

fresh meats



"Never Ate Such A Delicious Steak!"

Our customers tell us the same story over and over again.
U. S. inspected stew beef.
Try us the day you are expecting company. You'll become one of our boosters, also.
We give quality as well as quantity.

LOLL'S

Both Phones Free Delivery

Need A New Range

Kitchen Hardware and Cooking Utensils
Paint to Brighten up the Furniture
Farming Implements

See our new and complete line of these articles

ALEX McNAIR & CO.

Tillamook, Oregon

Friendship and Finance

The Prosperity Of Our Depositors Is Of Great Importance To Us

We want you to deposit
FRIENDSHIP
as well as
MONEY

when you start an account with us.
Your interests will be protected and you will be assured of OUR Friendship in return for your Confidence.



Tillamook County Bank

Our classified ads bring results

CHIROPRACTIC
THE BETTER WAY TO
HEALTH
Forest L. Howard
CHIROPRACTOR
Graduate nurse in attendance
211 Tillamook Building
Both Phones

REVERE
TIRES
&
TUBES
The economy of
Revere Tires & Tubes
makes them the year
'round standby of
experienced motorists
C. F. PANKOW, Tillamook
BEAVER GARAGE &
HDWE CO.
Beaver
H. I. SHELDON, Garibaldi

We use
CALOL FLUSHING OIL
AND
ZEROLENE
Look for the Sign!
Modern Crankcase
Cleaning Service helps to keep
your engine in prime
condition. Safe—thorough—
correct.
STANDARD OIL COMPANY
(California)

"111"
cigarettes
10¢
They are GOOD!

Dinner is Served

HERE is always something mighty good waiting for you to eat—tender roasts, delicious vegetables served in the most appetizing ways, creamy, fluffy potatoes, piquant salads and dainty desserts.
Have breakfast, lunch or dinner with us. You'll be delighted with the excellent food, the quick service, unfailing courtesy and unusually reasonable prices.

TOURIST CAFE

Fishermen must see the new Evinrude motor on display at the store of Eugene Jenkins. It is something new in the way of outboard motors. Adv. 37
Pollyanna Shop, Eastman & Bales, proprietresses, beauty creams, gifts, needlecraft, children and baby specialties. Across from Tillamook Hotel. 36-1f

WHY WORRY

I can sell or trade anything—anywhere C. W. Millership, 165 1/2 4th St., Portland. Phone Main 5275 20-1f

Brighton wood for sale. John Mathers. 37-1f

FOR SALE—Light team, wagon and harness for sale cheap. Inquire V. M. Stewart, Netarts, Oregon. 39-13

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 articles printed are continuous and the entire series will be valuable for reference.

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. In view of this fact a more careful consideration of them will be of interest.

All of these tubes, known by a variety of names, such as radiotron, audion, seriotron (trade names of the manufacturer) depend upon the same fundamental principles for their operation. For the sake of simplicity of brevity these will be referred to in this column simply as vacuum tubes. A vacuum tube can be made to function as a detector, as an amplifier, or as an oscillator.

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. For years previous to electron research it had been held by scientists that matter was built up of distinct particles or units which they called atoms and molecules. At first the molecule was assumed to be the smallest quantity of matter that could have a separate existence or take part in chemical action, but more vigorous research pointed to the fact that the molecule is made up of still smaller elements which are termed atoms; that is, a molecule may be composed of several atoms. Then for a time it was assumed that the atom was the very smallest quantity of an element that could exist, but later researches have revealed that atoms may be further subdivided into particles

FRISCO TALKS TO HONOLULU
New Radio Station at the Presidio Can Be Heard Half Way Around the Globe.

"Hello, Honolulu."
That may sound like fiction, but it is a reality, nevertheless.
The new radio station at the Presidio, San Francisco, with aerial conditions right, can be heard half way around the globe. Officials in charge of construction declare it to be the most powerful vacuum tube transmitter on the Pacific coast.

Located on the highest point in the Presidio, overlooking San Francisco bay, two 150-foot aerial towers to augment its efficiency, the new station will command similar stations in Salt Lake City and Cheyenne.

Radionophones on German Trains.
Wireless telephone instruments will be installed on a number of important German express trains, and receiving instruments will be placed in hotels and embassies, according to an announcement made recently. Experiments conducted in a moving freight car have shown that the wireless system works well, the men engaged in the testing of the instruments being able to hold conversations with friends in Berlin. The tests were made under the observation of engineers, military attaches and the diplomatic representatives of the United States and Sweden.

Handling Vacuum Tubes.
When you handle the vacuum tubes of your receiver great care should be exercised that they are not knocked about or that the elements are broken. These little lamps are the heart and soul of the set. A good way to operate these tubes is to keep the glow just a little below the critical point.

ADVICE FOR AMATEURS.

The voltages applied to the plate circuits of amplifying tubes are not extremely critical and one voltage control will suffice. The detector tube, however, is often very critical and an efficient potentiometer will work wonders in controlling it. Apparatus used for the reception of broadcasting is exactly the same as that used for the reception of code signals. The transmitting equipment, however, is different.

The use of a single wire for reception is advantageous because it lessens the amount of objectional interference in the way of static. It is equally as good as a multiple wire system for reception.

Defective "B" batteries will often cause roaring in the telephone receivers.

The electron often talked about is the smallest known quantity of negative electrical energy. In motion it makes up the electric current.

A "soft" vacuum tube is used as a detector tube and a "hard" vacuum tube as an amplifier. The terms "hard" and "soft" refer to degree of evacuation.

Radio waves travel at the same speed as light, namely 186,000 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.

Lightning protection secured by grounding the antenna when not in use is essential and is required by the underwriters.

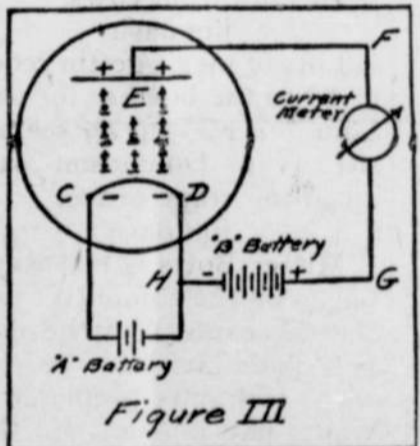


Figure III
called electrons. The apparent mass of an electron is about one-eighteenth part of that of an atom of hydrogen which is the smallest of the chemical atoms.

According to the electron theory an atom consists of a definite number of electrons grouped around a nucleus having a positive charge and so long as none of the component electrons are driven from the atom, the latter possess no detectable charge. The positive charge on the nucleus is said to be exactly neutralized by the negative charges on the electrons grouped about it.

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 and it exhibits the properties of a positively charged body, or in other words since an electron which carries a negative charge has been removed from the atom which has equal positive and negative charges, the portion of the atom now remaining has a deficiency of negative charge and acts like any positively charged body.

On the other hand if some force can be brought to bear that will add an electron to a normal atom which is neutral as far as electrical charges are measured, the result will be a negative ion, which will possess all the properties of a negatively charged body. An atom then which has a deficiency of electrons is called a positive ion and one having excess of electrons is called a negative ion.

Since each electron carries a negative charge of electricity an electron represents a certain quantity of electricity. Forcing electrons to move from one point to another causes electricity to flow. The ability of any medium to conduct electricity or allow a current to flow through it depends upon the number of free electrons available as carriers of charges.

It has been known for many years 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 and that if an incandescent metal be placed in a bulb exhausted of all gases, pure electrons will be liberated from the incandescent metal.

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 is usually made of tungsten and sometimes is coated with oxides to increase the electron emission. For convenience the filament of a vacuum tube is heat-

ed by a battery current and it is this heat furnished by the battery current that constitutes the force that disrupts the atoms of the filament and liberates electrons.

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, and the metallic plate E. When the filament C-D is heated to incandescence by the "A" battery connected across its terminals electrons are emitted. Connecting the cold plate E to the incandescent filament C-D by means of the circuit E-F-G-H which includes a current meter and a "B" battery, with its negative side connected to the filament lead at H and its positive side connected through the current meter, the plate becomes electrically positive with respect to the filament.

Since like charges repel and unlike charges attract, there will be a movement of electrons from the filament to the positively charged plate, and the current meter will show a deflection which indicates that a current is flowing in the circuit E-F-G-H.

Increasing the "B" battery voltage causes an increase in the current flowing in the circuit E-F-G-H, the plate circuit, until the positive charge on the plate E is so strong that all of the electrons given off by the filament are attracted to it. Assuming that the temperature of the filament is kept constant and that the plate voltage has been increased to the point where all of the electrons given off by the filament are attracted to it, any further increases in the "B" battery voltage will not cause any increase in the current in the plate circuit.

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

You may increase your engine power 20%

Too heavy an oil, or one lacking in certain qualities, may reduce the power delivered to the wheels of the automobile as much as 20%.

The ideal oil is the thinnest oil which will keep the bearing surfaces of the mechanism separated.

Providing this oil has "oiliness," stability and purity, it will give perfect lubrication, and permit the development of the maximum power, speed and gasoline mileage of the car.

"Oiliness" — Stability — Purity

Zerolene meets the conditions perfectly. It has great "oiliness," due to the crudes from which it is made, and our own patented process of high vacuum distillation.

It has great stability, as a result of which it resists engine heat and forms only a minimum of carbon of a soft, flaky nature which blows out with the exhaust.

And it is pure. This company has always considered the removal of all detrimental properties and compounds as essential in making Zerolene.

Zerolene of the correct grade gives perfect lubrication and permits the development of the maximum power, speed and gasoline mileage of the car.



more power & speed ~
less friction and wear ~
thru Correct Lubrication



Buick Service is Rarely Needed But Always Available

Buick prides itself upon the fact that Buick owners have the uninterrupted use of their cars to an unusual degree.

This is due first to Buick quality and next because of Buick's nation-wide authorized service. Go where you will, you will find this service.

Whenever you see the Buick authorized service sign, you will know that you can get the genuine Buick part that you need—that your work will be done by Buick-trained mechanics and that you will be on your way again in the shortest possible time.

C-15-48

SUNSET GARAGE



KNOWN TO YOUR BANKER

THE Wise man is frank about his financial affairs where his banker is concerned. He knows that when the cards are laid on the table, the banker can advise him unprejudicedly.

It is a good thing to be "known to the banker," and those customers who get most from their connection with the First National are those who bring their financial and business difficulties and problems to them.

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TILLAMOOK, OREGON