

ALMOST WRECKED STATES R. R. MAN

Stomach Trouble Had Him Nearly
Past Going, Declares Mowrer.

"Tanias has helped me to gain ten pounds," said J. E. Mowrer, 157 Park St., Akron, O., well-known railroad man.

"My stomach was in such bad fix that for several days at a time I could hardly retain any food. I had no appetite and often the very sight of food made me sick. I was intensely nervous, too, could not rest at night, felt tired and worn out all the time, and lost weight and strength until I was almost a wreck.

"Tanias has made me feel like a different man. My appetite is enormous and I haven't a sign of indigestion left. I never felt stronger. Tanias certainly does the work."

Tanias is sold by all good druggists.—Advertisement.

Her Reason.

Mary Louise and her little friend were had a falling out. Explanations were hard to obtain, but the trouble finally came out.

"What was the trouble between you and Hazel?" Mary Louise's aunt asked her.

"Aw, Hazel flirted with a boy in the park," replied Mary Louise.

"I'll bet you flirted, too," said the aunt.

"No, I didn't either. Mamma was along."

No Place Like Home.

Rub—I get so tired of eating at restaurants.

Dub—I'm married, too!

RADIO

USE OF CHOKE COIL AND TRANSFORMERS

Latter Provide the Most Practical Method of Coupling for the Amateur.

Figure XXVIII shows the actual circuit of a three-stage resistance coupled amplifier. The output of such a circuit is K times K times K the input, or assuming the amplification factor of each tube to be 10, the output would be 1,000 times the input. The resistance R is the coupling resistance whose function it is to transform the plate current variation to potential drops to be applied to the grid of the next tube.

The capacity C is simply a means of allowing the potential variations across the coupling resistance R to be applied to the grid of the next tube, yet not allowing the "B" battery applied to the plate circuit of a tube to be applied to the grid of the next. Because of using the condenser to, what one might say, insulate the grid from the "B" battery potential, it is necessary to use a grid leak, to keep the charge which collects on the grid from becoming excessive and reducing the plate current to zero.

One of the chief disadvantages of the resistance coupled amplifier is that very high plate battery poten-

assigned for maximum power amplification, while at the same time the ratio of the transformer must be such as to deliver maximum potential to the grid circuit of the next tube.

The greatest advantages of the transformer method of coupling audio frequency amplifiers are the high degree of amplification, the relative simplicity of operation, and the low plate voltage required.

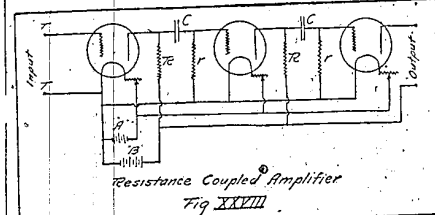
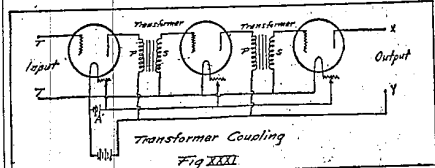
Chief among the disadvantages of the transformer coupled frequency amplifier is its size. Also the transformers amplify different frequencies to different degrees, which means that when this type of coupling is used for radio phone reception, the voice is distorted by the amplifying transformers. However, from a practical standpoint, the average amateur will have better results using transformers than from any other method that can be used with the tubes and equipment now available.

GREAT BRITAIN VS. AMERICA

Radio Amateurs of These Countries Pursuing Distinct Courses in Development of Receivers.

Two separate and distinct courses are being followed by the radio amateurs of this country and Great Britain in the development of receiving apparatus for continuous-wave telegraphy and wireless telephony. Both courses are of the utmost importance to the art, and each will exert a great influence on the future of radio communication and entertainment.

The American amateurs have gone along the lines of regeneration and amplification of audible signals, as well as development of long-distance



tials are necessary. The amplification per tube of a resistance-coupled amplifier is not as high as it is for some other methods but it is stable and does not distort the input as much as do some other methods used which give greater amplification per tube.

Resistance-coupled amplifying may be used to amplify either radio or audio frequency. A method of transforming the change in plate current of a vacuum tube to differences in potential is by means of a choke coil. A choke coil consists of a number of turns of wire wound up in a large hollow core. A coil of this kind offers a high impedance to the flow of alternating current, but has a relatively low direct current resistance.

The choke coil on account of having a low ohmic resistance, will have a smaller method of coupling, so that lower "B" battery potential can be used on choke coil coupled amplifiers and the batteries can be of smaller capacity.

The choke coil not only has inductance but a certain amount of distributed capacity. The distributed capacity of the coil plus the capacity of the plate with respect to the filament together with the inductance of the coil, give to the plate circuit a certain definite period. That is, the plate circuit is an oscillating circuit whose resonant frequency is determined by the total capacity and inductance in the circuit.

If the choke coil be made variable, it will not only serve to transform the plate current variation with maximum plate potential variations, but it will also serve to tune out unwanted frequencies. When the plate circuit of the amplifier is tuned, the resonant frequency is amplified K times, but all other frequencies are amplified to a less degree.

Another and by far the most widely used method of coupling successive tubes in a cascade amplifier is by means of transformers. The transformer method of coupling amplifiers may be considered a development and a refinement of the simpler choke coil method. Coupling tubes by means of properly designed transformers will give a greater amplification per tube than any of the other methods.

Figure XXXI shows the diagram of a three-stage transformer coupled amplifier, where P and S are respectively the primaries and secondaries of the coupling transformers. The transformer as a whole is so designed as to convert the plate current variations into maximum potential variations. The plate circuit of each tube which includes the primary winding of a coupling transformer must be

reception on short waves by the super-heterodyne principle.

On the other side of the Atlantic the British amateurs, restricted in their hobby by ultra-conservative government regulations, have turned their attention solely to radio-frequency amplification. This has given excellent results on all long and medium wave lengths but its success on shorter wave lengths has depended solely upon the expert handling of the operator, who has been compelled to use tuned coupling circuits between each of the radio-frequency vacuum tubes.

It is too early yet to tell which of the two systems will ultimately triumph, but there is no doubt that the laurels at the present moment rest upon the American amateurs through the latest achievement of their leader, Armstrong, in the production of the super-regenerative system.

SHORT FLASHES

"The enormous popularity of radio has started out a new crop of solicitors offering the stock of fake companies, with alleged glittering prospects. A general warning is being issued for fans to be on the lookout for these smooth gentlemen.

A young radio sharp at Ogdenburg, N. Y., recently heard through his set: "Come home with the car, Howard; I have to go to the store." Who can say that a set in the pasture will not soon call the cows at milking time? "Come home!" In making a regenerative set employing two variometers and a variocoupler be careful not to get the instruments too close together. If they are, the set will howl. A set of this type should be mounted in a box not less than sixteen inches long.

Dr. John J. Carty, often referred to as "the wizard of the telephone," has had added to his many complimentary college degrees that of doctor of science, Yale university. Doctor Carty, who ranks as a brilliant general in the signal corps reserve, U. S. A., was given this last honor for being a radio expert.

Sir Arthur Conan Doyle predicts communication with the dead by radio within four years. Sir Arthur is firm in the belief that within that time "we will have the direct communication that Edison hoped for" and that those who have passed beyond will "have transmitters in the line of ether and all that we will need will be the receiver."

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Calumet proved best by test in millions of Bake-Day contests. Largest selling brand in the world. Contains only such ingredients as have been approved by U. S. Pure Food Authorities.

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THAT WAS ASKING TOO MUCH

Bishop Probably Had Lead That "Much Shall Be Forgiveness" but Really, Professor Joies!

An English clergyman now visiting this country tells the story of an eminent Church of England ecclesiastic now dead, who on the occasion of the gathering of the British association, invited the members to an entertainment at his place. But he sent no card to one member of the association, who, thinking that he was the victim of an oversight, mentioned the matter to a mutual friend.

"I will speak to the bishop and make that right," said the friend. "It was a mere accident."

He did speak to the bishop, to this effect: "By some mischance Professor Joies has not been invited to the entertainment. Of course, I mean him to come."

"No, indeed, I do not," said the bishop. "Nothing can induce me to ask under my roof a man who has defended the execution of Socrates!"—Philadelphia Ledger.

The Princess Threatens. The friend of a New York girl who, some years ago, became a European princess, tells of an incident in the royal household.

The friend was just entering the princess' dressing room when she happened to overhear this colloquy between mistress and maid.

The Maid—But, madame! The Princess—If I catch you and my husband kissing a bit, one of you will have to go.—Excl. age.

A Bargain. Ad in Chicago paper—I will trade my husband, aged twenty-eight years, for a good electric fan.

Didn't Know Her Place. Mistress—"Why did you leave your last place?" Applicant—"The mistress was too independent."

10c Gives Old Capes Glow of New

Putnam Fadeless Dyes—dyes or tints as you wish.

MADE NO SORT OF APPEAL EVIDENTLY HER UNLUCKY DAY

Colored Messenger Couldn't See Where the "Sport" Came In in That Kind of Fishing.

In a government office in Washington one day a Californian was discussing on the sport of fishing off the Pacific coast.

"We all get out in small motorboats," said he, "and fish with a long line baited with flying fish. Anything less than a hundred-pound tuna isn't considered good sport."

A colored messenger had been listening with great interest to this conversation.

"Excuse me, boss," he said, wide-eyed, as he stepped up to the group, "but did I understand you to say that you were fishin' for hundred-pound fish in a little motorboat?"

"Yes," said the Californian, "we go out frequently."

"Yes," urged the messenger, "ain't you all feared you might catch one?"—Pittsburgh Dispatch.

Lack of Interest.

Mrs. Rose—"I think, Clarence, we had better move to another hotel." Clarence—"Why, my dear, we are delightfully situated here." Mrs. Rose—"I know we are Clarence, but the people here have seen all my dresses."

Woman Probably Convinced That at That Moment Her "Jinx" Was Strictly on the Job.

I was very busy upstairs with some necessary writing, and, glancing out the window, beheld Mrs. "Stay-Forever," a neighbor, coming up the walk. Calling my small daughter, I told her to tell the visitor I was not at home. She descended the stairs to do my bidding and I tipped softly to the top of the stairs to hear the conversation.

"Mother home?" inquired Mrs. Neighbor.

"No, ma'am," said my faithful child. The heavy blue beads I wore around my neck broke and rattled down in the hall like a heavy hailstorm. My small daughter glanced at the dancing glass particles and, looking up in consternation, cried, "O, rather you broke your pretty blue beads!"—Chicago Tribune.

Art Crushed to Earth.

Stanislav Szukalski, a New York sculptor, marries a Chicago girl and makes her live on a pig farm. "Sculpturing isn't very profitable," he says, "but those who raise pigs make a lot of money." Thus, once more, is art crushed to earth.—Washington Times.

Let's disarm the thermometer

MEATS and starches for the body are like fuel for the furnace.

Why not adopt for breakfast or lunch, Grape-Nuts with cream or milk and a little fresh fruit—and turn off the internal heat? Here's complete nourishment, with cool comfort.

Grape-Nuts contains all the nourishment of whole wheat flour and malted barley, including the vital mineral elements and bran "roughage," and it is partially pre-digested in the long baking process by which it is made.

There's a wonderful charm for the appetite in the crisp, sweet goodness of this ready-to-eat food, and fitness and lightness afterward, which meet summer's heat with a smile.

Your grocer will supply you with Grape-Nuts!



"There's a Reason" for Grape-Nuts

Made by Postum Co., Inc., Battle Creek, Mich.

Sure Relief FOR INDIGESTION



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They are GOOD! 10c

Buy this Cigarette and Save Money

KILL RATS TODAY



By Using

STEARNS' ELECTRIC PASTE

It also kills mice, cockroaches, water bugs and ants. It forces these pests to run from your house and fresh air. It is so effective that it kills 60 to 100 rats a day. Get it from your drug store or nearest dealer today.

READY FOR USE—BETTER THAN TRAPS

EYES HURT?



Don't ignore the danger signs of sore eyes. If you feel a burning, itching, or watering in your eyes, use Stearns' Electric Paste. It is so effective that it kills 60 to 100 rats a day. Get it from your drug store or nearest dealer today.

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