THE SUNDAY OREGONIAN, PORTLAND, JULY 9, 1922



nounced that he could use the light ing system for an antenna in con nection with his "wired wireless he started a number of rabid radi amateurs to experimenting along dangerous paths. The house lighting system carries a heavy current of electricity in its circuits and is not a particularly safe thing for the person without the knowledge of electrical laws to fool with. Despite warnings from electrical inspectors and engineers hundreds of persons literally took their lives in their hands when they hooked up their sets to the light wires haphazardly to see what would happen

Luckily no fatalities were re ported. Outside of a blown fuse two and a burnt out tube nothing

else happened. The experiments were not successful. If they had strating successfully the use as an antenna for the reception of would have found that the light cirthey the radib concerts by the addition of a new device which has appeared on the market. It is a simple title thing and plugs into the nearest light socket. With the use of this device the lighting mine are being a set to the lighting wires is based on a condenser which

device the lighting wires can be at-tuched safely to the receiving set and concerts received practically as well as with the usual antenna. Since the beginning of radio in-ventors and scientists have received.

RADIO QUERIES AND ANSWERS

Editor Radio Waves and Ripples: Will small for an antenna. Do not

next.

ventors and scientists have racked their brains to find a suitable sub-stitute for the antenna. In order to lighting wires as an antenna is make radio absolutely practical the made safe and practical. It will be unsightly outdoor antenna hanging but a short time before all outdoor poles must be eliminated.

It will be from the chimney tops or crude antenna will have been entirely eliminated and radio made General Squier, head of the practically for all purposes and un-United States signal corps, an- der all conditions.

S. RADIO EXPERT INVENTS AMPLIFIER WHICH ELIMINATES USE OF BATTERIES

P. D. Poweli, Employe of Bureau of Standards, Perfects New Device for Wireless, Enabling Operator to Connect Up With Ordinary Electric Light Socket and Simplify Apparatus.



P. D. Powell, radio expert with the bureau of standards, demonstrating his new amplifier, which can be connected to the ordinary electric lamp socket, thereby eliminating all present batteries.

Editor Radio Waves and Ripples: Will support and a condenser, one detector tube and addressed en-ceives 200 miles with? I want to make in gards, etc. I would like to know what sparis etc. I would need to gst, the best result. H.L. S., Portland, Or. B. Under very favorable condi-tons you may hear the Portland sta-tions you may hear the Portland sta-source a vacuum tube detector will head to you on the receipt of a stamped and addressed en-velores is necessary for yood recep-RADIO receiver in which the tially of an amplifier with minor only a slight residual hum which is

condenser, one detector tube and a 22 1-2-voit B batterr. For the am-plifier you will need two vacuum tube holders, two filament rheostates tube holders, two filament rheostats, two amplifying transformers, two amplifier tubes and a 45-volt B bat-Editor Radio Wayas and Bior

amplifier tubes and a 45-volt B Dat-tery. A six-volt 100-ampere hour storage battery will be required to light the filaments of the three tubes. Editor Radia Waves and Ripples: 1. Where is the best place to connect a variable condenser in a set composed of the following: Crystal detector, tuning coli, fixed condenser across the phones and a loading coli? Please publish hook-Editor Radio Waves and Ripples

and a roading control please publish hear
2. Why is it that I can hear all the local stations plain but K. G. N.?
3. Give information for making a sending coll?
4. Is No, 26 wire all right for winding a loading coll?
5. Place the variable condenses in series with the aerial circuit or 3. Yes

battery which is necessary for ine has been practically eliminated by lighting of the tube filaments. Mr. Powell, recognizing this, began to experiment along lines which would abolish the storage battery in radio use. The new amplifier eliminates both filament and plate batteries. The receiving set consists essen-

up for a vacuum tube set capable of re-ceiving at least 250 miles? 3. Please show how a loud speaker could be connected in later on. 4. Does your station use continuous waves in sending? 1. For the best results the agrial chould be directly over the instru-

the various departments of the col-lege. This will be supplemented by \$500 voted by the Pullman commer-cial club. Some of the equipment will be ordered at once and the rest as rapidly as possible, accord-ing to H. V. Carpenter, dean of the college of engineering, who with Homer J. Dana, special experimental engineers of the college, and Harold Vance, president of the All-Engi-neers' club, is in charge of the in-stalistion of the station. It is pointed out that more than \$4,000 receiving sets are in operation in Washington and Oregon, while the station will be of sufficient power to reach all of the western states. Glee glub concerts, lectures and news service will be broadcast from the new station. various departments of the co.

from the new station. Increased public interest in radio has caused dealers and others handling radio equipment to request the establishment by the bureau of standards of a series of tests for apparatus. Such a standard has been agreed upon, and will be put in force as soon as practicable. This is ac-cording to a bulletin from the United States department of commerce.

States department of commerce. The tests outlined will include examination as to materials and work-manship of construction, mechani-cal and electrical design, simplicity of adjustment, ruggedness, sensitiv-ity, sharpness of tuning, wave length range and faithfulness of reproduction in radio telephone re eption.

It was proposed to the bureau of standards that all manufacturers of radio instruments be required to mark them indicating the receiving radius of the equipment under various atmospheric conflitions. It was pointed out by experts of the bu-reau, however, this would be impossible owing to the large number of factors which enter into the determi-nation of the range over which signals can be received by a given set

Electricians Create New, Keener Demand for Mica.

A RADIO receiver In which the tially of an amplifier with minor and observe the apare which has been prepared of the aparement of commerce. The applification obtained with d. e. supply was as good as that observe the amplifier, which constructed operated most satisfactor of the ordinary elections interference. This is described in a single tuner. It may be used with any kind of an antenna. The 50-cycle current when used in type vacuum male amplifier is the so-cycle current when used in type vacuum male amplifier is the so-cycle current when used in the grave a strong 60-cycle note which is necessary for the fighting of the tube filaments. Mr. In the so-cycle current when used in the reception of damped waves as down awkward storage has been practically eliminated by has been rupt; but there's more demand for it now than ever before, says the United States bureau of mines. Anyway, it was not isinglass at Badio Records Shattered **Radio Records Shattered**

Anyway, it was not isinglass at all in the front of the stove. Had it been, it would have lasted as

WORN-OUT PARTS ARE USED TO MAKE GOOD RADIO SET

Castle Rock, Wash., Invalid Converts Discarded Machinery Into Perfectly Good Receiving Station.



SET CONSTRUCTED BY ELLSWORTH PRICE.

A NEXAMPLE of what the radio amateur can do with sundry electrical apparatus which has been thrown away as unfit for longer use, is shown by the com-plete and efficient receiving set constructed by Ellsworth Price of several California stations have Castle Rock, Wash., a short time been heard often. Price is an invalid and derives a

Castle Rock, wash, a short the been heard often ago. At a small cost, Price bought a lot of broken down electrical ma-chinery and made a complete re-ceiving set from the parts. The set is a short wave regenerative of the single circuit type as described in circuit as a substrained as a substra

child "

little miss answered, "seven." Al-though somewhat perturbed, the mother made no comment upon the remark of her little daughter, bu sent her out to play. After the minister had left, the child was taken to task and asked why she had said there were seven children Ethel replied: "Because I didn't want him to know that you were s poor that you didn't have but on

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Editor Badio Waves and Ripples: 1. Are the Brandes phones reliable? 2. Will No. 25 double cotton covered copper wire do for the winding of the variometer that you described in your issue of June 11? 3. How far will an induction coll and

issue of June 117 3. How far will an induction coll giv-ing a 6-inch spark send? How far, with one giving a 10-inch spark? How far with one giving a 1-meter spark? V. T., Portland, Or.

1. The Brandes are one of the

reliable makes in use today. Would not advise the use of

smaller wire in winding the de-scribed variometer. Smaller wire smaller

scribed variometer. Smaller wire has too great a resistance to the oscillatory currents and would thereby weaken the siggals. 5. The distance a certain coil will carry is not measured by the size of the spark. The modern spark transmitting stations use but a comparatively small voltage of bethaps 10.000 to 15.000 to

will carry is not measured by the size of the spark. The modern spark transmitting stations use but a comparatively small voltage of perhaps 10,000 to 15,000 volts with a large current. The spark is small in comparison to the induction colls but, because of the large current, travel much farther in the ether than the high voltage and highly damped spark of the induction coll. Editor Radio Waves and Rippies: 1. Which would a the the coupler or a

an automobile crystal receiver? AN OLD RAIL FAN. Timber, Or.

variable et al. and the set of th

1. Either the variometer or variocoupler in combination with a crys-tal detector will make an efficient set for a short range of perhaps up

long-distant stations with a crystal set. Now and then one hears of such a "freak" happening, when extraordinary receiving conditions prevailed, but for regular work crystal sets cannot be depended upon for more than 25 miles at the most .

Editor Radio Waves and Ripples: I have constructed the variometer de-scribed in The Oregonian of June 11. Dees the lead from the stator connect to the aerial and the lead from the rotor to the scould wise?

to the ground wire? 2. Will it be all right to place the condenser directly beneath the vario-

4. There will be little difference A FAN, Portland, Or. noticed. 5. From 0 to.600 meters. 6. Several inches away will do

Coil No.2 100 Turns

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be made by the United States de-partment of commerce on July 11 and 12 is to be established as a permanent practice. This is promised in a bulletin by the department of commerce, which announces that on the above dates mess men will be held in Boston and Baltimore and during the two con-stantly informed by radio of news of foreign markets and trade op-portunities received from abroad by the department of commerce. The statts new will be broadcast by the United States navy radio station at Arling-ton, one of the most powerful in the

SIMPLE DEVICE AMPLIFIES

RECEPTION FOR RADIO SET

Little Transformer Example of Phenomena of Electricity Which Takes Small-Voltage Currents and Develops Higher Power.

THAT little device known to the Coil No.1 10 Turas radio fans as the "amplifying transformer," which performs no trifling function in strong re-++++> production of radio music, is an example of the great phenomena of electricity termed "induction." It is nothing more than a "step-up"

1. Yes. 2. Yes. 3. They are placed between the them into currents of small voltage and turns them into currents of higher volt-10 Votta so that the rotor coil can easily re-volve in and out of the stator. engine is also an amplifying trans-former which takes the six volts of

the storage battery and turns then into a current of several thousand volts, which will cause a spark to

a. The backup has been mailed a backup has been mailed b and b anddb and b an

value, the "muscovite," or white mica, and the "phiogopite" or am-ber. India, Canada and the United States are the chief producers. states are the chief producers. Mica possesses a combination of special qualities which is found in no other substance, consequently no satisfactory substitute has been found. Chief among these quali-

electric

slides.

Its ability to withstand strains

and shocks, combined with its trans-parency, has led to wide use in mo-tor goggles, spectacles, divers' helmets, smoke helmets, compass

to the industry than all the rules the underwriters might promulgate five years. The practice of radio in itself is

perfectly safe. Danger is only pres-ent in outside agencies and then only through heedlessness or ignorance in the installation of radio does more harm to the industry than all the rules the underwriters

might promulgate in five years. The promulgate in five years. The practice of radio in itself is perfectly safe. Danger is only pres-ent in outside agencies and then only through heedlessness or igno-rance of first principles electric heaters, flatirons, tele-phones, etc. As a heat-resisting, transparent medium, sheet mica is still used in furnace sight holes, for heat screens, lamp chimneys, canopies and shades, particularly for gas mantles, also for military fanterns and lantern wides. rance of first principles. . . .

Extraordinary possibilities unfold themselves as the result of Major Edwin H. Armstrong's recently anounced super-regenerative circuit. If, as its inventor claims, it will amplify the ordinary receiving set 100,000 times, and thus dispense with ampiny the originary receiving set and thus dispense with all necessity for an agrial, it is like-ly to have as great an effect on re-ception as his famous "feed-back circuit" had on transmission, to which it is now considered indis-covite are used extensively in pho-necestic

In de nographs as sound-producing de-vices. Such sheets are also used in other sound-detecting devices, such pensable. In demonstration Major Arm-strong proved that a signal which could barely be heard by the ordi-nary regenerative set equipped with an anienna at the most critical zero point, could be heard all over the

<text><text><text><text><text><text><text><text><text><text><text><text><text><text><text>

found. Chief among these quali-ties are elasticity, toughness, flexi-billity, transparency, ability to with-stand excessive heat and sudden changes of temperature, high dielec-tric strength, cleavability and re-sistance to decomposition. An important use of electrical mica is for inter-leaving between the copper segments of commuta-tors. Thin films are used in vast numbers in condensers, for magne-tos and in wireless apparatus. As sheets in greatly diversified shapes, or as washers and tubes mica is TAKE A or as washers and tubes mica is used extensively as an insulator in dynamos and in various appliances,

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