

OUR COMIC SECTION

Events in the Lives of Little Men



THE FEATHERHEADS



Felix Loves the Little Dears



FINNEY OF THE FORCE The Country Girl Can Get Along O. K.



An R. F. Amplifier Will Aid Quality

Compensates for Loss of Energy Caused by the Detector Tube.

Properly designed radio frequency amplifiers contribute not only to sensitivity of a receiving set but also to its tone quality, according to results obtained from a series of tests conducted in one of the laboratories of a large radio company.

The function of a high frequency amplifier in the latter sense may be difficult to comprehend at first, since, according to theory, it is credited only with amplification of very weak signals to a point where they are of sufficient intensity to operate the detector tube. To understand the manner in which an r. f. amplifier improves quality, a study of the function of the detector tube will be found useful.

In effect, a detector tube is really a "distortion" device since it is by distorting one-half the incoming radio frequency wave that the signal is made audible. The distortion of this incoming wave is accomplished by operating the detector tube at grid and plate voltage values where a slight positive charge will result in an abnormal plate current and a negative charged subnormal plate current with respect to the effect of similar charges on the grid if the tube were operated on the "straight" part of its grid volts-plate current characteristic curve. Thus, the incoming wave train, having positive and negative alternations, will be represented in the plate circuit in the form of abnormal plate current for the negative half and it is this difference of plate current value that causes an audible sound in the phones.

Since it is only the difference between the distorted positive and negative half cycles that is responsible for reproduction, it is evident that much of the signal strength is lost in the process—the lower half of the wave entirely missing, plus that part of the upper half lost through the opposing effect of the distorted lower half. For this reason, weak signals must be amplified before detection, if results of any kind are desired.

In the audio frequency end of the receiver it is found that, due to inertia of reproducing mechanisms, the air and, last but not least, the detector tube, considerable energy is required to reproduce faithfully musical tones in the lower register.

Powerful audio amplification will overcome the effect on inertia of air and reproducing mechanisms, but it cannot compensate for the loss of energy caused by the detector tube. The only remedy for this is amplification before detection. Thus the radio frequency amplifier comes into its own as a contributor to good audio reproduction, and the more well-designed stages ahead of the detector the better the quality at the output of the set. There is one drawback, however, in multistage radio frequency amplification, and this is due to pickup and interstage coupling between various coils in the receiver. With several stages of tuned radio frequency amplification, a receiver becomes so sensitive that coils in the set tend to act as miniature loop aerials and thus broaden tuning and destroy selectivity.

Such effects, however, are neutralized with the use of individual stage shields which not only eliminate external pickup and prevent interstage coupling, but also, by virtue of introduction into the fields of the coils, tend to stabilize still further the receiver against oscillation. Most shields designed for this purpose are made of aluminum and are so planned that the covers are mounted on the subpanel or baseboard and the can proper slipped into place after all wiring has been completed.

Low Impedance Tubes Help Audio Amplifier

An audio amplifier is greatly improved if the tubes used possess low output impedance values. This is particularly true if the amplifier coupling unit are transformers designed several years ago. This should be of special interest to receiver owners who purchased their equipment two or three years ago. The improvement in quality amplification with old type transformers was conclusively demonstrated in a series of experiments conducted at the Zetka laboratories with some of their low output impedance tubes.

Good quality radio amplification cannot be obtained unless the low notes are satisfactorily amplified, and if low output impedance tubes are used better energy transfer on low notes will be obtained. As a matter of fact, better energy transfer will be obtained on all frequencies. Usually a tube with a low output impedance has a low amplification constant, but the overall amplification of the tube-coupling unit is very seldom lowered, because with the lower output impedance and a constant load impedance a greater portion of the voltage available in the tube is delivered to the load. Use low impedance tubes in all sockets in the audio amplifier.

Deaf Made to "Hear" Through Finger Tips

The discovery that the human skin's ability to detect rapid vibrations is much greater than has previously been supposed has been made by Dr. Robert H. Gault, director of the vibro-tactile research laboratory of Smith college. Doctor Gault has been engaged for several years in experiments to enable the deaf to hear through their finger tips by touching a telephone receiver. Previously scientists have supposed that a vibration faster than 1,000 times a second was too fast to be detected by the skin. According to Doctor Gault, however, these touch organs can detect vibrations as fast as 2,700 a second. Though many of the vibrations of the voice are more rapid than this, "oo," for instance, as pronounced by the average male voice being about 3,800 a second, and "ah" 3,682. Doctor Gault says that if the skin can receive vibrations as rapid as 2,700, it is amply sensitive to understand speech. The discovery was made with an instrument called the "telerector," designed and built for his use by the Bell telephone laboratories in New York city.

His Position

Gap Johnson was trying to back away from the crossroads store with many yanks at the reins and numerous yells and oaths. His daughter sprang from the wagon and began beating the mules over the head with a club.

"Why don't you buy an automobile?" asked a salesman who had arrived during the operation. "It would save you a lot of trouble."

"I'm used to the—p'tul—trouble," was the reply. "I know how to handle these devilish mules and I wouldn't know how to manage a car."

"Well, it might save the young lady a lot of unnecessary exercise."

"Aw, she's going to get marrie, pretty soon, and needs the experience in managing a husband. Hud up, there, mules!"—Kansas City Star.

Headaches from Slight Colds

Laxative BROMO QUININE Tablets relieve the Headache by curing the Cold. Look for signature of E. W. Grove on the box. 30c.—Adv.

A Plant Punctures Tires

War continues against the "puncture weed," California's rapid-spreading vine whose half-inch thorns play havoc with motor car tires on country roads. A single vine found near Los Angeles covered a circle 14 feet across. Desperate efforts to check this troublesome plant's spread are hindered by its prolific seed, 500 to a square foot, 100 mature all year round and force a continuous battle.—Popular Science Monthly.

Garfield Tea

Was Your Grandmother's Remedy

For every stomach and intestinal ail. This good old-fashioned herb home remedy for constipation, stomach ills and other derangements of the system so prevalent these days is in even greater favor as a family medicine than in your grandmother's day.

Forbidden to Trim Beard

A history of the rise and fall of the beard would make interesting reading. Perhaps the first reference to such facial adornments is to be found in Leviticus, in which Moses gives the command, "Thou shalt not mar the corners of thy beard." In nearly all oriental lands in ancient times the beard was treasured and held in great respect.

New Type of Camera

A new type of camera with plates sensitive to light rays invisible to the human eye, can take pictures through the thickest cloud of fog.

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has been relieving coughs due to cold for sixty-one years. Soothes the Throat loosens the phlegm, promotes expectoration, gives a good night's rest free from coughing, 30c and 50c bottles. Buy it at your drug store. G. G. Green, Inc., Woodbury, N. J.

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In one minute pain from corns is ended. Dr. Scholl's Zino-pads do this safely by removing the cause—pressing and rubbing of shoes. They are thin, medicated, antiseptic, healing. At all drug and shoe stores. Cost but a trifle.

DR Scholl's Zino-pads

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Whooping Cough Relieved

This dread cough is one of the most dangerous of children's diseases. There is no cure for whooping cough. It usually runs its course, but a few drops of this well known physician's prescription will relieve the violent coughing paroxysms, and prevent vomiting. No dangerous "dosing"—nothing to upset little stomachs. Cleanses also brings a quick relief for coughs, colds, and spasmodic croup.

DR. DRAKE'S GLESSCO GROUP REMEDY

STOP CHILBLAINS

The crippling annoyance of chilblains, that insupportable half numbness and half pain in the feet caused by exposure to snow or cold, quickly relieved by Carbol. Why suffer when a 50-cent box of Carbol will take the misery out of walking? Get a box at your druggist's. Your money back if not satisfied. SPURLOCK-NEAL CO., Nashville, Tenn.

DO YOU SUFFER FROM ASTHMA?

Generations have found relief in Olive Tar. Soothing and healing to membranes of throat and lungs. HALL & RUCKEL, New York

Oil Royalty Average, Kevin Bonbrant Field, Mont. Terms \$20 cash or \$100 purchased, bal. \$ 14 install, payable on completion producing well. A. H. Campbell, Gilmore, Mont.

PARKER'S HAIR BALM
Restores Color and Beauty to Gray and Faded Hair
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For SORE EYES
Avoid dropping strong drugs in eyes sore from alkali or other irritation. The old simple remedy that brings comforting relief is here. 25c. all druggists. Hall & Ruckel, New York

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