

RADIO

VACUUM TUBE USED AS RADIO DETECTOR

How This Device Depends on Emission and Control of Electrons for Its Operation.

Readers of the radio column are urged to clip each article and paste it in a file book.

The greatest advances made in the past few years in the radio art have been due in one way or another to the use of vacuum tubes.

All of these tubes, known by a variety of names, such as radiotron, audion, seriotron, etc., depend upon the same fundamental principles for their operation.

The vacuum tube depends on the emission and control of electrons for its operation.

The electron is the smallest subdivision of matter which mankind recognizes and it carries the smallest known charge of negative electricity.

Increasing the temperature of the filament will increase the total number of the electrons emitted.

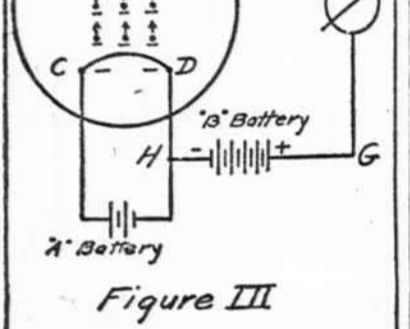


Figure III

called electrons. The apparent mass of an electron is about one-eighteenth part of that of an atom of hydrogen.

According to the electron theory an atom consists of a definite number of electrons grouped around a nucleus having a positive charge.

Suppose now that by some means an electron can be detached from the atom. Then the atom becomes what is known as a positive ion.

On the other hand if some force can be brought to bear that will add an electron to a normal atom which is neutral.

Since each electron carries a negative charge of electricity an electron represents a certain quantity of electricity.

RADIO OF 1879 DISCOVERED

Instruments and Notebooks of David Hughes, Pioneer in Wireless, Found in London.

Instruments and notebooks of great historic and scientific value to the student of wireless telegraphy have recently been unearthed in London.

For twenty years there has been stored in a furniture warehouse in London and were brought to light through the efforts of A. A. Campbell Swinton and Col. H. G. Lyons of the Science Museum.

that the space surrounding a piece of heated metal is a conductor of electricity. It has been demonstrated more recently that this is due to the release of electrons.

In a vacuum tube such as we are using at the present time, the piece of metal used to furnish the electrons is called the filament and it is usually made of tungsten.

Fig. III is a spherical glass bulb from which all the air and gases have been exhausted and having mounted in it a filament C-D which can be heated to incandescence by the "A" battery connected to it.

Since like charges repel and unlike charges attract, there will be a movement of electrons from the filament to the positively charged plate.

Increasing the temperature of the filament will increase the total number of the electrons emitted.

Radiophones on German Trains.

Wireless telephone instruments will be installed on a number of important German express trains.

ADVICE FOR AMATEURS.

The voltages applied to the plate circuits of amplifying tubes are not extremely critical.

The use of a single wire for reception is advantageous because it lessens the amount of objectional interference.

A "soft" vacuum tube is used as a detector tube and a "hard" vacuum tube as an amplifier.

The electron often talked about is the smallest known quantity of negative electrical energy.

Radio waves travel at the same speed as light, namely 185,000 miles per second.

A wavemeter is an instrument used for checking up the wave lengths of sending and receiving stations.

Gas pipe or water pipe systems may be used for grounds, the latter being more advisable.

Set That Will Not Freeze.

Jean Lecarre, a French engineer, connected with Valbot Observatory, at the summit of Mont Blanc.

Fear of Lightning.

"Lightning shy" radio fans have been worried about the possibility of dangers to the houses from the effect

SOILS IMPROVED BY COVER CROPS

Used for More Than 100 Years by Farmers Who Found Practice Profitable.

THREE PURPOSES OF LEGUMES

Universal Rule to Plant in Time to Secure Good Growth Before Freezing Weather—Of Especial Value to Truckers.

(Prepared by the United States Department of Agriculture.)

Planting cover or green manure crops is a matter which requires attention in September in most parts of the United States.

The use of clover or some other legume to enrich the soil is generally considered a cardinal agricultural practice in the humid sections of the United States.

Other legumes, as the cowpea, the Japan clover and bur clover in the South, and crimson clover on the Atlantic coast, have come into use in the territory, not well adapted to red clover.

The time of planting and the best crop to use is a matter which local conditions must dictate.

Dealers. Such a market, if it is a "producers market," furnishes an opportunity for direct dealing between producers and consumers.

The United States Department of Agriculture has given much attention to the subject of public markets.



COVER CROP SHOULD MAKE FAIR AMOUNT OF GROWTH BEFORE IT IS TURNED UNDER.

north Atlantic coast it is considered best to get these crops in from the first to the middle of August.

Broadcasting Seed is Favored. Methods with cover crops vary greatly. In the South they are customarily sowed between rows of cotton at the last picking.

Cover crops are of especial value to small gardeners and truckers, who often find it both difficult and expensive to obtain stable manure.

PROBLEMS OF AVERAGE FARM

One of the Most Important is to Arrange Work to Obtain Profit From Each Department.

To arrange the work of the farm so that each department can be made to turn a profit is one of the important problems of the average farm.

Animal Returns 75 Per Cent of Feed to Soil, Even When All of Her Milk is Sold.

GROW CLOVER TO FEED COWS

Keep the cows and grow clover to feed them on.

Work horses need a liberal allowance of feed. Oats are more than acceptable, but if corn, kafir or barley is used, horses will stay in better condition if they can be furnished with a small allowance of wheat bran.

PUBLIC MARKET AIDS BUYER AND PRODUCER

May Be Open Space Where Farmers Sell to Consumer.

Some Cities Have Erected Sheds Along Street Curbs—Supplementary Agencies to Assist in Efficient Distribution.

Open retail markets constitute the simplest and least expensive operated of all types of public markets.

The essential feature of a retail market is the restriction of purchases to consumers as distinguished from

Dealers. Such a market, if it is a "producers market," furnishes an opportunity for direct dealing between producers and consumers.

The United States Department of Agriculture has given much attention to the subject of public markets.

The bulletin discusses the function of public markets, their ownership and control, establishment and operation.

It says that public markets are not agencies to replace other means of distribution of farm produce—they are supplementary agencies to aid, under favorable conditions, in efficient distribution.

SUCKERS ON CORN HARMLESS

Many Farmers Have Mistaken Idea That Earless Stalks Are Hindrance to Growth.

Many farmers are possessed with the idea that the suckers or earless stalks which grow from an ear-bearing stalk of corn, are a hindrance to the best growth of the latter.

BEEES ARE VERY PROFITABLE

Common Honey Gatherer Is by Far Best Carrier of Pollen—Scatter Through Orchard.

The common honey bee is by far the best carrier of pollen and it will pay the fruit grower, to keep bees, even though he may not care to go into the honey business.

UNDESIRABLE SOIL-FAW.

"Daughter," said the old man sternly, "I positively forbid you marrying this young scoundrel! He is an inveterate poker player!"

"But, papa," tearfully protested Alicia Hortense, "poker is not such an awful habit. Why, at your own club—"

"That's where I got my information, daughter. I'll have no daughter of mine bringing home a man that I can't beat with a flush, a full house and fours."

Home Millinery.

Blouses of silk that are hopelessly worn under the arms or even spotted often make over into good-looking hats.

Party Bags Are Dainty. One of the most charming accessories for the dance costume is the dainty party bag of soft silk or chiffon, with flowers forming the flat bottom portion.

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THE KITCHEN CABINET

We are not always glad when we smile. For the heart in a tempest of pain may live in the guise of a laugh in the eyes.

Open retail markets constitute the simplest and least expensive operated of all types of public markets.

Bran Layer Cake.—Take one quarter cupful of butter, add one unbeaten egg and fill up the cup with sweet milk, stirring enough to mix.

Bran Jelly.—Sift bran into boiling water, stirring till it is like gruel. Cook slowly two hours, strain through a fine sieve and repeat.

Rhubarb Pudding.—Place sufficient sliced bread buttered to serve the family in a baking dish, cover each slice with chopped rhubarb, sprinkle with sugar and nutmeg and repeat until the dish is full.

To be what we are, and to become what we are capable of becoming, is the only end of life.

Savory Dishes. Now that the mushroom is growing in the fields a few dishes to remind us of its worth, are in season:

Scrambled Eggs and Mushrooms.—Break into small pieces one pint of fresh well-cleaned mushrooms. Sprinkle with salt and let them stand 30 minutes.

Corn Fritters.—Put the contents of a can of corn through the meat chopper, add two well-beaten eggs, two or three tablespoonfuls of milk and two tablespoonfuls of flour.

Curried Eggs.—Take six hard cooked eggs. Peel three large onions and cut them in thin slices, put them with two tablespoonfuls of butter in a saucepan and cook until soft.

Mutton With Dumplings.—Take three pounds of the breast of mutton, simmer until tender, then set aside to cool; skim off all the fat, return the mutton to the liquid, add one or two onions finely chopped, salt, pepper and a little curry powder if liked.

Niece Maxwell. Undesirable Soil-Faw. "Daughter," said the old man sternly, "I positively forbid you marrying this young scoundrel! He is an inveterate poker player!"

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"What Shall I Take Along?" Cool Frocks for Summer

THE question that looms up for settlement, now that vacation days are here, is: "What Shall I Take Along?"

Midsummer calls out, along with satin butterflies and gauze-winged dragon flies, the sheers and loveliest afternoon dresses that grace the year. They are scattered everywhere for women find an opportunity in these airy fabrics to indulge their inborn love of daintiness and color.

For several seasons past, as manufacturers have broadcasted adobly

for the plaited skirt. The coat has only one fastening, at the neck, but is provided with a narrow belt with short hanging ends. Either of these suits, or both of them, will serve for nearly every need of the tourist.

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Two Clever Models in Tailored Suits.

ing and undressing to their heart's content. But vacation, to most of us mortals, means a sight-seeing journey, a visit to the country, or perhaps a retreat to the wilderness, and gladly we leave behind us everything that will not be positively needed.

When the wardrobe is brought down to the irreducible minimum, the tailored suit is its main dependence. Wherever we go the suit goes too, together with blouses, and one may choose a street or sports model for traveling and general vacationing. Examples of these two styles are shown

pretty frocks of organdie, swiss, voile and other sheer materials, they have stimulated a demand for them that is now universal.

As the days grow hot, color combinations that are cool-looking come to the fore in these thin dresses. Two of them, as shown here, reveal this bit of welcome artistry on the part of the designers. White organdie and dark blue swiss, dotted with white, is a familiar and well-loved combination—an old friend in a new guise, which appears in the dress at the left of the picture. The dress is made of the



Cool-Looking Summer Dresses.

ere. The dark blue model, trimmed with braid, as pictured in the foreground, is a piece of original and good designing. Its short loose coat, with long revers at the front, fastens with three buttons below the waistline and looks very cool.

The skirt is plain and short enough to suit the most seasoned globetrotter. Navy blue tulle is a perennial favorite and vindicates its choice everywhere. In the other suit a plain hanespoun makes the sleeveless coat with a cape, bound with a striped material which is used

swiss with apron overskirt, collar, cuffs and sash of organdie, appliqued and banded.

Our old, distinguished, midsummer acquaintance—the black and white combination—appears in the dress of white voile with inlays of checked tissue, on the lady taking tea.

Julie Bottinelli

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