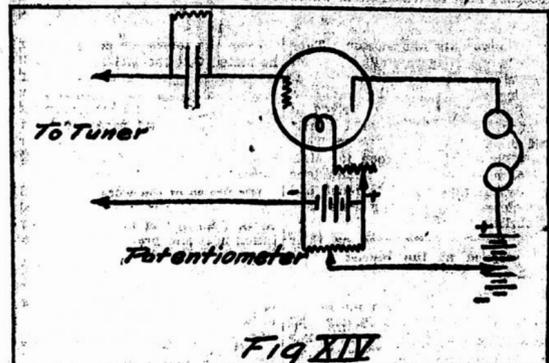


Fig. XIV

justed. The material which will be required to do this is as follows: One standard vacuum socket. One 6-10-ohm filament rheostat. One grid condenser and leak combined. Three binding posts. A source of filament current and a source of plate potential. Schematically the set is connected up as shown in Fig. 15 when used with a three-electrode tube as a detector. This set, too, can be very conveniently mounted on an 8 by 10-inch base, mounting the tube socket with the filament rheostat beside it. In a great many of the usual receiving circuits used the so-called de-

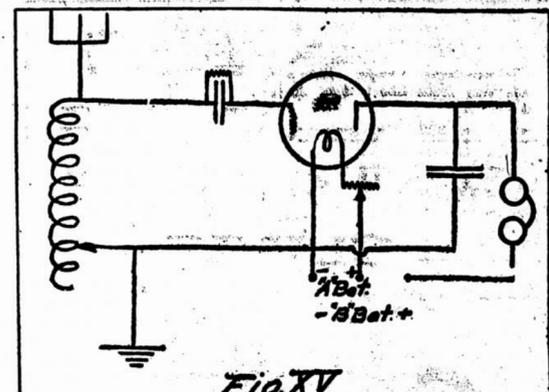


Fig. XV

lowing an excessive current to flow to the plate circuit which will destroy the elements. In using a vacuum tube circuit for the first time, always check the circuit to see that "A" and "B" batteries are connected to their respective terminals on the socket. The markings on the socket are plain and cannot be mistaken. Interchanging the plate fil-

ament leads in connecting a socket will be disastrous to the life of the filament. Note that the filament rheostat is set to place the maximum amount of resistance in series with the filament. After inserting the tube see that it is properly seated, and that the four prongs protruding from the tube base make good contact with their respective contacts in the tube socket. If, after listening in with a vacuum tube used as a detector with a rated filament current and plate potential, no signals are heard, go over the circuit carefully and inspect all connections, contacts, polarity of both the "A" and "B" batteries, and take a look at the grid condenser and leak.

A three-electrode vacuum tube can be substituted for the crystal as a detector in the simple radio receiving set described in this column a short time ago. Using a vacuum tube in place of a crystal detector will give a much louder signal, and a detector that when once adjusted will stay adjusted.

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500,000 TO ATTEND FAIR IS ESTIMATE

1922 State Fair To Be Biggest Event in Minnesota State Fair History

An attendance of 500,000 persons is expected by officials of the 1922 Minnesota State Fair, September 2 to 9—the greatest exposition in the history of this mammoth institution. The four corners of the world have been combed for high class entertainment features. The cream of the stables, flocks, and herds of America will be exhibited. A gigantic machinery exhibit twice as large as the next largest machinery show held in the world this year will be only one of a host of features. Fruits, vegetables, grains, and grasses of remarkable quality, are coming in from every section of Minnesota.

A combined exhibit by state departments, covering more than 30,000 square feet of space in one entire building, will give visitors their first insight into the work of our state government. Every department is planning an instructive exhibit showing persons just what its principal work consists of. Feature of features on the entertainment program will be Sig Haugdahl in his three-mile-a-minute car, the fastest car ever piloted by a human being. Twenty other auto racers will thrill visitors three days, Sept. 2, 6, and 9. Miss Lillian Boyer, 18-year-old Chicago school girl, will pass from automobile to aeroplane, and throw herself from the plane, hanging by her teeth in mid-air.

HUNTING LICENSES NOW BEING ISSUED IN COUNTY

H. B. and F. G. Handy are First Two to Secure 1922 Small Game Licenses

Hunting licenses for the shooting of small game are being issued at the office of the county auditor at the courthouse. The price for the same is as in past years, one dollar. H. B. Handy and F. G. Handy were the first two who applied for the licenses. Ed Sanderson, clerk of court, was a close third. It is expected that this fall will be a heavy season and that a large number of licenses will be issued. The season opens September 16th.

CHRISTINA Y. P. S.

The Y. P. Society of the Christina Luth. Church will give a social at the church Friday evening, August 25th. The following program will be rendered:

- Song, audience.
- Scripture reading and prayer, Mr. G. Bengtson.
- Vocal solo, Myrtle E. Johnson.
- Violin obligato, Minnie Fridlund.
- Piano solo, Frances Hod.
- Violin, cello duet, Minnie Fridlund and Wm. Peterson.
- Speech, Mr. G. Bengtson.
- Vocal duet, Beatrice Eckwall and Oscar Augustson.
- Song, choir.
- Violin, cello duet, Minnie Fridlund and Wm. Peterson.
- Vocal solo, Oscar Augustson.
- Pie a la mode will be served.

IN MEMORIAM

In loving memory of the late John Otterness who passed away one year ago, to day, August 23d. Just a year today, dear father and husband. Since you left us far behind. Many a sad day has gone, many a tear is shed. Your place is empty and lonely. We are longing to meet you again. Where sorrow will be no more. Where no tears will fall and No parting ever shall be. Mrs. Mathilda Otterness and Family.

STRUCK TREE

A bolt of lightning struck a large cottonwood tree back of the Boston Candy Kitchen shortly before six o'clock Sunday afternoon. The lightning ran down the side of the tree cutting the bark as it moved downward. The flash of the bolt entered the restaurant nearby and caused some commotion.

TRIPOLIS Y. P. S.

The Young Peoples Society of the Tripolis church will hold their regular meeting Friday evening, August 25. Refreshments will be served by the Society. The members are requested to bring cake. A good program will be rendered. Everybody welcome.

MOVED TO WILLMAR

Mr. and Mrs. Alfred Berg of Sunburg have moved to the city of Willmar. They have a home at 1105 Fifth Street South. Mr. Berg was the proprietor of a restaurant at Sunburg.

PURCHASED TRACTORS

Albert Nelson of Lake Lillian and Vander Molen Bros of Kerkhoven have purchased Fordson tractors from the Ford Service Station. W. J. Ruddy has purchased a new Ford coupe.

VISITOR FROM MISSOURI

Olof Mattson of Kansas City, Mo., spent the week and visiting at the Mrs. Cecilia Rodman home.

GOOD SWIMMER SEIZED WITH CRAMPS AND DROWNED

Benjie Jorgenson Drowns in Devils Lake When He Was Caught in Under Current

While in swimming with a companion in Devils Lake, near the Odessa Stock Farm, Ben Jorgenson was drowned Sunday afternoon. Though not definitely known, it is thought that after he stepped off a ledge some forty feet high he was caught in an under current and seized with a cramp, for he was known to be a good swimmer. His friend named Kunz, went to his aid, but the drowning man obtained such a strangle hold on him, he was unable to help him. Finally getting released, Kunz rushed for aid but when he came back Jorgenson was beyond assistance. Because of the high wind the body had been washed ashore.

Coroner A. E. Toomey was called but an inquest was decided as unnecessary for the affair was purely accidental. The body was brot to Devils Lake, awaiting word from relatives, who are a father and brother at Willmar, Minn., a sister Stella at Coleman, S. D., the latter arriving on Wednesday and other relatives at Sioux Falls, S. D. Ben Jorgenson was born at Coleman, S. D., on Nov. 27, 1898. Since coming to North Dakota he worked for some time at Larimore, and for the past year at the Odessa Stock Farm for J. S. Kirk. A month ago he took out an insurance policy in favor of his sister, Stella. Interment will probably be at Coleman, S. D., where his mother is buried.—The Devils Lake World.

LEFT FOR HOME

Miss Orens Anderson left last Wednesday for a visit at St. Cloud. She leaves there for her home at Ogilvie. Miss Anderson has been playing with the Hoo-Hoo orchestra the past few months. She spent the summer with her friend, Miss Virginia Nordstrom.

VISITING RELATIVES

Mrs. John Skattos left Thursday for a visit with her mother, Mrs. Cecelia Patten and her sister, Mrs. Nels Amhe at Camp Lake near Swift Falls. She will also visit her sister, Mrs. S. E. Swenson at Spring Creek in Swift County.

GUESTS FROM NORTH DAKOTA

Mrs. Curt Trullinger and daughter Vera of Carrington, N. D., were guests of Mr. and Mrs. John Gustander on Friday afternoon.

GUEST FROM HOLLYWOOD

Miss Maybelle Sheip of Hollywood, Calif., arrived Friday for a several days visit at the Arthur Erickson home.

FROM NEW JERSEY

H. N. Fredericks of Newark, N. J., arrived Tuesday evening for a visit with his son-in-law and daughter, Mr. and Mrs. C. T. Grace.

NEW FALL SUITS ARE HERE

New Fall Suits are here. Call and see them. If you buy from us, you will save some real money. We sell for cash, but we sell for less. HOAGLUND & DIFFENDORF Spot Cash Clothiers

CERTIFICATES TO 32 TEACHERS

Forty-two Applicants Took Examination in Willmar on July 24, 26

There were 42 applicants for state teachers' certificates at the examinations held at the courthouse in Willmar July 24, 25 and 26. Thirty-two were granted certificates as follows: First Grade: Alice Boreen, Spicer; Eljeen Batterberry, New London; Lydia Birkeland, Willmar; Sadie Bruna, Raymond; Stella Cronquist, Kandiyohi; Ethel M. Edgren, Willmar; Marie E. Erickson, Svea; Agnes I. Goedertz, Atwater; Hilda M. Gynild, Willmar; Inez M. Hanson, New London; Ruth E. Harrison, Kandiyohi; Anna M. Holzinger, Willmar; Noulla LeDuc, Willmar; Edith M. Lundquist, Willmar; Grace Molenaar, Prinsburg; Hulda Olson, Willmar; Anna B. Olson, Atwater; Lucy A. Peterson, Willmar; Dillon Peterson, Atwater. Edna I. Shosten, Kandiyohi; Ruby Selin, Willmar; George Sutherland, Svea; Hazel E. Swenson, Svea.

Second Grade: Blanche Batterberry, New London; Elizabeth Mow, Raymond; Ruth M. Ramstad, Sunburg; Alma Stenerson, New London; Della Tjernagel, Georgeville; Ada Thorson, Belgrade. Limited Second Grade: Leone Batterberry, New London; Lillie C. Erickson, Kandiyohi; Florence R. Oslund, Atwater.

RETURNED TO COLORADO

Mrs. A. W. Hanson left Thursday for Center, Colo. Her sister, Mrs. L. S. Nelson left the same day for Greeley, Colo., after attending the funeral of their mother, the late Mrs. O. N. Grue.

OUTING AT GREEN LAKE

Mrs. Oscar Revling and two children Alice and Dorothy and Mrs. H. E. Brem and daughter, Helen and Mrs. A. M. Olson left Thursday for a weeks outing at Green Lake. The cottage is being rented by Mrs. Revling.

VISITING IN ROSELAND

Mrs. Kate Nelson of Minneapolis arrived Friday for a visit with her aunt, Mrs. P. J. Gibson in Roseland township.

ATTENDED FARMERS CLUB

A large crowd from this city attended the Farmers Club meeting at the Priam schoolhouse last Friday evening.

GLASSES FITTED

Miss Mary Sandberg returned from a visit to her parents at St. Paul, Minn., after a visit to her home since July 1st. She was accompanied by her cousin, Miss Selma Tolstegen of Northst. who has been visiting with her the past month. Miss Clara Sawyer of Spicer also returned to Minneapolis Friday after a visit at her home since July 1st.

—Miss Amy Sandberg returned on Sunday from a weeks visit with her friends at Minneapolis, St. Paul and Stillwater.

ONE MONTHS OUTING

Mr. and Mrs. Leonard Johnson and sons Lloyd and Wallace left Tuesday of last week for Dumuth where they will enjoy a months' outing at a cottage near Lake Superior.

RETURNED TO SIOUX FALLS

Mrs. Geo. W. Morman and children returned to Sioux Falls, S. D., last Friday after a visit at the Eddy Bros. homes at Svea.

OUT OF BUSINESS

Mike Kavanaugh has lot of Firestone Tires Which He will Sell at Wholesale Prices

- 4-30x3 1/2 at \$12.50
 - 3-32x3 1/2 at \$17.00
 - 2-33x4 at \$33.00
 - 2-32x4 1/2 at \$30.00
 - 2-35x4 at \$30.50
- FABRICS:
- 1-30x3 at \$7.00
 - 5-32x3 1/2 at \$14.00
 - 1-32x3 1/2 Q. D. at \$10.00
 - 4-31x4 at \$15.50
 - 2-32x4 at \$17.50
 - 2-33x4 at \$18.00
 - 1-34x4 1/2 at \$23.00
- Advertisement.

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Gift
Where You Will Find That Distinctive Article
Pacific Ave. Willmar, Minn.

A TELEPHONE CALL BRINGS THE FACTS

If you want to know about aeroplanes you go to some one who has made a specialty of aeroplanes. Anybody can tell you what an aeroplane is not. Similarly, anybody can tell you what the great drugless health science of Chiropactic is not. No one but a thoroughly trained Chiropactor is competent to tell you the facts about what Chiropactic is and what it DOES. If you will telephone 520, Dr. Coss or Dr. Mickelson will be glad to send you informative literature, concerning Chiropactic. Simply say, "Send me the facts." No obligation involved. No effort will be made to "convert" you. This is a straightforward offer to put you in possession of the facts, uncolored by either prejudice or propaganda. Telephone 520 Today. L. E. COSS, D. C., PH. C. G. C. MICKELSON, D. C. Nelson-Hervey Block Corner 5th Str. and Pacific Ave. Willmar, Minn.

SUN DUST IS A "RADIO NET"

London Professor Evolves Novel Theory of the Atmospheric Envelopes. Electrified dust thrown off by the sun forms an atmospheric envelope about the earth about 100 miles which prevents wireless waves from escaping into infinite space, according to Prof. J. A. Fleming, University college, London, whose work in wireless is known all over the world.

The screen made by the dust, he says, acts as a sort of wireless speaking tube and enables waves used for long-distance work—which are about ten miles in length—to travel 6,000 and 12,000 miles. If it were not for that screen, according to the professor's theory, the wireless energy thrown out by the big sending towers would not cling to the earth, but would pass away and be lost.

How Big is an Electron?

One very noteworthy experiment in measuring an electron was performed by an American, Professor Millikan of Chicago. He introduced a minute drop of oil of about 1-10,000th inch in diameter in a chamber between two plates whose electrical charge was subject to control. The drop of oil was strongly illuminated and was viewed with a telescope. By controlling the potentials of the plates, the oil drop could be made to fall or rise at will. The drop continually picked up and lost electrons. As it picked up an electron it would move toward the positive plate. By carefully observing the action of the drop of oil, Millikan was able to determine very accurately the charge added to it by its picking up one electron.

TIPS FOR FANS

A meeting of representatives of stations within 300 meters of New York and New Jersey was called to prevent radio "jam" in the air. Some of the sweet things that come through must have gummed up the ether. For use across the secondary of a tuner, such as the honey-comb coils, use a condenser of twenty-three plates or less. The less capacity used in the secondary circuit, the better will the set work. If, after wiring up a set, you hear nothing but a steady hum in the receivers, you may be very sure that there is an open circuit somewhere. Trace out the wiring carefully, and some little fault will present itself. The so-called "spaghetti" tubing, if placed over bare wire used in wiring a set, will improve the appearance 100 per cent and reduce the danger of short circuits. More and more are the radio fans turning to radio-frequency amplification instead of audio-frequency. The chief reason for this lies in the fact that in radio-frequency amplification the incoming signals are amplified before they reach the detector, whereas they are rectified, while in audio-frequency they are amplified after reaching the detector. In the first method signals, that are very weak are brought in, whereas in the latter method they would probably not be heard.

First Annual Paint and Wall Paper Sale

Commencing Wed., August 30 and Ending Sat. Sept. 9

The Entire Stock On Sale

Don't miss this opportunity! Get your paint now and protect your home from the severe Fall and Winter weather.

Those rooms will need a cleaning up before you move in this Fall. You will save money by getting your necessities now.

Devco Lead and Zinc Paint \$3.10 Per Gallon

Devco Velour Wall Finish \$2.75 Per Gallon

Durable Floor Varnish \$2.78 Per Gallon

Extra High Grade Varnishes \$3.75 and \$4.00 Per Gallon

WALL PAPER

33 1/3 % Off the Selling Price

YOU WILL MAKE MONEY AT THIS SALE THESE PRICES ARE FOR CASH ONLY

JOE C. LARSON

515 Benson Ave. W. Willmar, Minn.