

THE EVENING TIMES AND STAR, ST. JOHN, N. B., TUESDAY, DECEMBER 19, 1922

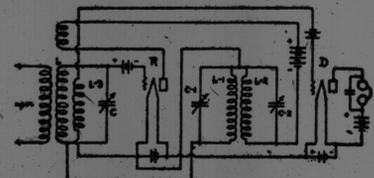
**FIFTEEN MINUTES OF RADIO EACH DAY**

By Edward N. Davis  
Formerly Technical Electrical Expert For U. S. Government

**Lesson No. 185.  
THE ARMSTRONG SUPER-REGENERATIVE CIRCUIT  
RESISTANCE AND PLATE VOLTAGE VARIATION**

Among the several methods employed to obtain Super-Regeneration, by utilization of the circuits originated by E. H. Armstrong, the method of simultaneously varying both the grid circuit resistance and the plate voltage results in exceptional amplification of the radio signal. In this circuit, as shown by the accompanying diagram, two tubes are employed, the first tube acting as a regenerator and oscillator and the second tube as a detector. Simultaneous variation in both positive and negative resistance is obtained by providing the amplifying tube (R) with a second feed back circuit (L-1) (C-1) and (L-2) (C-2) adjusted to oscillate at some lower frequency.

For interception of the incoming signal a loop four feet square may be used, on which is wound twelve turns of No. 18 cotton covered wire with spacing between the turns of one and one-half inches. For the purpose of tuning to the incoming signal the loop should be shunted by a variable condenser of 0.001 microfarad capacity and provision should be made for rotating the loop in the direction of the transmitting station whose radiated signals it is desired to receive.



A standard variocoupler is used as a tuning element with an additional layer of wire wound over the primary, this layer having the same number of turns and wound with the same size wire as the primary coil. The rotor of the variocoupler is utilized as the tickler coil and is rewound with wire having a size sufficiently small to allow the application of 100 turns which is approximately twice the number of turns provided on the rotor in general use.

For the inductance coils (L-1) and (L-2) two L1500 honeycomb coils may be used, these coils being shunted by the variable condensers (C-1) and (C-2) each having a capacity of 0.001 microfarad. These condensers have a comparatively large capacity due to the necessity of providing a bypass for the high frequency oscillations which otherwise would be checked by the high inductive effect of the coils (L-1) and (L-2). These coils should be supported on a coil mounting so that the proper inductive relation may be obtained by varying the coupling.

The plate battery of the first tube should have a potential of 60 to 100 volts which the "C" battery or grid biasing battery may have a value of 6 to 10 volts with the negative terminal connected to the grid for the purpose of applying a negative potential to the grid. The plate battery of the second tube has a potential of approximately 100 volts and the grid biasing battery of this tube has a potential of 6 to 12 volts.

The incoming signals are impressed upon the tuned circuit (L) (C) and upon the grid of the tube (R) and are amplified by the regenerative action of the feed back coupling. The tuned circuit (L) (C) is connected in series with the tuned circuit (L-1) (C-1) which is coupled to the circuit (L-2) (C-2) connected in series with the tickler coil and by means of these circuits oscillations are produced which have a frequency of 10,000 cycles per second. The regenerative action and consequent amplification of

**Blue Bird Tea**  
"BRINGS HAPPINESS"

signal is carried beyond the normal oscillating point of the tube during the half cycle when the 10,000 cycle oscillation impresses a negative potential upon the grid and at the same time causes an increase in the effective plate voltage. To produce this simultaneous action, correct phase relation must exist between the oscillations in the plate and grid circuits.

Owing to the negative resistance of the circuit the tube is on the verge of oscillating when the reversal of the 10,000 cycle oscillation causes the succeeding half cycle to render the grid positive and also to lower the effective plate voltage. This results in a flow of grid current which is equivalent to introducing a positive resistance in the circuit, this resistance being further increased by the reduction in plate voltage which causes a decrease in the amount of regeneration. The simultaneous action of giving the grid a positive value and reducing the plate voltage effectively prevents the tube from oscillating.

The reinforced oscillations obtained by the super-regenerative action are rectified by the second tube (D) which performs the functions of a detector through coupling of the grid to the coil (L). It is thus apparent that by means of the vacuum tubes, the first of which acts both as a regenerator and oscillator and the second as a detector—these tubes acting in conjunction with properly adjusted elements of inductance, capacity and source of electrical energy—this powerful amplification of radio signals is obtained by this method of super-regeneration.

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Nobles and McHugh took twenty points in the card tournament at St. Nobles and McHugh winners of the first series with a total of ninety points.

Mahony's sale at both drug stores, continues until Thursday.

Anything in baby outfit fitting, for less money at Bassett's, 14-16-18 Charlotte street.

Have you bought your season ticket for the Arena at Phonograph Salon, Ltd., 25 King Square, and Arena, Main 2267.

Wonderful bargains in hats and dolls—Quality Millinery, 120 Charlotte, Store open evening.

Select your shaving sets, strops, brushes, toilet waters, safety razors at Mahony's, Deck street and Coburg street.

Hockey boots make a useful Christmas gift very much appreciated. Men's, women's and boys in black and brown, high and low cuts at reasonable prices at The Quality Shoe Store, 107 Charlotte street.

Costly slippers for kiddies. The cutest little things you ever saw; all the fancy colors, in many different styles, 98 cents to \$1.45, at The Quality Shoe Store, 107 Charlotte street.

Emerson & Fisher have purchased 1,000 (Durham Duplex) Safety Razors, which they propose giving with cash purchases of \$1 and upwards on Tuesday and Wednesday all the 1,000 razors are all gone. These razors are real "Hip Man" razors—not experiments, but regular razors that will last for years with the purchase of a few blades, now and then. There are hundreds of thousands of these razors giving daily satisfaction all over America—the blades can be bought at almost any hardware or drug store. You need have no hesitation in passing one of these razors along as a present—with an extra package of blades, they make a real present. Get your early. 12-20

Make him comfortable with a pair of slippers. Felt, kid and leather, in grey, black, brown and red, with and without leather soles—for men—at special holiday prices at The Quality Shoe Store, 107 Charlotte street.

Will the party who loaned me the coat the night of the fire, please give me his name. I wish to return the coat and do not know who gave it to me. Geo. W. Mullin. 6187-12-20

Headaches from Slight Colds  
The Tonic and Laxative Effect of Laxative BROMO QUININE Tablets soon relieve a Headache caused from a cold. The box bears the signature of E. W. Grove. (Be sure you get BROMO) 80c. Made in Canada.

Sit down and write down how you would like to live—and how you would like to die.—Forbes Magazine (N. Y.).

Hundreds of cured patients in New Brunswick are living testimonials to his successful treatment.

Berliner Gramo-Phone Co., Limited Montreal.

Will there be a Victrola in your home this Christmas?

**Give Records**

No matter how little or how much you wish to spend, -75c-\$1.50-\$1.65-\$2.00-\$4.00 or more, - you know you are giving the Best when you give "His Master's Voice" - Victor Records.

Any "His Master's Voice" dealer will supply you with Records of your choice, packed in attractive boxes for Christmas giving.

Berliner Gramo-Phone Co., Limited Montreal.

Will there be a Victrola in your home this Christmas?

"His Master's Voice" Victor



**LOCAL NEWS**

Filled Stockings 10c to \$1.00. Wash.

"Strand Phonograph" Queen Anne design, is as beautiful musically as it is in design. Plays all makes of records. John J. Frodsham, Royal Hotel. 6012-12-20

Band Arena tonight.

Felt kid patent and suede, cosy and boudoir slippers for ladies. Practically every style and color desired; all sizes and prices ranging from 98 cents to \$2.75, at The Quality Shoe Store, 107 Charlotte street.

Do your Xmas shopping at the Padlock Pharmacy. Large display to choose from. Prices right.

\$7.50 Ivory Hair Brush for \$3.00. Washans.

Have you bought your Season Ticket for the Arena. Phonograph Salon, 25 King Square and Arena, Main 226. \$909-12-20.

A good sweater for a man makes a good Xmas gift for less money at Bassett's, 14-16-18 Charlotte street. 12-20

Anything useful or durable is the best Xmas gift for any body, for less money—Quality Millinery, 120 Charlotte street. 12-20

Mahony's sale at both drug stores, continues until Thursday.

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Have you bought your season ticket for the Arena at Phonograph Salon, Ltd., 25 King Square, and Arena, Main 2267. 12-20

Wonderful bargains in hats and dolls—Quality Millinery, 120 Charlotte, Store open evening. 12-24

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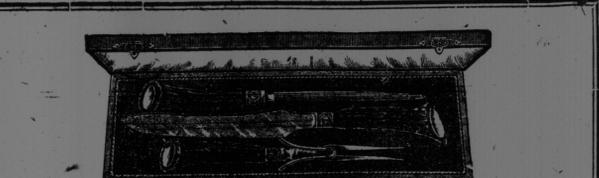
Will there be a Victrola in your home this Christmas?

**Winter Travel**

Write us for hotel and travel information

Florida, Bermuda, West Indies, California, South America, Mediterranean, Egypt and the Nile Around the World.

THOS. COOK & SON, 526 St. Catherine Street West, Montreal.



**Gift Cutlery**  
AT REAL EXTRA VALUE PRICES

Prices on practically all our lines of Cutlery equal pre-war figures. Of particular interest to the gift-seeker are our

**SPECIAL CASED CARVERS**  
made by one of the gold old standard English cutlers; and splendid value they are at \$5.00. Many others there are, ranging up to \$18.50.

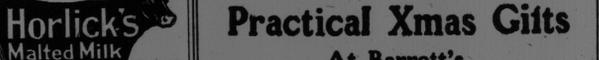
**STAINLESS STEEL CUTLERY**  
will be a most practical and appropriate gift for the housewife, who will welcome cutlery which will not discolor when used to cut acid foods and saves hours of hard work in polishing. In Stainless Cutlery we offer

**SPECIAL DESSERT KNIVES** from \$9.25, to Table Knives at \$10.75.

**POCKET KNIVES**  
are keenly appreciated by men and boys alike, for a Pocket Knife, even though it be an extra one, always comes in handy. In these we offer

**VALUES THAT DEFY COMPETITION**  
35c, 50c, 75c and \$1.00

**EMERSON & FISHER, LTD.**



**Horlick's Malted Milk**  
Safe Milk

A Nutritious Diet for All Ages. Keep Horlick's Always on Hand Quick Lunch; Home or Office.

**QUARTER MILLION LOSS IN FIRE**

Nashua, N. H., Dec. 19.—The plant of the American Box and Lumber Company in the Edgewood district of Nashua was totally destroyed by fire last night. The loss is estimated at \$250,000. Two hundred employees were thrown out of work. Traffic on the Boston and Main railroad, which runs past the plant, was interrupted by the blaze, the northbound Montreal express being held for thirty hours.

Alexandria, Ont., Dec. 18.—The business section of this town yesterday was threatened by fire, which caused damage in the vicinity of \$30,000. People in the Grand Union Hotel, one of the destroyed buildings, were forced to make a hurried exit recently clad.

Oshawa, Dec. 19.—Awakened by the coughing and crying of his four-month-old son, Robert, Joseph Blakoe, found his house filled with stifling smoke and rapidly spreading flames.

He immediately awakened his wife, who, taking the child, sought refuge in the cellar while Mr. Blakoe extinguished the blaze.

The fire started as a result of the igniting of resin from wood which had been placed in the oven to dry.

Mr. Blakoe believes that had he not been awakened by the baby the family would have perished.

H. G. Sears of Chicago, formerly of this city, was one of those instrumental in bringing about a conference on a plan of protecting Montana growers of alfalfa seed from imitation seeds. Mr. Sears took a prominent part in the conference pointing out the evil and the remedy.

Shop Early  
Glenwood Ranges D. J. BARRETT 155 Union St. Pipeless Furnaces St. John, N. B. Store Open Every Evening Until Xmas.

When Buying the Above Gifts You Pay For the Article Only and Not For the Trade Mark. When You See These Goods You Will be Convinced of Their Value.

Roasters, medium size ..... \$1.00  
Large size ..... \$1.25  
Heavy Copper Wash Boilers ..... \$4.35  
6 1/2 lb. Electric Irons ..... \$4.85  
Electric Toasters ..... \$2.75  
Oil Heaters ..... \$2.49  
Tin Pudding Steamers ..... 65c  
Large Enamel Pots ..... \$1.15  
French Gray Bread Boxes ..... \$1.65, \$2.00, \$2.25  
Large Cake Closets ..... \$3.75

**LAST DAY SATURDAY ABSOLUTELY FREE!**

THE GRAND PRIZE

**EUREKA**

VACUUM CLEANER

On 3 Days Trial—The Ideal Christmas Gift

This generous offer closes sharply at 6 p.m. Dec. 23. So act without delay. Phone, write or call and we will deliver to you, without one penny's expense, our newest model Eureka Vacuum Cleaner. It is yours for three days, use it on your carpets, rugs and upholstery and see how bright and new it instantly makes them. If you want to keep the Eureka, then you pay

ONLY \$5.00 DOWN Balance in Easy Monthly Payments

This liberal easy payment gives you a chance to own the New Eureka on the very easiest terms. But you must hurry. Our supply of cleaners is limited, and remember SATURDAY NIGHT, Dec. 23, this offer will be withdrawn. So you must act to avoid disappointment. Phone, write or call today.

**\$60**

A. Ernest Everett THE HOUSE FURNISHER

91 CHARLOTTE STREET.

