HEWORLD OF RA

New Regulations for Radio Urged

The broadcasting situation has been everything but good in the last 60 days, and it seems as though it will get worse instead of better unless the Department of Commerce can act in the matter to formulate some workable play whereby the overlapping of wave lengths is eliminated.

It is requested that all who experience howling and squealing, due to overlapping or heterodyning, write their complaints to their radio supervisor, or direct to the radio division of the Department of Commerce, to get a sufficient number of complaints to influence congress, in order that a law of some kind can be enacted to give the department authority to cope with the situation.

The number of broadcasting stations in the United States now exceeds 590, of which there are 175 class "B" stations, which are allowed wave lengths between 286 and 546. The rest are below 286 and down to 205 meters. One can readily see what causes the tremendous howling on these lower wave lengths, and also many of the intermediate wave lengths, where there are two or more stations closely allotted.

It is impossible to place 400 stations in a band of wave lengths from 205 to 286 and still have ideal broadcasting reception. Even the idea of separating 175 stations between 286 and 546 is absurd. However, the deparment cannot refuse licenses with the present laws which are in force, and it is its hope that it will be given a law which will force stations either to divide time or quit operating.

The future of radio broadcasting depends entirely on the radio public.

Reason for Howls.

The average human ear can hear frequencies of 15,000 to 18,000 cycles, beyond this the frequency, or pitch, is too fast for the ear to de Care should be taken to run every wire exactly as shown, not only to save time in wiring the instrument, but to tect.

Care should be taken to run every wire exactly as shown, not only to save time in wiring the instrument, but to tect.

The reason we get howls on some wave lengths and not others is because there is another station very close to this wave length which would add efficiency. Every piece of half-inch band is made at each end course a howl known as "beat note".

The receiver here described em-brackets are made from one-eighth of mounting type, or Walbert panelite, single hole mounting type.

One auto dashlight socket, nickel, flush-mounting type, or Walbert panelite, single hole mounting type.

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One auto dashlight socket, nickel, flush-mounting type, or Walbert panelite, single hole mounting type.

One auto lamb, 2 cp., 6-volt (red if panelite), or walbert panelite, single hole mounting type.

One strip bakelite, 3-16x1x7 inches. causes a howl, known as "beat note." apparatus has been thoroughly tested of the bracket, as shown in the detail

Two strip bakelite, 3-16x1x7 inches.

Two strips of bakelite 3-16x1x7 inches. This station may be either above or in actual practice.

The pitch of the whistle or howl is entirely governed by the difference of the two tured sets, and has many refinements and a hole is drilled bushar wire.

The receiver can be built for a fractured to mount the panel on the brack-graved tops for A and B batterles.

The receiver can be built for a fractured to mount the panel on the brack-graved tops for A and B batterles.

Five binding posts, Eby type, with ending posts

wave lengths. If the stations have wave lengths circuits. Any departure from appaof, say, two meters apart, the howl ratus specified will result in loss of will be low pitched, but if the stations the perfect balance necessary for are five meters apart, the howl will satisfactory results. be very high pitched, and so the Before commencing the receiver, farther apart the two interfering wave obtain all of the parts, even to the lengths are, the higher the pitch, un-smallest items. Equip yourself with a til it is so high that the human ear soldering iron, non-acid soldering cannot detect it. This is the ideal paste and solder. It is essential that separation of wave lengths.

For example, we will take the sta- under all binding posts of sockets, tion WHAS on 400 meters. When transformers and rheostats. there are no other stations broadcasting we get station WHAS clear and loud, but if WOR, on 405 meters, sary: A pair of long-nosed pliers. starts up, we get a howl. Why? Be blunt-nosed pliers, small side cutting cause WOR is only five meters' dif- pliers, a small and large screwdriver, ference, or 9,000 cycles, which repre- a small hacksaw, a hand drill, a cen sents a very high pitched note. Now, ter punch and a scriber used for if WOR was, say, 10 meters, which marking the panel. It is best to lay through the center for the short mais 18,000 cycles difference, the pitch out the front panel template on a chine screws used to mount the subwould be too high for the ear and piece of heavy paper or cardboard, panel to the brackets. The brackets we would then have the proper sepa- carefully measuring the distance beration of wave lengths or frequencies. tween all holes to be drilled, and all of the instruments can now

To amplify this analogy, we will in. Make the template the same size as The front panel is now complete. clude station WDAR, on 395 meters, the front panel. Clamp the paper which is five meters lower than template over the panel. Mark the The complete list of parts for con WHAS. Now, if all three of these sta- center holes by center punching structing the superheterodyne eight tions are on at one time, what hap through the template.

whas. Now, if all three of these stations are on at one time, what happens? We get a frequency difference of 9,000 cycles below Whas and also 9,000 cycles difference above Whas (400 meters), which spoils the air from 255 to 415 meters, and the result is we do not get any of the three stations.

Summing up the above information, the plain explanation of the unsatisfactory broadcasting situation today is this: The practical limit of selectivity in high grade receiving equipment has about been reached, and it is needless to increase selectivity to better than 15,000 cycles difference, because when two broadcasting stations operate at the same time on close wave lengths they produce whistles

enter holes for the voltmeters should be made in a machine shop to some plant properly equipped to a machine shop or some plant properly equipped to drill large holes. If the work must be done at home draw a circle with a pair of compasses the exact size required. Drill a number of holes on the inside of this circle with a small factory broadcasting situation today is needless to increase selectivity to better than 15,000 cycles difference, because when two broadcasting stations operate at the same time on close the plant properly equipped to an a machine shop or some plant properly equipped to a throw must be done at home draw a circle with a small fill arge holes. If the work must be done at home draw a circle with a small of this circle with a small fill an number of holes on the inside of this circle with a small fill, break the inside of this circle and a month the edge with a round fill.

The proper drilling size for all holes in the upper righting the superheterodyne eight are as follows:

One 4,2128 inch formica er bakelite autoancies work must be done at machine shop or some plant properly equipped to advers the superheterodyne eight are as follows:

One 6,21Remier to foom 4,2128 inch formica er bakelite autoancies of the superheterodyne eight are as follows:

One 6,228 eight are as follows:

One 6,208 erick for hospa cause when two broadcasting stations cause when two broadcasting stations operate at the same time on close operate at the same time operate ope these two stations, and if your receiver is sensitive, it will pick up this unwonted noise regardless of selecthe panel, try mounting the instruments to make sure that all holes are

LOUD SPEAKERS CAUSE SQUEAKS Engraved dial settings and lettering

below each control instrument im Half of the squealing and squawk- proyes the appearance of the finished ing that fills the air could easily be receiver. eliminated, suggests a BCL, if users of regenerative sets would refrain back of the panel. Secure a piece of tinfoil 6x24 inches, coat one side with shellac and stick it to the back of the

The BCL is right. Loud speakers panel. The foil should be placed on never were meant to be used for tun-ing purposes. They aren't built that the oscillator and wavelength conway. The owner of a regenerative densers are to be mounted and 1-2 set whirls the dials until he picks up inch from the top and bottom of the a station, then tunes it in. The result panel. It will now reach across the is a squalling that can be heard for panel to a point about 134 inches miles around, destroying reception for everyone else.

If any regenerative set owner doubts the truth of this statement all he need do is hook up a pair of headphones to the same plug used for the loud speaker, tune in a station on the speaker, put on the phones and be convinced. The buzzing, squealing noise that, in the phones, is unbetrable, is toned down in the speaker until it is much less evident. Tune in on the phones, connected in parallel with the speaker, then take off the speaker reception. It will be better and the air will be more free of

Superheterodyne Circuit Approach to Perfection

Complete wiring diagram for the superheterodyne eight, showing levery wire in its proper position.

act as a support for the front panel

marking their location with pencil, be mounted in their proper positions.

are as follows:

By F. L. BRITTIN.

not yet included in superhetrodyne

all connections be soldered, using lugs

Tools Needed.

The following tools will be neces

Try Mounting.

After all holes have been drilled in

correctly located and of the proper

size. Remove the apparatus if the

panel is to be grained or engraved.

The next step is to shield the

We Have Every Part Necessary to Build the

Super "8"

Described on This Page.

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on Request.

The Radio Shop

FRANK S. SELBY

The Finest Radio Shop in the Middle West.

from the other end. Carefully cut One Matheisen collapsible loop, 3-ter-Representing the closest approach panel so that instrument shafts and .006 mfd.

Range of Wave Lengths Is

Too Small for Perfect

Broadcasting.

Representing the closest approach to perfection yet obtained, the superheterodyne circuit, well deserves its widespread popularity. It is the general opinion of radio experts that any further advancement will not come until some discovery is made that will upset all our present methods of radio communication.

Representing the closest approach mounting screws will not touch the foil. Remove any excess shellac from the panel with a little alcohol.

The brass brackets for supporting the supporting the supporting the supporting the supporting the panel so that instrument shafts and mounting screws will not touch the foil. Remove any excess shellac from the panel with a little alcohol.

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The brass brackets for supporting the support the supporting the supporting the support the support the support t

OSCILLATOR -

27 drill for all holes.

ment posts on two of these brackets, the loop must be taken through others, all of whom were connected beggar's coat tail." the third bracket also being placed holes drilled in the rear of the cabinet. under the grid terminal and provides The Λ battery should consist of a a mounting for one side of the .0005 6 volt 80 to 120 ampers-hour storage mfd. condenser and the two-megohin battery and a B battery of 90 volts. grid leak which is mounted on clips Either storage B batteryies or heavy attached to the grid condenser. Use duty dry cell batteries may be used. and beneath all binding posts where volts as shown in the diagram. connections must be made.

fore attaching the sub-panel to the further adjustments. front panel. Use tinned copper bus While the lid of the cabinet is up. lines on the drawing are to be made to be quite easy by running the wire through the subpanel, underneath, and up through again at the place where the other beneath the sub-panel is run direct to the sub-panel and complete all wir- the Department ing connections. The instrument is

Prepare the lid of the cabinet for mounting the loop jack by drilling a three-fourth-inch hole through the KFRE-Horn

Before laying out the apparatus on jacks to the loop binding posts on the the subpanel it will be necessary to sub-panel should be made with flexmake a cut-out three-quarters of an ible insulated wire that will allow inch deep and 14 inches long to clear the lid of the cabinet to be lifted the rheostats mounted on the front without taking off the connections and locate the mounting holes with a jack plug, cut off one inch of the

The unit to the left is for the second into the latter. Drill a hole through detector and the two audio frequency the wooden plug from end to end to known as "The Face on the Barroom 'Say, boys if you'll give me another amplifying tubes, the two audio fre- take a 5-16-inch brass dowel pin, quency transformers being placed two and three-fourths inches long. directly back of their respective tubes which is fitted snugly into the wooden so that the plate and grid leads will plug and the latter is then pushed mer of 1887. he short and direct. The tuned-stage into the loop plug. transformer is placed next to the first audio frequency transformer. On ing base, so that if you do not wish d'Arcy's mind looked back to a suni- line's picture upon the barroom floor little mounting brackets placed under loop in the lid of the cabinet, it may

Mounting the Loop.

To mount the loop on the loop center punch or a scriber. Use a No. fiber shell of the plug and make a Two three-gang sockets are used the top of the loop plug when driven the unit to the left is for the second

The loop is equipped with a mount- and a goodly crown was there," Mr. "You shall see the lovely Made this transformer will be found three to go to the trouble of mounting the mer's day in 1887 when he walked the terminals for holding the fixed be placed to one side of the receiver avenue and Fourteenth street with Smith's bouncer' spotted him and out condensers. A .00025 mfd, condenser or on top. If this method is used Frank O'Brien, then mayor of a town he went with Toby, a wirehalred ter is connected across the grid and fila- then the three flexible leads from in Alabama; Jake Tannenbaum and rier owned by Smith, hanging on the

soldering lugs on all fixed condensers Taps are taken off at 18, 45 and 99

When the batteries have been connected, try a single tube successively

Mount Sockets.

Mount Sockets.

Mount the sockets, transformers, binding post strips, 4½-volt C battery, two 1½-volt batteries, midget condenser, coupler unit and shields to the subpanel in approximately the postition shown in the drawing. Note that the 5 mfd. by-pass condenser is placed underneath the second detector tube being in the first detector tube socket.

The oscillator socket is mounted \$\mathcal{B}\$ the extreme right of the subpanel and the first detector tube being of the C-301A type.

Follow the wiring plan and complete and volume they will not require and volume they will n

bar wire for the entire circuit, and try changing the tubes around in over with a good black "spaghetti" their sockets until the best arrangeusing. The wires indicated by dotted ment is found. Tuning will be found

WBAP, Fort and the work of the Afr. 11:45, Nighthawks; or school of the Afr. 1

The area of the covers the control of a beam of light with the con orchestra: 7. gies club; 8. concert; 8:4

FRONT-PANEL TEMPLATE

tieen I foot lengths of good-grade lite, three inches in diameter, for capeghetti tubing, and corn tinned-copper lugs, long mounting the loop jack. Drill this round hole, at the strip of bakelite, 2-18x4x24 for the eval-head nickelplated wood proved to be one of the most popular.

KFOA, Seattle (284.4), 1.45, program: widely known announcer from the same broadcasting station.

For two years Mr. Snodgrass has proved to be one of the most popular.

Hele alk: 7:50, psychology: 8, banquet: denthints; 19, orchestra.

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lite, three inches in diameter, for mounting the loop jack. Drill this for the oval-head nickelplated wood screws as shown in the diagram, and also drill a hole at the back of the center of this disk to mount a phone like for the center of this disk to mount a phone like for the center of this disk to mount a phone like for the center of the sole of the center of the disk to mount a phone like for the center of the cen round hole. 1-18x4x24 for the oval-head nickelplated wood proved to be one of the most popular

Radio Executive Named.

Cincinnati, March 13 .- Announce ent has just been made of the appointment of Lewis M. Crosley to the position of assistant general manager of the Crosley Radio corporation, in which capacity he has been acting for some time. At the next meeting of the directors, it is planned to make him vice president of the organization, of which Powel Crosley, jr., his brother, is president and general man-

New Apparatus. A Washington man has invented an apparatus which would pick up outof town radio broadcasts and distrib-

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N selling you a FREED-EISEMANN 1 Radio Receiver by the time-payment plan, we assume all the risk of your satisfaction with its service.

Recites His Creation on Birthday

"An honest-to-goodness 'bum' cam

"Give me that piece of chalk with

"He drew the picture of a woman"

"The ballad met with universal a

claim, having been translated into a

managed such old-time stars as Mar;

Anderson, Ada Grey, Frank May

Robert Manteil, James O'Neill, De

wolf Hopper and others. According

to Mr. D'Arcy it was the late Sar

Bernard who first popularized "Th

station, while the other covers the

building, Shenandoah,
M.—Public pawa

"Lonesome Moon" Lester Palmer
"Lonesome Moon" Lester Palmer
The Skeen Trio.
Harp solo. "Medley" Arranged by Thelma Skeen Swauger
Thelma Skeen Swauger
Violin solo. Souvenir" Drdix
(By special request.)
Lorenda Skeen. Offenbach

New York, March 13 .- An old mas with the theatrical business. But Mr.

his past at the studio of WOR and re- "'And I'll draw right here a picture

"'Twas a balmy summer evening which you mark the billiard score,

into Joe Smith's saloon on Fourth face upon the floor. Just them Joe

hestra
WOC. Davenport. (434, 6:20, Sandman;
WOC. Davenport. (434, 6:20, Sandman;
ISO, religious discussion; 9, RHL line
lite: 11, orchestra, songs.
WOA. Denver. (2233, 10, dance.
WWJ. Detroit (silent).
WHO. Des Moines (silent).
WHAP. Fort Worth (silent).
WHAP. Fort Worth (silent).
KNX. Hollywood (2269), 8:15, music;
10, features 12, orchestra: 1, Constance
Varying intensity. Another patent

hestra.
KHJ. Los Angeles Times. (495.2). 5. of the light falling on a given area. Another patent covers means for impressing a picture frequency in an inductive couple circuit at the sending WHAS, Louisville Times-Journal (289.3).

cited the poem he created in the sum of the face that drove me mad.

ter celebrated his 82d birthday d'Arcy told it this way:

Floor," pulled back the curtain of whisky, I'll be glad.

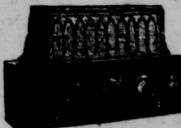
Thursday. Hugh Antoine d'Arcy.

RADIO

hestra. WJZ, New York (454.3), 6. orchestra art for laymen; 7:15, popular songs

We do so only because we know the FREED-EISEMANN. This receiver is dependable-it always works-it never fails. From the first day you possess it, a new world of entertainment is yours.

We recommend it highly-and will gladly place one in your home, complete with every accessory, on receipt of a small part payment.



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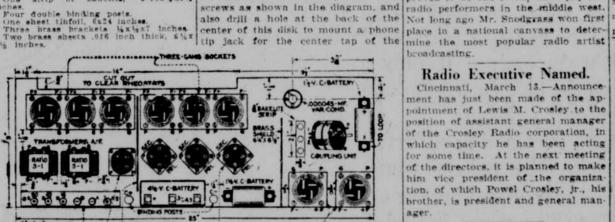
4 and 5-Tube Models Priced

\$169.50 up Down Payment

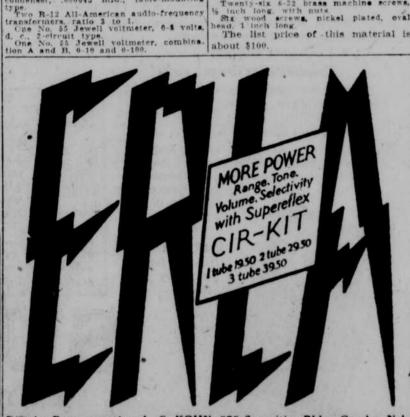
Will send this wonderful set to

your home. All we require is that you purchase the tubes and put up the aerial.

'A. HOSPE CO. 1513-15 Douglas St.



omplete.
One No. 860 Chelton midget variable ondenser, .000045 mfd., table-mounting h long, with nuts, wood screws, nickel plated, eval The list price of this material is



District Representative: L. C. KOHN, 675 Securities Bldg., Omaha, Neb.



Interference Eliminator

What Radio Users Have Been Looking For For those who have had Interference Troubles this new auxiliary tuning device will trap out the undesired stations.

Select Your Stations at Will The air is so crowded with music and voices that

Amazing Satisfaction

& BAKEUTE SUBPANE Layout of the sub-panel, showing location of the various instruments. One brass bracket 1, x 1, x 5 inches.

Two brass brackets 1-18x 1, x 15 inches.

Two brass brackets 1-18x 1, x 15

Improved Results with Tube or Crystal

STEINITE LABOR! ORIES, 1012 Radio Bldg., Atchison, Kan