

New Four-Tube Jim Wells Link Circuit—On Page 3

**Everybody's 5¢**

# RADIO

WEEKLY

IVERSON C. WELLS, Editor and Proprietor

Vol. 3—No. 14

CHICAGO, SATURDAY, DECEMBER 19, 1925

POSTPAID  
BY THE YEAR



## This Week

Model 5 of the Jim Wells Link Circuit Receiver Makes a New Record for Long Distance Reception (Page 3)

A Different Way to Use Audio and Resistance Coupled Amplification in the Lossless Set (Page 7)

How to Make an Efficient Tuner and Many Other Pointers for the Experimenter (Page 11)

# Readers' Free Service Bulletin

Everybody's Radio Free Service Station is conducted for the benefit of its readers. Its benefits are not confined to the helpful articles contained in the editorial pages, nor to the free mail service by the Question and Answer Department. We serve you every time you make a purchase of a receiving set or radio apparatus specified or advertised in these pages. No products are specified or advertised

that have not passed the test of our laboratory and of actual practice. So sure are we of the worth of the advertised merchandise, we publish and have published since our first issue a guarantee in each issue which protects our readers. The guarantee of our advertisers is not an empty one. It means something to you. You should know how to get its full benefits.

## How to Use Our Guarantee When Buying Apparatus

When you make a purchase from a retail dealer make sure first of all that he gives you a receipt as an evidence of purchase. This receipt should show the name and quantity of the article bought. If the article bought is advertised in EVERYBODY'S RADIO Weekly and it was through such advertising you were influenced to make the purchase, then immediately fill out the blank coupon at the bottom of this page and mail it promptly to the manufacturer. Be sure to DATE the coupon. This coupon is your Notice of Purchase. It tells the advertiser you have bought his products on the strength of his advertising and because of EVERYBODY'S RADIO Weekly guarantee you are holding him responsible for the performance and quality of his product.

The manufacturer will make a record of your purchase and should at any time the merchandise fail to live up to its maker's claim we have evidence of purchase and a prompt adjustment can and will be made.

The next and all other purchases you make of radio apparatus and supplies should be registered. Use the coupon below. If you do not do so our guarantee to you is void and shall not be binding on us.

## Everybody's <sup>69</sup> RADIO WEEKLY

### Dealers Co-operator

To avoid having readers chase here and there hunting for products advertised or specified in EVERYBODY'S RADIO Weekly we have arranged with the retail radio dealers, listed below, to act as our co-operators. They have agreed to stock merchandise advertised in this publication or to obtain same on a few hours' notice. Just tell them you're an "Everybody's" reader and you'll get prompt service.

### Buy from These Dealers—

#### They're Trustworthy

We have selected these dealers because they are in full sympathy with our quality merchandise policy and will stand back of their promises to you. They have agreed to cooperate with our readers and us because they know that all merchandise advertised in EVERYBODY'S RADIO Weekly has been TESTED and proven for QUALITY and PERFORMANCE and is safe to buy and sell.

- LOOP DISTRICT—
  - CHICAGO RADIO APPARATUS COMPANY  
407 S. Dearborn Street, Chicago
  - NEWARK ELECTRIC COMPANY  
228 W. Madison Street, Chicago
  - NELSON ELECTRIC COMPANY  
508 S. Dearborn Street, Chicago
  - SILVER-MARSHALL, INC.  
105 S. Wabash Avenue, Chicago
- WEST SIDE DISTRICT—
  - ATWOOD ELECTRIC COMPANY  
3122 West Madison Street, Chicago
- NORTH SIDE DISTRICT—
  - WONDER SALES COMPANY  
3152 Irving Park Boulevard, Chicago
- SOUTH SIDE DISTRICT—
  - H. & H. RADIO SHOP  
5638 S. Ashland Avenue, Chicago

NOTICE TO DEALERS: Your name will be added to this list without charge if you will qualify as an "Everybody's Radio Co-operator." Phone Mr. Morford, Calumet 3310, for particulars.

## How to Play Safe When Buying Either Sets or Apparatus

When buying from a retail radio store to make sure you are doubly protected in your purchases, go to the stores whose names are listed in the panel in the center of this page. These are known as "Everybody's Radio Dealer-Co-operators."

These dealers have signed an agreement to keep in stock all the merchandise advertised in this magazine. If at any time they do not have the item you call for they will secure same for you at once. They also have agreed to stand back of all their transactions and to give you a fair and square deal.

These dealers were selected by us because of their established reputations for square-shooting and because they subscribed to the exacting conditions which we imposed upon them. They pay us nothing for this listing of their names and our only compensation is the satisfaction that we have served you.

If you make a purchase direct from the manufacturer, who is our advertiser, use the coupon below. It establishes a record of your desire to have the protection of our advertisers' guarantee. If you do not do this our guarantee to you is not binding on us.

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Made through a guaranteed advertisement published in "Everybody's Radio Weekly."

Name of advertiser .....  
 His street address .....  
 His city and state .....

Dear Sirs: As a result of your advertisements in "Everybody's Radio Weekly" I have purchased from (Give dealer's name and address)....

..... (Street).....  
 (His city and state) .....

the following items.....

Date: Dec. 19, 1925.  
 (Sign your name) .....  
 (Your street address) .....  
 (Your City and State) .....

**MAIL THIS NOTICE TO ADVERTISER AT ONCE**

## GUARANTEE PURCHASE SLIP

(Name of advertiser) .....  
 (His street address) .....  
 (His city and state) .....  
 Send me by { Parcel Post } the following items, for which I enclose the  
 { Express } necessary payment .....

The above merchandise was purchased through your advertisement in "Everybody's Radio Weekly" and I am thus recording my purchase to make sure of the guarantee of you and your merchandise which Everybody's Radio Weekly makes for you.

(Sign your name here) .....  
 (Your street address) .....  
 (Your city and state) .....

Date: Dec. 19, 1925.  
**MAIL THIS ORDER TO ADVERTISER PROMPTLY**

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# Everybody's 5¢ RADIO

IVERSON C. WELLS, Editor

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JAMES GRAYAR WELLS  
Technical Advisor

Vol. 3--No. 14

CHICAGO, SATURDAY, DECEMBER 19, 1925

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## New Four-Tube Jim Wells Link Circuit

### This Model Four-Tuber Picks Out Stations

One of the Family of  
Jim Wells Link  
Circuits

By IVERSON C. WELLS

YOU phans who came out to hear the laboratory models of the Jim Wells Link Circuit three-tube receivers Wednesday of last week and went home a little early missed a treat. The atmospheric disturbance that marked the first few hours of the evening cleared away along about 11 o'clock and we brought in about everything that was on the air, with not only loud speaker volume, but unusual clarity, including KFI, Los Angeles.

Edmund Bencivenga, 2720 North Kildare avenue, Harry Evans, 115 East 25th street, and Daryl B. Tilson, 5400 South Park avenue, all of Chicago, stuck it out and were rewarded, so they declared, with the most wonderful radio reception they ever heard. Among those who were in the party the earlier part of the evening, in addition to the three named above, were Lawrence Cherkassy, 2306 West Walton street, and Stanley Bednar, 822 North Winchester avenue. There were others, but I neglected to obtain their names.

The atmospheric conditions that existed from about 8 p. m. until 11 p. m. were the same that have been reported from various sections of the city the past two or three weeks. The sound is "a rushing one, like water flowing over a precipice," as many describe it, and is accompanied by a spluttering that makes the reception "ragged." The interference has been disturbing the peace of mind of the boys in the laboratory for some time. They had belief at first that it was local in nature and plans were being made to take neighborhood tests with the idea of applying a corrective treatment.

Reports, however, have come in to us from various sections of the city, and from many of the suburbs, indicating that the disturbance is universal. The noise is not on any particular wavelength. It is found at any point on the tuning dial. It comes and goes in strength. It usually appears about 8 p. m. and remains almost constantly in the receiver until 11 o'clock. At times the noise is so loud it drowns out even powerful local stations.

On the evening mentioned we had quite an audience, although it was not one of our regular demonstration evenings. Through an error a number of tickets of admission had been issued with a mistake in the date. We were not expecting the visitors and had passed the evening at a dinner party. It was after 9 o'clock before we arrived at the laboratory and found about a score waiting impatiently. We were unprepared for the demonstration, but hurriedly hooked up three of the four model sets that have appeared in these pages. Some little time was consumed in getting them adjusted as they had been through a little experimental work during the day and were off balance.

It was nearly 10 p. m. before we began to tune in any of the stations. Some visitors, impatient at the delay, had departed. We went through the locals without any effort and tuned in about everything that was asked for. Every station came in with full volume through the rasping, grinding noise that persisted, and, under the circumstances, the music or voice could be heard with remarkable clarity.

The party began to break up about an hour later

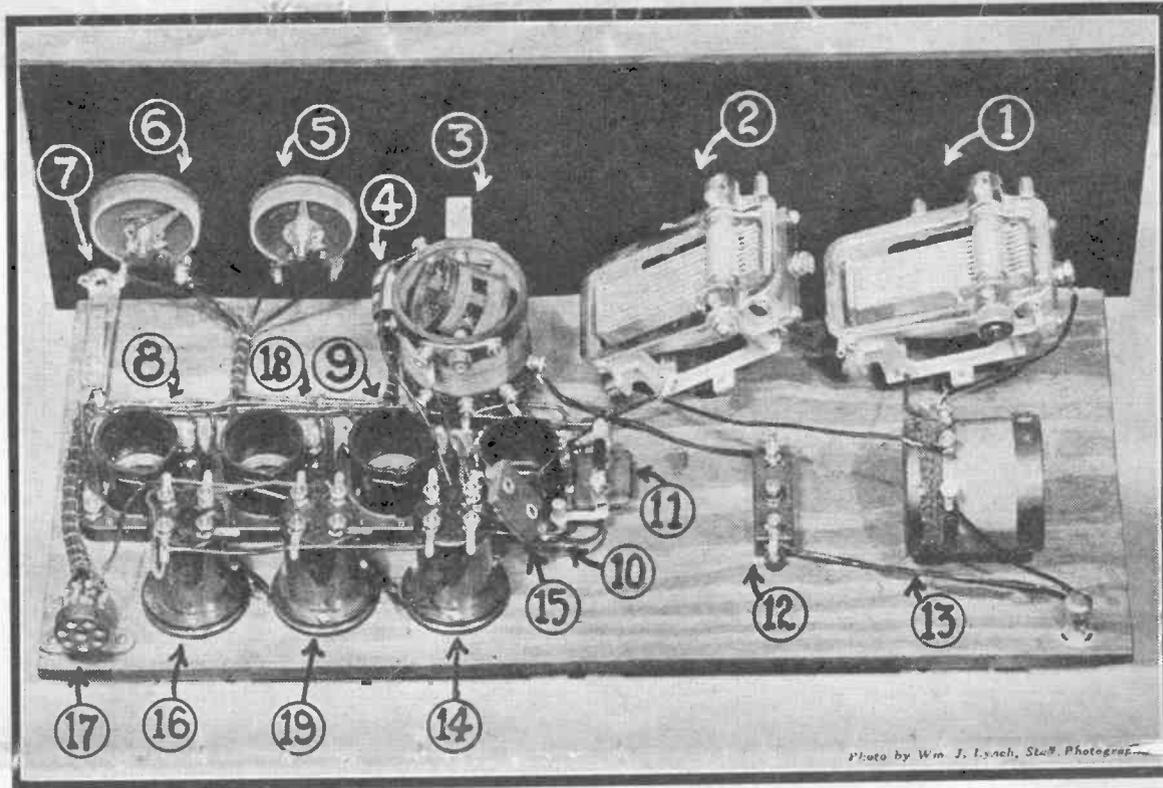
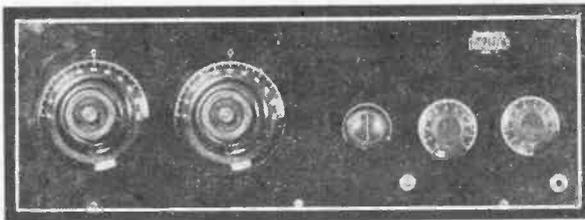


Photo by Wm. J. Lynch, Staff Photographer

At the top is shown the rear view of the Jim Wells Link Circuit in a four-tube set. See the compactness of the parts and how they are arranged. The panel is shown at the left. There are few knobs to operate this set



and we took down a few notes on what several of the members said to each other.

Lawrence Cherkassy, 2306 West Walton street: Those sets are the most selective I ever heard. The volume beats any three or five-tube receiver I ever heard. The tone, in spite of the distressing noise that persists, is remarkable. You couldn't wish for anything better than what we have heard here tonight.

Stanley Bednar, 822 North Winchester avenue: This entire week has been poor for radio reception and under the conditions that existed here tonight I say that these sets have performed wonderfully. I have heard five or six stations tuned in on a space on the dial of but a few degrees and right between two strong locals. They came in with great volume and wonderful tone quality. The music possessed none of that mushiness that is so characteristic of music from distant stations with most regenerative receivers and many of the best multi-tube sets.

The stations Mr. Bednar referred to were: KDKA, Pittsburgh; WAGH, Richmond Hill, New York City; WGR, Buffalo; WSMB, New Orleans; WSAI, Cincinnati, and WBZ, Springfield, Mass. These were in between WJJD, WLIB and WLS of Chicago. Usually WJAR, Providence, R. I., and KOA, Denver, come in with these stations, but they apparently were not radiocasting at the time. We did not get them, at least. KPRC, Houston, Texas, at 297 meters, and six meters below WLIB, which is at 303 meters, also was tuned in with full volume.

Edmund Bencivenga, 2720 North Kildare avenue: Those receivers are the best three-tube sets I ever heard. They are better than any five-tubers, in fact. They've got selectivity. There's no doubt on that score. And, say, as to volume and clarity of tone they've got any of the five-tubers on the market beat! The music is so clear, so loud—well, the tone quality is immense. You could not want for anything better. You could sit in any part of an ordinary apartment and hear any of the distant stations comfortably.

Harry Evans, 115 East 25th street: I've been building sets for my friends. I've built twenty-five Harkness reflexes recently and I thought they were good, but say, there's no comparison. The Harkness lacks selectivity. I wouldn't build anything else but a Jim Wells Link for my customers from now on. I never heard better selectivity on any receiver, and they certainly have a kick. Under the conditions here tonight the tone was remarkable.

There were others in the party, of course, that spoke just about in the same strain, but I let them get away without obtaining their names. I hope they will see this little narration of that evening's

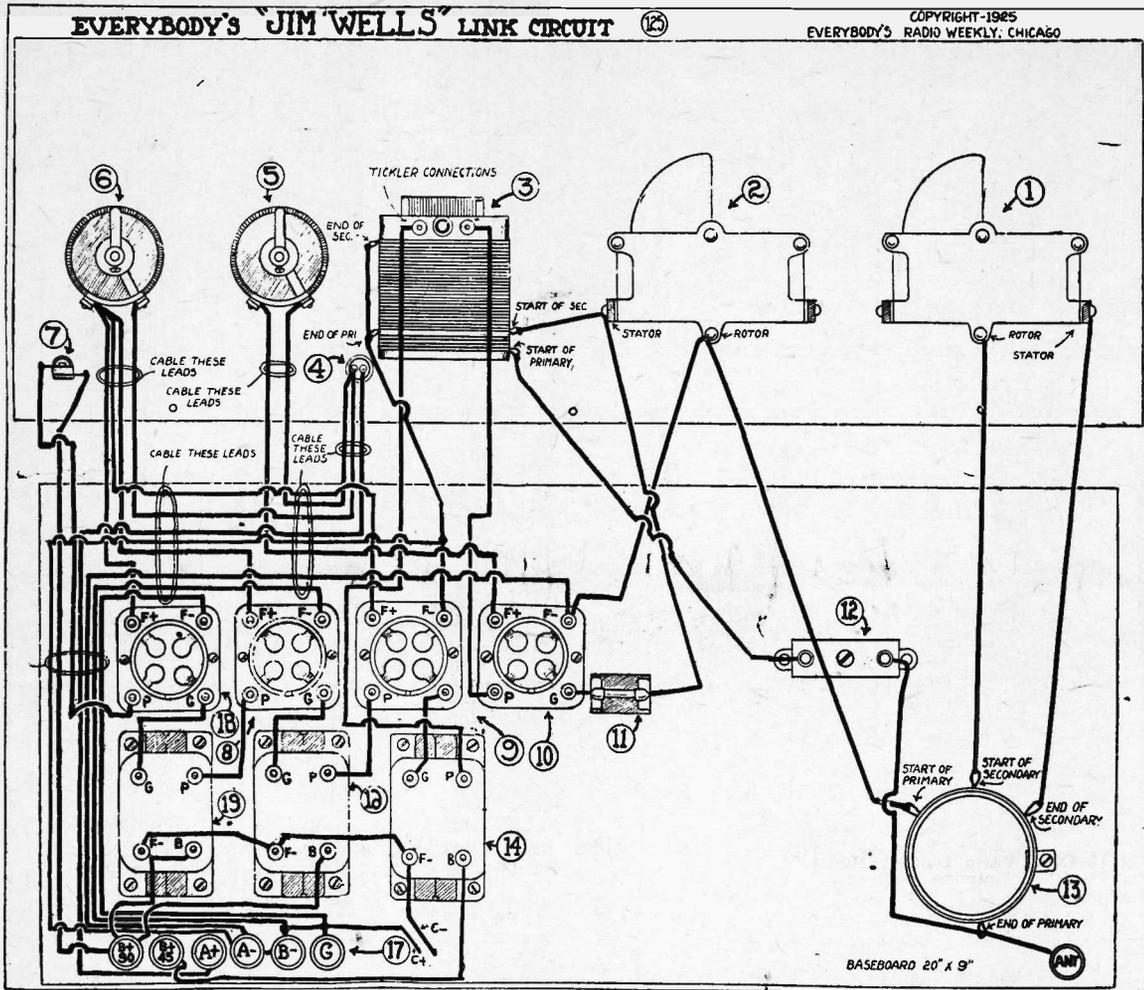
experiences, because what they heard before they left was not to be compared to what the others that remained heard later.

For instance, Mr. Bencivenga, who was one of those that remained, and who was quoted above, expressed himself about like this: "I'm mighty glad that I stayed here, Mr. Wells. It's been a remarkable demonstration. After that atmospheric disturbance died down I never heard such clarity of tone on any set. All these models we have heard came in with such volume it is hardly believable. But, what strikes me is the selectivity, the distance and the volume. Most of these distance stations came in with too much volume for me and I would have to tone them down in a small room like I have.

Mr. Tilson came in after all the earlier visitors had left and got in on the late demonstration. He said: "I've just had a five-tube built for me which has exceptional volume and clarity, but this three-tuber would have suited me to a 'T' had I known about it. It's got the selectivity, all right. You've not written too much about the Jim Wells Link receivers. In fact, you've been just a little bit too conservative. I heard a California station tuned in on a loud speaker for the first time here tonight."

Mr. Evans stuck around with us until nearly 2 a. m. and got about all there was to be had in radio during the session, including KFI, of Los Angeles. He said, as a supplementary statement to his remarks earlier in the evening: "I like good music. I like tone quality in radio. Tonight, I sat back here at the far side of this room and listened to those out-of-town stations come in one after the other, as I never heard them do so before. The tone quality is superb. All the sets are so quiet and the volume is wonderful for a three-tuber. Even that Los Angeles station was as clear as a bell. That's the wonderful thing about these receivers. You can hear every tone so clear and bell-like. I was surprised, too, in the comparative tests of the receivers. I had expected one of these sets to have a little more selectivity and volume than the others, and probably more tone quality, but there doesn't seem to be any difference in them. They are all uniformly good. You have three different sets of audio transformers there and three different sets of coils, yet it would be hard to judge any difference between them. It's the Jim Wells Link circuit that does that, of course, as well as the high quality of the apparatus used. I consider myself very fortunate for not only being here, but also for having remained until this odd electrical disturbance subsided."

"It Isn't Everybody That Can Advertise in EVERYBODY'S."



The pictorial diagram shown above is that of the Four-Tube Jim Wells Link Circuit in which three stages of amplification are used. The lines shown with a tie cord are the ones placed in the cable.

I print these statements so that you doubting Thomases can have some other's word for the many good things I have been saying about the Jim Wells Link Circuit Three-Tubers. I admit all of us out here at radio headquarters are a little biased. That's natural. We should have some prejudices in the matter, of course. But, when we line up a few disinterested fellows who tell you the same thing then you can begin to pin some faith in what we say.

For the same reason we have fitted up a Demonstration Salon and have thrown it open evenings to our readers. It is the only case we know of among publications that does this. You read in EVERYBODY'S RADIO Weekly about a certain hookup, see it illustrated and then come to our laboratory and hear it in operation to see if we are exaggerating. If you find the hookup is everything we say it is you go out and tell scores and scores of others that we had delivered the goods to you. That helps us. It establishes confidence in us with you and our other readers. You learn to rely upon our editorial columns for your radio information and upon our advertising columns for your buying guide. When you feel that way all of us are happy. When you buy products that are advertised in these columns because you know they are right, our advertisers continue to patronize us, and as long as they do this we can continue to give you the sort of a magazine that you like and get profit from. That is what I mean when I say "It makes us all happy."

**LINK SET AS A FOUR-TUBER**

While the Jim Wells Three-Tube Receiver should give enough volume for most every requirement, there are radiophans who want tremendous amplification and insist on it. Their excuse is that on a distant west coast station signal it helps make for audibility on a poor reception night. For this class of readers we are presenting this week Laboratory Model No. 5 as a four-tuber. It has all the amplification anyone can ask for. We have had the California stations in on it just as good as a seven-tube super brings them in.

This model uses three stages of audio-Meloformer transformer coupled. You know you can add still another one of these little fellows and have FOUR stages if you want it. They work on four stages successfully. There is tremendous amplification without distortion and none of the superb tone qualities of the Meloformer as we have been demonstrating it in the three-tuber the past week or so is lost.

Frankly, I believe the three stages are enough for anyone. In most cases three stages are too much. Take, for instance, New Orleans, the Texas stations and Pittsburgh—stations that come in good and strong on most every receiver. You won't be able to stand the full four tubes on these, if your experience is the same as ours. Three will be ample. In fact our regular three-tube receiver delivers these stations with too much power for the ordinary home. They have to be throttled down.

There is one good thing about the four-tuber that's good for you, however. You have POWER there if you WANT it. It is just like a big Packard. You may not need all the power it has all

the time, but when you do you know it is there to be used.

I do not believe a lot of you phans are appreciating these Meloformers. They are little wonders. Probably it is because they are small and cost only \$4 each you question their efficiency. Don't let the size or price guide you in this case. The Meloformers have just about as much kick to them—the NEW Meloformers, as the bigger transformers that are so popular. But be sure you get the new ones. They are distinguishable from last year's model by their BLACK labels trimmed in gold. The others had an orange label trimmed in black.

This week's model is just the same as our three-tubers we have published in preceding issues, with the single exception that the extra stage of audio is added. You get more amplification with the audio than you would with the radio frequency stage and save the extra tuning dial. Usually one stage of audio is added to the three-circuit regenerative receivers for the purpose, largely, of increasing their selectivity. They add slightly to the distance range but very little to the volume. Since this Jim Wells Link Circuit has proven that it can pull 'em in from both coasts you won't need the little help an extra stage will give you. The extra audio stage gives more volume than the extra stage of radio and so you will be ahead all around.

We have used Ambassador coils for this week's issue. They are not designed just right for the Jim Wells Link Circuit, but can be used with a slight change which anyone can make. The Ambassador has a fixed primary on both the antenna coupler and the three-circuit tuner. This circuit really requires a VARIABLE primary on both coils, but especially on the tuner.

If you tap the primary coils, particularly on the tuner so that you can vary the selectivity as required, you can use these coils. A simpler way would be to remove a few turns of wire from the primary. These should be removed from the side or end OPPOSITE to the secondary coil. Begin by taking off one or two turns and then trying out the

set. Continue to take off a turn or so until you get the desired selectivity.

It would be better to have a variable primary such as the other popular tuners have, like the Buell, Gen-Ral, Bremer-Tully, Aero and similar ones. If you have an Ambassador and want to use it this way you can wind a primary on a small tube—just snug enough to fit INSIDE of the secondary coil at the end where the present fixed primary is attached. It may be fixed to the inside of the large or secondary tubing with a small hinge, so that it may be moved to and from the secondary in a manner similar to the Aero tuner.

The Ambassador has a good kick to it and because of this fact and because many of our readers have written in for help in adapting these coils to the Jim Wells Link Circuit we have shown them in this week's model. Of course you can use any of the three-circuit tuners we have shown in previous issues, or any of the various parts in combination. We are listing all the parts of the various models again this week so that you can have a handy reference list to guide you.

Don't try to tune this set or any of the other models without a good vernier dial. Our models have been demonstrated on a 176-foot aerial, which, with ordinary receivers, is a BROAD tuning aerial. Our readers who have visited us on our Demonstration Salon nights will attest that the sets tune so sharp it is almost impossible to handle them with ordinary dials.

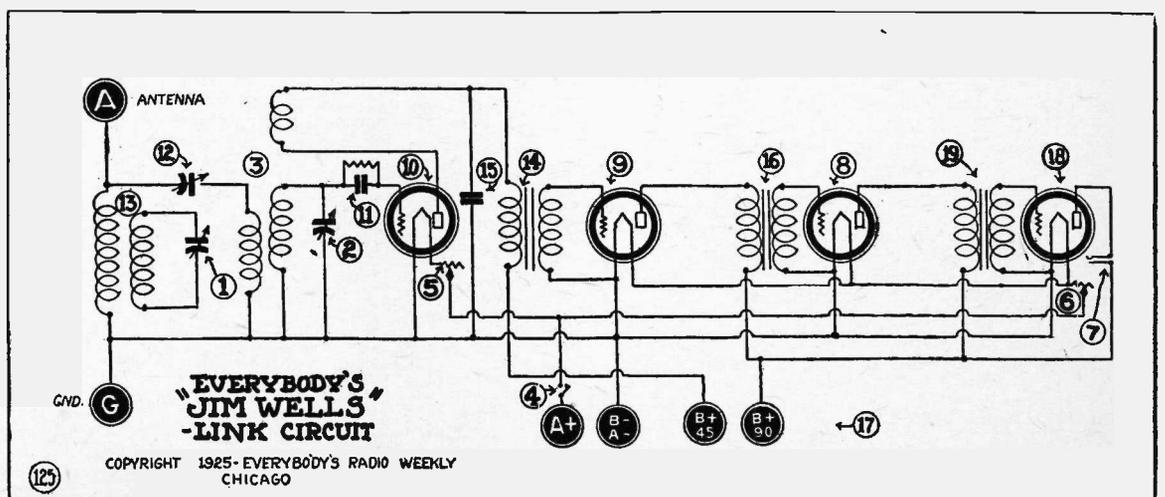
We are using two "Fynur" vernier dials. They have just been introduced into this territory but have quite a run down east. You will find them a real job. There's no backlash—not a bit, and their action is velvety-like. There are no gears or cogs to get out of order and wherever there is a chance for wear automatic action takes up the wear.

One of the superior advantages of this Fynur dial over some of the other "good" ones is that it has a rough tuning dial as well as a vernier action. Most of the better type vernier dials do not provide for rough tuning. You have to use the vernier only when you need or want it. For instance, when you are down on the lower portion of the dial and want to climb up to the upper portion you have to turn and turn until you get there. With the "Fynur" you seize the larger dial and rapidly sweep to the spot desired and then resort to the vernier, or smaller dial for the finer part of the tuning. On this score alone the dial is worth the extra dollar you will have to pay for it as against some of the other popular and lower-priced dials.

We have used the "Perlesz" SLF variable condensers in this No. 5 model. These condensers have been described before, as they were used just a week or so ago in another hookup. They are real works of art. Just to look at them tells the story of efficiency. They have a real solid look about them—strong, sturdy and with plates that won't bend or warp. The "Perlesz" is a die cast job, almost all over. The plates are die cast. So is the frame. This makes not only for extreme rigidity but also for precisiveness. When used in connection with the "Fynur" dials an ideal combination is presented.

**MODEL NO. 5—TYPE A SET**

Essentials	
Fig. 1—Perlesz SLF .0005 variable condenser.....	\$ 6.75
Fig. 2—Perlesz SLF .0005 variable condenser.....	6.75
Fig. 3—Ambassador three-circuit tuner.....	7.00
Fig. 4—Yaxley Midget battery switch.....	.50
Fig. 5—Howard 25-ohm rheostat, with dial.....	1.10
Fig. 6—Howard 6-ohm rheostat, with dial.....	1.10
Fig. 7—Yaxley open circuit jack.....	.50
Fig. 8—Pioneer socket.....	.75
Fig. 9—Pioneer socket.....	.75
Fig. 10—Pioneer socket.....	.75
Fig. 11—Muter 2-meg. resistance and .00025 fixed condenser.....	.65
Fig. 12—X-L vario denser, model "G".....	1.50
Fig. 13—Ambassador antenna coupler.....	3.00
Fig. 14—Multistage Meloformer.....	4.00
Fig. 16—Multistage Meloformer.....	4.00
Fig. 17—Jones Multiplug, complete.....	4.50
Fig. 18—Pioneer socket.....	.75
Fig. 19—Multistage Meloformer.....	4.00
Panel "D" Starrett drilled and engraved, 21"x7".....	3.95
(Alterations for extra condenser holes.)	
Two Fynur vernier dials, at \$3.50 each.....	7.00
Baseboard, wire, etc.....	.50
Stuart 4½-volt "C" battery.....	.60
<b>Total .....</b>	<b>\$60.80</b>



In this schematic the Jim Wells Link unit is shown added in front of the tuning element in the hook-up for three stages of amplification. The diagram is not difficult to follow in constructional work

"It Isn't Everybody That Can Advertise in EVERYBODY'S."

Should you not wish to use any or all of the above parts for any reasons, you can have your choice of any of the apparatus used in previous models. The bill of specification for these receivers is given below.

**MODEL NO. 4—TYPE A SET**

**Essentials**

Fig. 1—Silver-Marshall SLF .00035 variable condenser	\$ 5.75
Fig. 2—Silver-Marshall SLF .00035 variable condenser	5.75
Fig. 3—Buell three-circuit tuner, new style	4.85
Fig. 4—Filament switch	.....
Fig. 5—Rheostat	.....
Fig. 6—Rheostat	.....
Fig. 7—Jack	.....
Fig. 8—Last audio frequency socket	.....
Fig. 9—Audio frequency socket	.....
Fig. 10—Detector socket	.....
Fig. 11—Grid leak and condenser	.....
Fig. 12—X-L Vario Denser, Model "G"	1.50
Fig. 13—Buell antenna coupler	3.75
Fig. 14—Audio frequency transformer	.....
Fig. 15—Fixed condenser	.....
Fig. 16—Audio frequency transformer	.....

\* These parts are incorporated in the Welty Detector-Amplifier units ..... 19.50  
 Celeron panel, 21"x7" ..... 3.45

Total for essentials ..... \$ 44.55

**Accessories**

Three "Continental" or QRS "Red Top" tubes at \$2.50 each	7.50
One 7x21 Balkwill & Patch cabinet	5.50
One "Firedry" Storage "A" battery	18.00
One 96-volt "Bang" Storage "B" battery	45.00

Total for complete outfit ..... \$ 76.00  
 Total for complete outfit ..... 120.55

**MODEL NO. 3—TYPE A SET**

The complete list of parts used in Model No. 3, published in December 5, 1925, issue, follows:

**Essentials**

Fig. 1—Karas .00037 Orthometric variable condenser	\$ 7.00
Fig. 2—Karas .00037 Orthometric variable condenser	7.00
Fig. 3—Aero coil three-circuit tuner	8.00
Fig. 4—Walbert filament lock switch	.50
Fig. 5—Carter improved 25-ohm rheostat	1.00
Fig. 6—Carter improved 6-ohm rheostat	1.00
Fig. 7—Yaxley open-circuit jack	.50
Fig. 8—Buell socket	.75
Fig. 9—Buell socket	.75
Fig. 10—Buell socket	.75
Fig. 11—Muter 2-meg. grid leak and Muter .00025 condenser	.85
Fig. 12—X-L Vario Denser, model "G"	1.50
Fig. 13—Aero coil antenna coupler	3.00
Fig. 14—Karas Harmonik, all-ratio audio frequency transformer	7.00
Fig. 15—Muter .002 fixed condenser	.40
Fig. 16—Karas all-ratio audio frequency transformer	7.00
Fig. 17—Jones Multiplug, complete	4.50
Panel 21"x7" Starrett drilled and engraved model "100C" walnut finish	3.95
Sub panel 20"x7" Celeron	3.45
X-L antenna push binding post	.15
Wire, hardware, etc.	.50

Total for essentials ..... \$ 59.55

**Accessories**

Three "Q. R. S. Red Top" tubes at \$2.50	7.50
One Balkwill & Patch 7"x21" cabinet	5.50
One 100-ampere, 6-volt "Bong" Storage "A" battery	24.00
One set 96 volts "Bong" Storage "B" battery	45.00

Total for accessories ..... \$ 82.00  
 Total for complete outfit ..... 141.55

**MODEL NO. 2—TYPE A SET**

The apparatus used in Model No. 2, published in November 23, 1925, issue, is included in the following bill of specifications:

**Essentials**

Fig. 1—Crest convertible variable condenser	\$ 5.00
Fig. 2—Crest convertible variable condenser	5.00
Fig. 3—Gen-Ral three-circuit tuner	5.50
Fig. 4—Yaxley Midget battery switch	.50
Fig. 5—Yaxley air-cooled, 25-ohm rheostat with dial	1.35
Fig. 6—Yaxley air-cooled, 6-ohm rheostat with dial	1.35
Fig. 7—Yaxley open-circuit jack	.50
Fig. 8—Howard socket	1.25
Fig. 9—Howard socket	1.25
Fig. 10—Howard socket	1.25
Fig. 11—Muter .00025 fixed condenser with mount and Muter 2-meg. grid leak	.85
Fig. 12—X-L Vario Denser (Model "G" .001 mfd.)	1.50
Fig. 13—Gen-Ral antenna coupler	3.50
Fig. 14—Multistage Meloformer	4.00
Fig. 15—Muter .002 fixed condenser	4.00
Fig. 16—Multistage Meloformer	4.00
Fig. 17—Jones Multiplug (completed)	4.50
Starrett drilled and engraved panel model, mahogany finish (Model 100C), 21"x7"	3.95
Baseboard 20"x9", hardware, wire, etc.	.50

Total for essentials ..... \$ 46.15

**Accessories**

Three "Q. R. S. Red Top" 201A tubes at \$2.50	7.50
One Kuersten cabinet 21x7x9	7.00
One Burns concert loud speaker	22.50
One 100-ampere "Firedry" storage "A" battery	18.00
Two 45-volt vertical large size Stewart "B" batteries at \$4	8.00

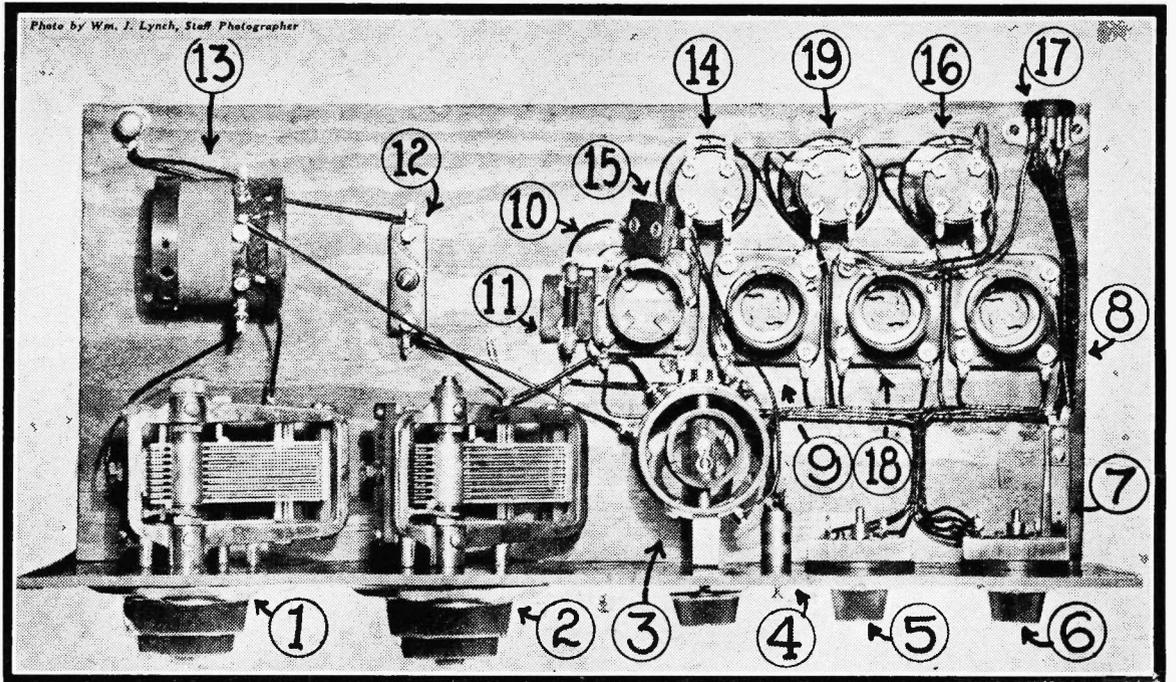
Total for accessories ..... \$ 63.00  
 Total for complete outfit ..... 109.15

**MODEL NO. 1—TYPE A SET**

Here is the list of parts used in Model A, published in November 21, 1925, issue:

**Essentials**

Fig. 1—Barrett & Paden .00025 variable condenser	\$ 6.00
Fig. 2—Barrett & Paden .00025 variable condenser	6.00
Fig. 3—Buell three-circuit tuner, new style	4.85
Fig. 4—Walbert filament switch	.50
Fig. 5—Howard 25-ohm rheostat with dial	1.10
Fig. 6—Howard 6-ohm rheostat with dial	1.10
Fig. 7—Yaxley open-circuit jack No. 1	.50



Pictured here is the top view of the Four-Tube Jim Wells Link set using hook-up for three stages of amplification. In this view you are looking down on it from the top

Fig. 8—Howard socket	1.25
Fig. 9—Howard socket	1.25
Fig. 10—Howard socket	1.25
Fig. 11—Muter .00025 fixed condenser with clips and Durham 2-meg. grid-leak	1.10
Fig. 12—X-L Vario Denser, Model "G"	1.50
Fig. 13—Buell antenna coupler	3.75
Fig. 14—Karas audio frequency transformer, all stage	7.00
Fig. 15—Muter .002 fixed condenser	.40
Fig. 16—Karas audio frequency transformer, all stage	7.00
Fig. 17—Jones Multiplug, complete	4.50
Starrett drill and engraved panel, model 100C	3.95
Baseboard, 20"x9", wire, hardware, etc.	.50

Total for essentials ..... \$ 53.50

**Accessories**

Newark cabinet 18" to 26" adjustable	13.75
Three Continental tubes	6.00
Temple loud speaker	21.00
Fire dry 6-volt "A" battery (100-ampere)	21.00
Two 45-volt Stewart "B" batteries, vertical heavy duty	8.00

Total accessories ..... \$ 69.75  
 Total for complete outfit ..... 123.25

There are less complaints from our readers on the construction work of the Jim Wells Link Circuit receivers than we have had from any of the model receivers we have presented in the past year. This may be due largely to the explicit directions and pictorial sketches we have published, but it also is largely due to the perfect balance of the electrical circuit itself and the design of the wiring plan. This circuit has none of the distressing features of the usual regenerative receiver, although it is a regenerative receiver of the most efficient type. Once the three-link circuits are balanced and the job is not near so difficult to do, the set is a very quiet one in operation and has none of the mushiness that is so common with improperly wired three-circuit receivers of the old type.

In Model No. 5 if you do not wish to use the third stage of Meloformer audio amplification, follow the diagrams from previous issues or just omit the last stage from the diagrams given in this issue.

In wiring up this week's model do not forget what I have said about the Ambassador primary on the tuner especially. You will have to do something to make the primary more loosely coupled. You will have a very broadly tuning receiver if you leave the primary as it is. Better take off a few turns until you get the desired selectivity or TAP it so that you can have four, six, eight and ten turns. Or, if you prefer, make yourself a VARIABLE primary as I have already described. Here are the wiring details:

Panel "D" is used for this receiver. It is the standard panel for the "three-tube Jim Wells set," the "four-tube 100% Low Loss receiver" and the "three-tube 100% Low Loss reflex." It measures 21 inches by 7 inches. Looking at the front the center of the hole for the variable condenser shaft (Fig. 1) is three inches from the left edge of the panel and three and one-half inches from the top edge. Five inches to the right of the center of this hole is the center of the hole for the shaft of the variable condenser (Fig. 2). This hole is three and one-half inches from the top edge of the panel also. The Perlesz condensers used in this model require three small holes extra for mounting.

The center of the hole for mounting the rheostat (Fig. 6) is two inches from the right edge of the panel and four inches from the top edge. The center of the hole for mounting the rheostat (Fig. 5) is three inches to the left of the center of the hole for the rheostat (Fig. 6) and four inches from the top edge of the panel. Three inches to the left of the center of the hole for rheostat (Fig. 5) and four inches from the top edge of the panel is the center of the hole for mounting the three circuit tuner (Fig. 3). One inch from the bottom edge of the panel and one inch from the right edge is the center of the hole for the jack (Fig. 7). Five and one-half inches from the center of this hole is the center of the hole for mounting the filament switch (Fig. 4). There are three mounting holes for mounting the panel to the baseboard. One of these is in the exact center and the other two are three inches from either side. The center of all three

holes are one-quarter inch from the bottom lower edge of the baseboard.

The baseboard is nine inches wide and twenty-five inches long, and the parts can easily be placed by looking at the photographs and diagram.

To wire the set, we will start at the right, looking at the rear. A lead goes from the rotor post of the variable condenser (Fig. 1) to post numbered "3" of the antenna coupler (Fig. 13). This post is the end of the secondary winding. A lead is run from the stator post of variable condenser (Fig. 1) to the post number "4" of the antenna coupler (Fig. 13). This post is the start of the secondary winding. A lead is then taken from the rotor post of variable condenser (Fig. 2) to the post number "2" of the primary winding of the antenna coupler (Fig. 13). Another lead runs from the rotor post of variable condenser (Fig. 2) to the "F" minus post of detector socket (Fig. 10).

A lead starts from the stator of the variable condenser (Fig. 2) and runs to the post number "4" of the three circuit tuner (Fig. 3), the start of the secondary winding, and from here the lead continues to one side of the grid-leak and condenser (Fig. 11). The other side of the grid-leak and condenser is connected to the "G" post of the detector socket (Fig. 10). A lead runs from the post number "3," the end of the secondary winding, of the three circuit tuner (Fig. 3) to the post number "2" of this tuner, the start of the primary winding, and continues from here to the "F" minus post of detector socket (Fig. 10). A lead is run from the post number "1," the end of the primary winding of the three-circuit tuner (Fig. 3), to the one post of the X-L Vario Denser" (Fig. 12).

A lead goes from the other post of the X-L Vario Denser (Fig. 12) to the antenna binding post. A lead goes from the post number "1" of the antenna coupler (Fig. 13), which is the end of the primary winding, to the antenna binding post.

A lead from the left post of the rheostat (Fig. 5) runs to the "F" plus post of detector socket (Fig. 10). A lead from the other post of the rheostat (Fig. 5) runs to the left prong of the filament switch (Fig. 4). A lead runs from the left post of the rheostat (Fig. 6) to the "F" plus post of the first audio socket (Fig. 9). A second lead passes from the left post of the rheostat (Fig. 6) to the "F" plus post of the second audio socket (Fig. 8). A third lead is run from the left post of rheostat (Fig. 6) to the "F" plus post of the last audio socket (Fig. 18). A lead is run from the right post of rheostat (Fig. 6) to the left post of the filament switch (Fig. 4). A lead is then run from the right post of the filament switch (Fig. 4) to the "A" plus connection on the Multiplug bracket (Fig. 17).

A lead is run from the "F" minus post of the detector socket (Fig. 10) to the "A" minus, "B" minus, and ground connection of the Multiplug bracket (Fig. 17). A lead is run from the "F" minus post of the first audio socket (Fig. 9) to the "A" minus, "B" minus and ground connection on the Multiplug bracket (Fig. 17). A lead is run from the "F" minus post of the second audio socket (Fig. 8) to the "A" minus, "B" minus, ground connection on the Multiplug bracket (Fig. 17). A lead is run from the "F" minus post of the last audio socket (Fig. 18) to the "A" minus, "B" minus, ground connection on the Multiplug bracket (Fig. 17).

The tickler of the Ambassador tuner (Fig. 3) has a post on the frame of the coil nearest the panel. A lead is run from this post to the "P" post of the detector socket (Fig. 10). The other tickler post on the side away from the panel of the tuner (Fig. 3) has a lead to the "P" post of the first Meloformer (Fig. 14). A lead from the "P" post of first audio socket (Fig. 9) runs to the "P" post of the second Meloformer (Fig. 16). A lead from the "P" post of the second audio socket (Fig. 8) runs to the "P" post of the last Meloformer (Fig. 19). A lead from the "P" post of the last audio socket (Fig. 18) runs to the top prong of the open circuit jack (Fig. 7). A lead from the lower prong of the open circuit jack (Fig. 7) passes to the "B" plus 90 connection on the Multiplug bracket (Fig. 17).

# FYNUR



\$3.50

## VERNIER CONTROL

*Tune In Far Off Stations With This Perfect Dial*

Fynur Dials will separate the low wave length stations and get distant stations clearly and accurately. Dual control, simple and durable in construction. Will fit any 1/4 inch shaft. No backlash. No lost motion. Ask to see one at your dealers or write to manufacturers.

**AUGUST GOERTZ & CO., Inc.**  
270-286 Morris Avenue, Newark, N. J.

A lead from the "G" post of the first audio socket (Fig. 9) runs to the "G" post of the first Meloformer (Fig. 14). A lead from the "G" post of the second audio socket (Fig. 8) runs to the "G" post of the second Meloformer (Fig. 16). A lead from the "G" post of the last audio socket (Fig. 18) runs to the "G" post of the last Meloformer (Fig. 19). A lead from the "F" minus post of the last Meloformer (Fig. 19) runs to the "F" minus post of the second Meloformer (Fig. 16) and continues from here to the "F" minus post of the first Meloformer (Fig. 14) and continues from here to the minus post of the 4 1/2 volt "C" battery.

A lead from the "B" plus post of the first Meloformer (Fig. 14) runs to the "B" plus 45 connection on the Multiplug bracket (Fig. 17). A lead from the "B" plus post of the second Meloformer (Fig. 16) runs to the "B" plus 90 connection on the Multiplug bracket (Fig. 17). A lead from the "B" plus post of the last Meloformer (Fig. 19) runs to the "B" plus 90 connection on the Multiplug bracket (Fig. 17).

The schematic diagram shows the set hooked up without the "C" battery. The ground, "A" minus and "B" minus binding posts of the Multiplug bracket are connected together with a small wire as usual. A lead is run from the "A" minus, "B" minus, ground connection on the Multiplug bracket (Fig. 17) to the plus post of the four and one-half volt "C" battery. One prong of a .002 fixed condenser (Fig. 15) is attached to the "P" post of the first Meloformer (Fig. 14) and the other prong of the fixed condenser has a lead running to the "F" minus post of detector socket (Fig. 10).

In wiring the set follow the diagrams and instructions and you should experience no trouble in making this receiver. In the photographs the numbers of the extra socket and transformer (Fig. 18 and 19) are transposed with the numbers of socket and transformer (Figs. 8 and 16). However, the wiring details correspond with the diagrams, so disregard these four numbers in the photographs.

### MAKING TUBES LOW-LOSS

Every progressive phan is anxious to make his tubes low-loss. To do this, you must first remove the base, and if you start with a 201A tube, for example, lengthen the leads a little by soldering a bit of No. 22 wire over each lead.

This makes each lead only one inch long, and therefore makes the set more efficient. It will surprise you the way it pulls in stations, even though you may be situated right in the midst of interference.

This tube is especially useful in a low wave receiver, for in this receiver, more so than others, the detector is

to be careful about is to mark the tube leads as you pull them out so that you will be able to identify them when it comes time to wire them up.

When you have removed the base of the tube you will find that you have four wires in close proximity to each other. To insure against these shorting, place a length of spaghetti insulation over each and your low-loss tube detector is ready to be mounted into the set when the proper time comes.

### HOW TO TUNE

The art of tuning, as it may be aptly called, is a science in itself. To attain the highest efficiency along these lines requires a thorough study of radio, both theoretical and practical.

Do not think that you can take a radio set, regardless of whether it is only a single dial affair, and tune it to its utmost efficiency the first night you have it. It is just as difficult to operate a radio set as it is to drive an automobile, as there are just as many details to be learned that have a bearing upon the successful operation of either.

On an automobile you have to watch your gasoline and oil. In a radio set you have to watch your "A" battery and "B" battery. In the automobile the gasoline furnishes the power whereby the machine is run and the oil reduces the friction. In the radio set the "A" battery produces the power and the "B" battery in a broad sense reduces the resistance.

To successfully tune a set it is first necessary to determine what circuit is being employed and find out the functioning of the various instruments, controls of which are on the face of the panel. We will take for instance EVERYBODY'S RADIO Weekly Low-Loss Receiver that has received such popular acclaim from the public in general.

There are three important controls. They are the tickler coil, which controls the amount of feed back or regeneration; the variable condenser which controls the wave length or determines what station is to be received, and the rheostat which adjusts the filament voltage of the tube so as to allow utmost efficiency.

First, the tube has to be lit. Then the tickler coil has to be set, so that the maximum amount of regeneration can be had without the tube oscillating.

Next, the variable condenser is turned until the station desired is received. It is first detected by a bird-like whistle in the shape of a V. Tune the set to the exact center of the V, then reduce the regeneration with the tickler coil until the whistle disappears and the station comes in clear and distinct.

After a certain amount of practice, this can be mastered so that both the tickler coil and variable condenser can be operated at the same time, and it will be possible by this method with a fairly efficient set to get 20 to 30 stations in an evening.

There is no necessity on the three circuit set of getting the same station twice, as the dial readings on the variable condenser are absolutely permanent, and the same station comes in at the same point night after night regardless of atmospheric conditions or antenna used.

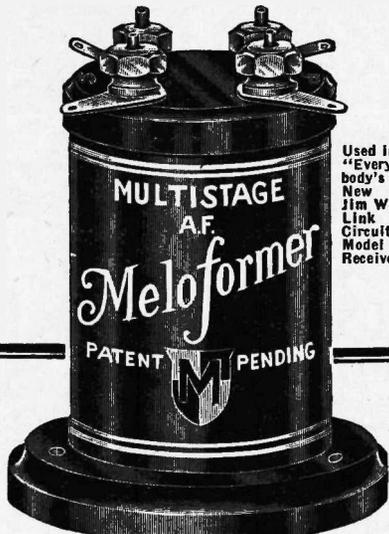
### PRACTICAL BATTERY RULES

- 1—See that the battery is always charged. Don't let it get "thirsty."
- 2—Do not lay tools on top of a battery or they may cause a complete discharge by short circuiting it.
- 3—Do not add anything but distilled water.
- 4—Never add acid unless some has been spilled from the cell accidentally.
- 5—Remember that boiled water is not distilled water.
- 6—A discharged battery will freeze easily while a fully charged one will not freeze in our climate.
- 7—To ascertain the positive and negative poles of a battery when no marks are visible fill a glass vessel half full of salt and cover with water. Run a wire from each terminal of the battery and hold them about one inch apart in the solution. Bubbles will rise from the negative wire. Also, there is usually more greenish corrosion around the positive terminal than the negative.
- 8—Do not light a match and look in the vent caps. The hydrogen gas in the battery is liable to explode and cause serious injury to the eyes.

**"Your Loudspeaker Is Your Limit!"**

## Works Four Stages

*If you can find a horn to hold them!*



This is a Full-Size Illustration of a MELOFORMER. Note its small base-space—its compactness. You can mount three or four stages in the space used by two ordinary transformers.

### The MELOFORMER Is Made Differently

Don't compare it with any other audio transformer. There is no other transformer like it. There never was one like it. It is different in physical design and construction. It is different in electrical action. It is a new transformer—a transformer that is built on an entirely different principle.

All other transformers have cores built of laminations of iron—thin plates that lie on each other and which overlap each other. This is the way audio transformers always have been built. Manufacturers today follow this same idea, just as did the manufacturer of the first audio transformer. This method develops strays. It creates distortion. It induces conflicting sounds due to interstage coupling. It makes impedance change with frequency.

The Meloformer does not use laminated plates. It has departed from the beaten path. It uses an iron core that is cylindrical in shape. It uses a shell that is cylindrical in shape. Both cylinders are slit longitudinally. This eliminates the troublesome eddy currents. It presents an evenly distributed iron path. It produces perfectly stabilized impedance. It prevents leakage flux. It automatically prevents stray coupling.

That's why the Meloformer amplifies without distortion. That's why the Meloformer will operate three or four stages of audio successfully.

The new model MELOFORMER is to be the season's sensation. Recent tests by Everybody's Radio Weekly Experimental Laboratories (Aug. 1 issue) show MELOFORMER works FOUR stages of audio amplification without distortion.

No other audio transformer has done this. Editor Wells says it is difficult to find a home-type loudspeaker—power or non-power or any tube, excepting the five-watters, that can handle the tremendous volume that pours forth from the FOUR MELOFORMERS. Three MELOFORMERS give more amplification than is required usually. In this case two 201A tubes in parallel on the last stage, or one Five-Watt Power Tube, was necessary to take care of the output. Two stages of MELOFORMER give forth tremendous volume (without distortion) by using two 201A tubes or one new UX Power Tube.

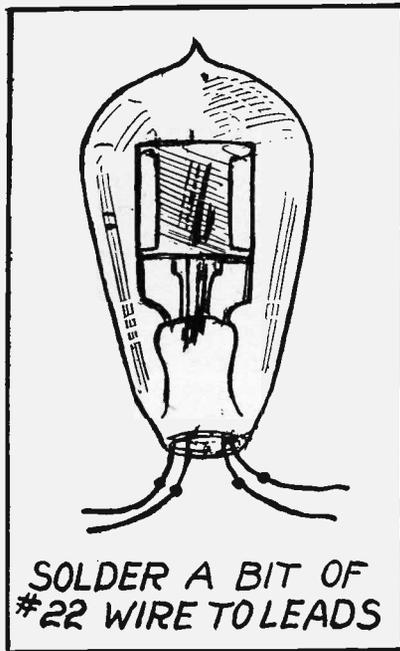
Chas. A. Etem Co.  
3738 S. Western Ave.  
Los Angeles, Calif.  
Keystone Sales & Service Co.  
Philadelphia, Pa.  
Manufacturers Distributing Co.  
1506 Pine St.  
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### Bring in Distance with Volume!

If you want pure music and voice—as clear as the original—install Meloformers.

MELOFORMER SALES CO.  
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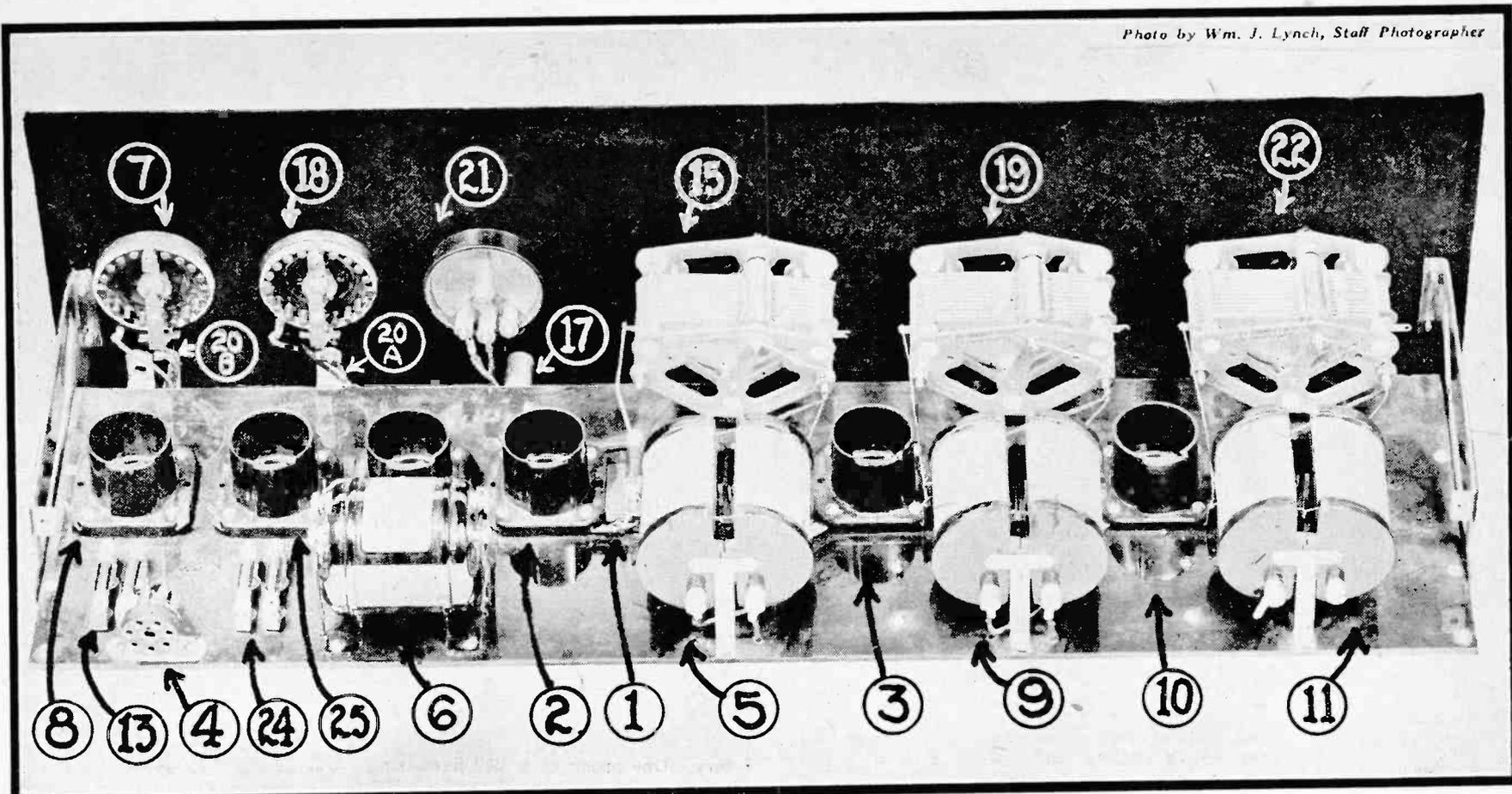


much more critical. By doing away with the socket and base a lot of losses are eliminated.

At first glance it would appear to be a difficult job to get the base off the tube, but this is not the case. All that you have to do is to lay a heated soldering iron on it until the rosin or bakelite used for the base is loosened from the glass.

Then apply the hot iron to the prongs of the base to unsolder the wires. The tube will then pull away from the base readily. The only point

Photo by Wm. J. Lynch, Staff Photographer



This is a rear view of the Everybody's Lossless Tuned Radio Frequency receiver in which a combination resistance coupled and transformer coupled audio amplification is used in a different way than is usual. Six tubes are required in this set to make up for the drop in amplification due to resistance coupled feature

# Lossless Tuned Radio Frequency Set

*In This Set There Is Used a Combination of Resistance Coupled and Transformer Coupled Audio Amplification*

**H**ERE is a laboratory model of "Everybody's Lossless Tuned Radio Frequency" receiver. It uses a combination of resistance-coupled and transformer-coupled audio amplification in a little different way than is usual and requires six tubes to make up for the drop in amplification due to the resistance-coupled feature. You will find it, however, possesses greater volume than the usual one-stage of transformer and two-stage resistance due to the method adopted.

There are four factors that stand out in this receiver that will commend it to the radiophans of Chicago and wherever there is a congested radio center:

- FIRST—It has extreme selectivity.
- SECOND—It has exceptional tone quality.
- THIRD—It has tremendous volume.
- FOURTH—It has coast-to-coast range.

Now, those same things have been said about all receivers by everyone that writes on radio sets in radio publications. We have said them about other receivers that have appeared in this magazine. We cannot guarantee the truthfulness of what the other says, but we can of what we print in this publication. And what we have said here and what we are going to say further down in this story we are prepared to prove. If you have any doubt—the least doubt, not only of what is said about this receiver, but of what we say about any receiver we ever describe in these pages, write in for a ticket of admission to our Demonstration Salon and come right out some Wednesday or Friday evening and ask for

the model in question to be placed on the demonstration table and then be your own judge.

We usually keep all the model sets hooked up for about three or four weeks before we tear them down and rebuild them over into new models. Where there is an interest long sustained in a certain model we keep it on demonstration still longer.

We might add here that this same invitation holds good for any of the accessories or apparatus we specify. We have all the loudspeakers, cabinets, batteries and other parts used by us on display in our Demonstration Salon and will explain them in detail to you, if you express a wish, giving a demonstration of performance where such demonstrations are possible.

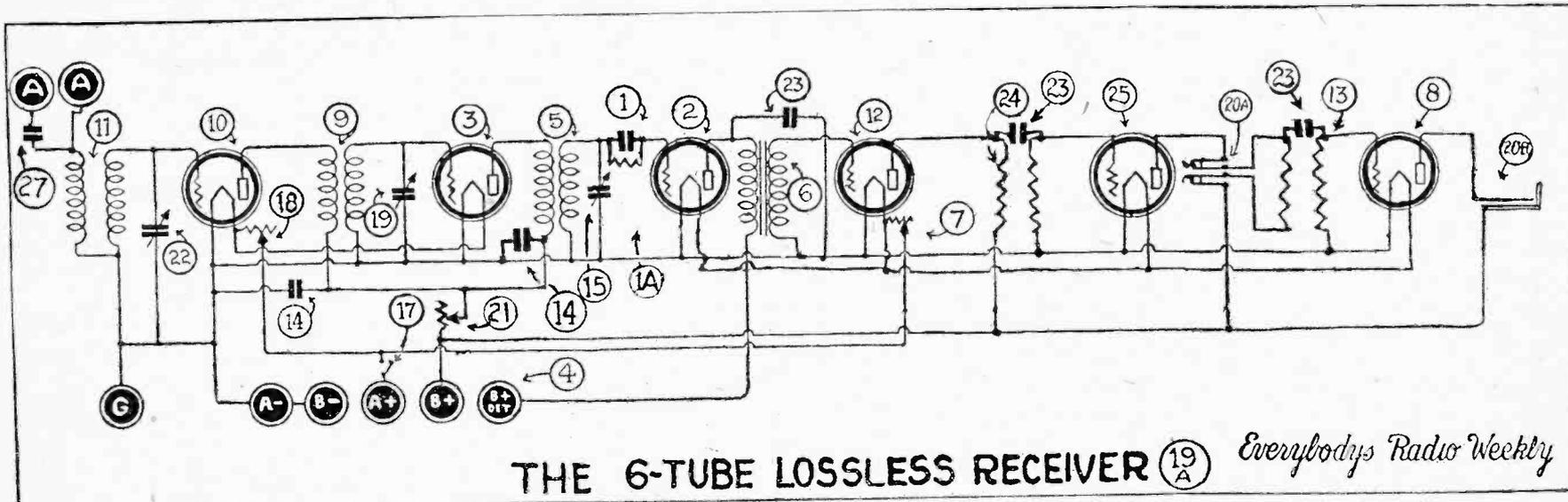
Now, as to this week's model. It is just a late edition of our regular five-tube tuned radio frequency hookup and is no better nor any worse than other models. It uses some new apparatus that is worthy of your special attention. You who have Ellis "D" coils, Harper "Metaloids" and Naxon "Toroidals," need not worry about being on a back number. Those receivers which we have run recently are the very best that can be had. This week's model is another of the same family. Some of you prefer it because of the special features.

The amplifier for the audio end is what we want to lay the greatest stress upon. Usually, where one stage of transformer-coupled audio is employed with two stages of resistance, the audio transformer is placed in the LAST stage. The theory is that when placed in this position a greater kick is given the amplification, as three stages of resistance

would scarcely equal two stages of transformers. The transformer is placed AFTER the resistance on the theory that you get the first amplification under purer tone conditions through the resistance. That may be true where a poor quality audio transformer is used. We are not using that sort of a transformer, however. The Karas is a pure-tone transformer. You can use two stages of it and have just as good amplification, in our opinion, as you would get with the resistance in all three stages, and certainly would have more volume. The same would be true with the Melloformers, the "Low-Boy" Ambassadors, the Wagners and the other good transformers we have specified from time to time. A poor transformer, however, must NOT be placed in front of the resistance-coupled amplification. If it distorts or gives forth impure quality in the first stage the resistance stages will amplify it and give forth a loud-speaker output that is distorted. It would be better to leave out the resistance entirely since you would be cheating your purpose.

With the Karas in FRONT of the resistance we are safe against impure tones and distortion and, at the same time, know that we are going to give the resistance stages a good big bit of amplification, which they are short on. That is one of the secrets of this week's model. It is why we are getting so much volume of a high quality.

Let us insert right here one other caution. Remember in hooking up your batteries that you will want at least 135 volts of "B" battery on the audio amplification to make the resistance end of the audio give forth all the volume it is capable of de-



THE 6-TUBE LOSSLESS RECEIVER (19A) *Everybody's Radio Weekly*

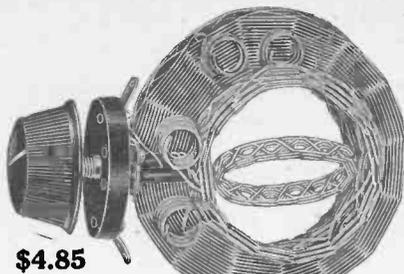
Schematic diagram of Everybody's Six-Tube Lossless receiver which is used in the construction of the combination amplification set as it was made up in our laboratories and tested out for efficiency. There are very few changes made from the regular standard hook-up

"It Isn't Everybody That Can Advertise in EVERYBODY'S."

# Use Buell Coils and Condensers

In the New Jim Wells Link Circuit Receiver

Don't take any chances in the new Jim Wells Link Circuit Receiver. Use the same tuner and antenna coupler specified and used in the FIRST Laboratory Model, published in the Nov. 21, 1925, issue. When these coils are tied up with the BUELL SLF Variable Condensers you get what you seek—real SELECTIVITY in the Jim Wells Link Circuit Receiver and the best one of any circuit.



\$4.85

### BUELL'S TUNER

This is the Three-Circuit Tuner that has made the Jim Wells Link Circuit Receiver perform stunts of selectivity that amaze the radiofan. It pushes through Chicago TWENTY-SEVEN stations as if they did not exist. Works three tubes on a loud speaker on coast-to-coast (from Chicago). If it does these things in Chicago it will work much better elsewhere. The BUELL Three-Circuit Tuner is the simplest made. No gears—no cams—no levers—nothing to get out of order. Smallest made. Takes up one-fourth the space of most tuners. Makes big sets smaller. Just the thing for portable sets. And yet it has a kick on distant signals! It's the coils that do it. Pancakes have the highest inductance because the distributed capacity is lowest. The BUELL new adjustable ball-and-socket primary is the secret of BUELL selectivity. Insures any coupling—loose or tight. The BUELL usually is at the best dealers, or by mail, postpaid..... \$4.85

### BUELL'S SLF CONDENSER

The BUELL SLF Condenser is used in the Jim Wells Link Circuit. Be sure to use it with BUELL Coils to get the BEST results. Hook it up with the BUELL Tuner and Antenna Coupler and know what real tuning is. The BUELL is built to last a life-time. Plates thickest of any condenser. Won't warp or short-circuit. Only two pieces of dielectric and they are OUTSIDE of condenser field. Big ball bearings. Positive stop. Shaft adjustment makes plate alignment permanent. Solder-lugs direct to pigtail connections. Extra heavy frame, die cast. All plates soldered. Mounts on baseboard or panel. Plates designed for STRAIGHT-LINE FREQUENCY curve. Straight-line frequency type made in two capacities—.000175 mfd. at \$4.50, and .00035 mfd. at \$5.00. Straight-line capacity type .00025 mfd. at \$4.50 and .0005 mfd. at..... \$5.00

### BUELL'S ANTENNA COUPLER

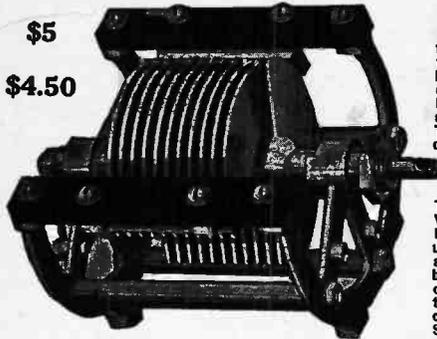
The antenna coupler in the Jim Wells Link Circuit Receiver plays an important part. It should have high inductance and low resistance. It should have a variable primary if you want to obtain the proper adjustment. The BUELL has all these requirements as proven by "Everybody's Laboratory" tests and usage. The BUELL Coupler was used in the FIRST Laboratory Model printed of the Jim Wells Link Circuit Receiver, in the Nov. 21, 1925, issue of "Everybody's Radio Weekly." Be sure you get one for your receiver. Price at all dealers, or by mail..... \$3.75 postpaid

### BUELL MFG. CO.

2975 Cottage Grove Ave.

Phone: Douglas 2222

CHICAGO



\$5 \$4.50

### BUELL MIDGET RECEIVER

No bigger than a small kodak camera, yet NOT a toy. Uses three tubes and two full-size audio transformers of powerful amplification. Smallness and compactness are made possible by the BUELL BABY tuner—the smallest, tiniest efficient tuner made, and the BUELL BABY condenser, the smallest, tiniest efficient variable condenser made. Works just as efficiently as the best of the three tubes and much better than most of them.

COMPLETE KIT—Ready to Wire—BUELL Midget Receiver Kit No. 1 consists of all parts, including leatherette carrier case, with drilled panel and ready to assemble and wire. Price at all dealers or by mail..... \$28.55 postpaid

COMPLETE KIT—Assembled and Partially Wired—BUELL Midget Receiver Kit No. 2 consists of all parts, including leatherette case with parts all assembled and mounted and partially wired. All you have to do is to make a few simple wire connections. For sale at all dealers, or by mail..... \$30.00 postpaid

# KARAS

HARMONIK

Is Used in the New EVERYBODY'S

# Jim Wells Link Circuit

Laboratory Model Receiver



\$7

As GOOD As Money Can Buy

First Publication in Nov. 21 issue

living. Ninety volts is not enough. Don't forget that point. If you do you are going to be disappointed.

The selectivity of this receiver is exceptional. It is due very much to the type of the circuit, of course, and the method of wiring, but the Henninger "Power-Plus" coils play an important part, as they always do. Not all radio frequency transformers are selective. Most of you who have been playing with radio frequency in the tuned circuits know that. We have specified a number that are selective. Some of these coils are those that have magnetic fields that extend out to a more or less extent and must be placed in certain positions to prevent intercoil coupling. Some of these are the General, Buell, Pfanstiehl, Aero, Ambassador, Silver-Marshall and Benjamin. Most of these have variable primaries for the antenna coupler and selectivity may be controlled with those.

Other coils we have specified, which lay considerable stress on localized magnetic fields are the Harper Metalloid, the Ellis "D" Coils, the Naxon Toroidal and the ones we have here today, the Henninger "Power-Plus."

The "Power-Plus" Coils are a new product. Mr. Henninger is the same Henninger that invented the "Aero" coils that created such a sensation last season when we introduced them to the radio world. He disposed of his interests in the "Aero" coils at the close of last season and has been devoting his time to another set of coils, a new straightline frequency condenser and some other radio products which he is manufacturing under a separate and distinctively different corporation, which trades as the A. F. Henninger Corporation and uses the brand name "Power-Plus" on all the products.

The new Henninger coil is a very novel one. At first glance one would think that it is a "D" or "Figure 8" coil, but it isn't. It is more of a twin coil, similar to that of the Grebe "Binocular" coils, but is designed on an entirely different and patented principle. If you will study closely the construction of the coils, and we believe the illustrations give this clearly, you will note that the secondary coil is in two halves with the sides that approach each other having flat surfaces. The two halves are in reality electrically connected together by a single wire conductor. This is where they largely differ from the Ellis "D" coils. In the latter each turn of wire on one side or half is carried forward to the other half, by a twist or mere reverse action and returns to the original half to make one turn on the form and then goes back to the other form to make one turn in the same manner as before. The primary on the Ellis "D" coil is wound in the same manner.

This flat surface winding and the single wire conductor is one of the distinctive features claimed for the "Power-Plus" coils by their inventor.

The primary of the "Power-Plus" Coil is NOT wound in the same manner as the secondary, but is wound on only one-half of the two forms. This, the inventor claims, solves the troubles that are encountered in improperly designed coils. And, it is right here that the "Power-Plus" coils do gain some real selectivity without the sacrificing of volume. This arrangement of the "Power-Plus" coil primary permits of a low primary to secondary capacity coupling. More turns of primary wire can be used, which means greater volume, and still retain the selectivity. And this is just what occurs in actual practice, showing that the theory advanced by Mr. Henninger is correct.

The "Power-Plus" Coil has very little pick-up characteristics, which adds to their selectivity. They also have such a small magnetic field, which is localized, there is practically no intercoil coupling, however they may be placed. That aids in the general efficiency of the receiver.

In building these coils into the "Lossless" hookup, however, you must observe one precaution. You will have to ignore the markings of the primary terminals, and treat them as if they were reversed. This means that the wires that usually go to the "B" post must be attached to the "P" post and that those that usually go to the "P" post must be attached to the "B" post.

We do this because if they are wired up in "Everybody's Lossless" Circuit in the usual manner, or as you are instructed to do in the "Power-Plus" book of instructions and hookups, you



\$9.75 Per Set

\$3.25 Each

# Power-Plus Coils

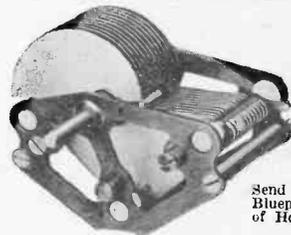
They have a new system of winding which localizes the magnetic field. This prevents intercoil coupling and pickup interference. It gives higher inductance per turn of wire and greater range for distance.

The Power-Plus System is not a "D" Coil or a "Figure 8" as one might suppose. It is the Power-Plus Patented system. It consists of two coils facing each other with flat scrolls which insure high mutual inductance. Because of the peculiar type of coil the primary can be much LARGER than the ordinary type of coils and still remain SELECTIVE. This means a high amplification and VOLUME. The low primary to secondary capacity coupling also increases power.

The Power-Plus coils are sold singly at \$3.25, or in a set of three matched at \$9.75. In a single unit with a Power-Plus SLF Condenser at \$3.50 or in a set of three matched units at \$25.50.

# Power-Plus S.L.F. Condensers

There are ten points of superiority in these condensers, the pigtail design to eliminate contact resistance and the automatic wear compensator to prevent frequency change are the outstanding features. No end play or wobble. No grind or wear on bearings. They're straight-line frequency.



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# ENSIGN

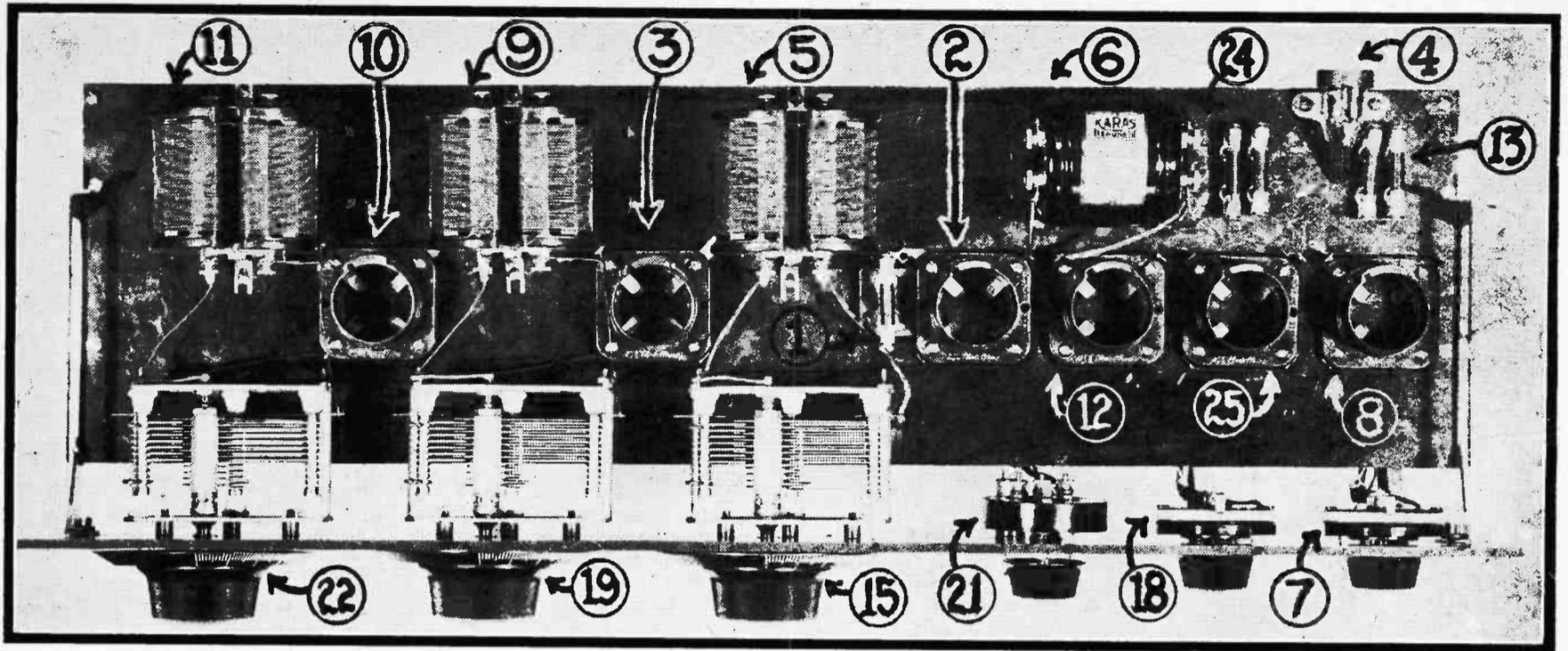
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"It Isn't Everybody That Can Advertise in EVERYBODY'S."



The appearance of the set when you look down from the top. This set uses the Henninger radio frequency coils, an audio frequency transformer and resistance coupled amplification. Note the compactness of the set parts and their arrangement

will find that the coils will not oscillate on the higher wave lengths and that they will be pretty broad. The "Power-Plus" Coil has very little pick-up characteristics, which adds to their selectivity. They also have such a small magnetic field, which is localized, there is practically no intercoil coupling, however, they may be placed. That aids in the general efficiency of the receiver.

In building these coils into the "Lossless" hookup, however, you must observe one precaution. You will have to ignore the markings of the primary terminals, and treat them as if they were reversed. This means that the wires that usually go to the "B" post must be attached to the "P" post and that those that usually go to the "P" post must be attached to the "B" post.

We do this because if they are wired up in "Everybody's Lossless" circuit in the usual manner, or as you are instructed to do in the "Power-Plus" book of instructions and hookups, you will find that the coils will not oscillate on the higher wave lengths and that they will be pretty broad.

The "Power-Plus" coils were designed for the usual type of wiring, where the battery leads, particularly the ninety-volt "B" battery, are allowed to run close to the radio frequency leads. This is the usual form of wiring and, probably, as Mr. Henninger explains, the set will oscillate freely on the entire waveband. They will if the coils are placed in a certain position. The first, or antenna coil, and the detector, or third coil, must be placed straight and at right angles to the front panel, while the middle or second coil will have to be placed at a forty-five degree angle to the other two coils.

Mr. Henninger has demonstrated a receiver built under that plan, but we get far greater volume and far better selectivity with our method. We place the coils almost in any position, or as shown in the accompanying illustrations, all three at right angles to the front panel. We can do this because there is practically no intercoil coupling and because our battery leads are all cabled and are far removed from the field of the coils.

But, don't forget, the coils must be connected up just as we have them in the diagrams and pictorial and as explained here as to the primary couplings. That is essential. Don't overlook this fact or you will come to grief. It is important.

The receiver we have illustrated is a mighty fine piece of apparatus and whoever constructs it will find real radio enjoyment with it. Like every piece of good machinery, it must be treated like a delicate piece of apparatus should be treated and you must learn how to build and operate it. We are using our regular "Lossless" hookup with the 200,000 resistance in the plate circuit of the radio frequency tubes and a six to ten ohm rheostat on the filaments of the two same tubes. By manipulation of these you control the oscillations of the two tubes absolutely and smoothly. The 200,000 resistance regulates the plate "B" battery flow from zero voltage to the full ninety. The rheostat regulates the filament voltage from zero to the full power of the battery. By this regulation you can obtain and hold a perfect balance between the plate and the filament, regulating the capacity between those two elements and controlling the oscillations of the tube.

**LIST OF PARTS USED**

The standard advertised parts used in this week's model of "Everybody's Six-Tube Lossless" are as follows:

Essentials	
Fig. 1—Muter .00025 fixed condenser with clips and Muter 2-megohm grid leak.....	\$ 0.65
Fig. 2—Buell standard socket.....	.75
Fig. 3—Buell standard socket.....	.75
Fig. 4—Jones multiplug, complete.....	4.50
Fig. 5—Henninger radio frequency coil.....	3.25

Fig. 6—Karas all-stage ratio, audio frequency transformer.....	7.00
Fig. 7—Yaxley air-cooled rheostat, 6-ohm.....	1.35
Fig. 8—Buell standard socket.....	.75
Fig. 9—Henninger radio frequency coil.....	3.25
Fig. 10—Buell standard socket.....	.75
Fig. 11—Henninger radio frequency coil.....	3.25
Fig. 13—Muter ¼-megohm resistance and Muter 1/10-megohm resistance.....	.60
Fig. 14A—Muter 1 mfd. by-pass condenser.....	1.25
Fig. 14B—Muter 1 mfd. by-pass condenser.....	1.25
Fig. 15—Henninger SLF .00035 capacity variable condenser.....	5.25
Fig. 17—Walbert filament switch.....	.50
Fig. 18—Yaxley air-cooled rheostat, 6-ohm.....	1.35
Fig. 19—Henninger SLF .00035 capacity variable condenser.....	5.25
Fig. 20A—Yaxley interstage jack, code No. 4.....	.80
Fig. 20B—Yaxley single circuit jack, code No. 1.....	.50
Fig. 21—Centralab 200,000-ohm resistance.....	2.00
Fig. 22—Henninger SLF .00035 capacity variable condenser.....	5.25
Fig. 23—Two Muter .005 fixed condensers for resistances and one Muter .002 fixed condenser.....	1.40
Fig. 24—Muter ½-megohm resistance and Muter 1/10-megohm resistance.....	.60
Fig. 25—Buell standard socket.....	.75
Everybody's standard panel "E," Starrett drilled and engraved, 26"x7".....	4.65
Phenolite sub-panel or base, 25"x7".....	4.25
Benjamin sub-panel brackets, per pair.....	.70

Total essentials ..... \$ 62.60

**Accessories**

Six "Continental" 201A tubes at \$2.....	12.00
One Bulkwill & Patch cabinet, 7"x25".....	5.50
One "Firedry" storage "A" battery, 100-ampere.....	18.00
One 90-volt "Bong" "B" battery.....	45.00
One Welty loudspeaker.....	21.00

Total accessories ..... \$101.50  
Total for complete outfit..... 164.11

**HOW TO WIRE RECEIVER**

Everybody's Standard Panel "E" is used for this set with a few added holes. The Henninger variable condensers used in this model require three small mounting holes besides the standard shaft hole. Looking at the front, the center of the hole for the shaft of the variable condenser (Fig. 22) is three inches from the left edge and three and one-half inches from the lower edge. The center of the hole for the shaft of the variable condenser (Fig. 19) is five inches to the right of this hole and three and one-half inches from the lower edge of panel. Five inches to the right of the center of this hole is the center of the hole for the shaft and three and one-half inches from the low of variable condenser (Fig. 15). Five inches to the right of the center of this hole and four inches from the top edge of the panel is the center of the hole for mounting variable resistance (Fig. 21). Three inches to the right from

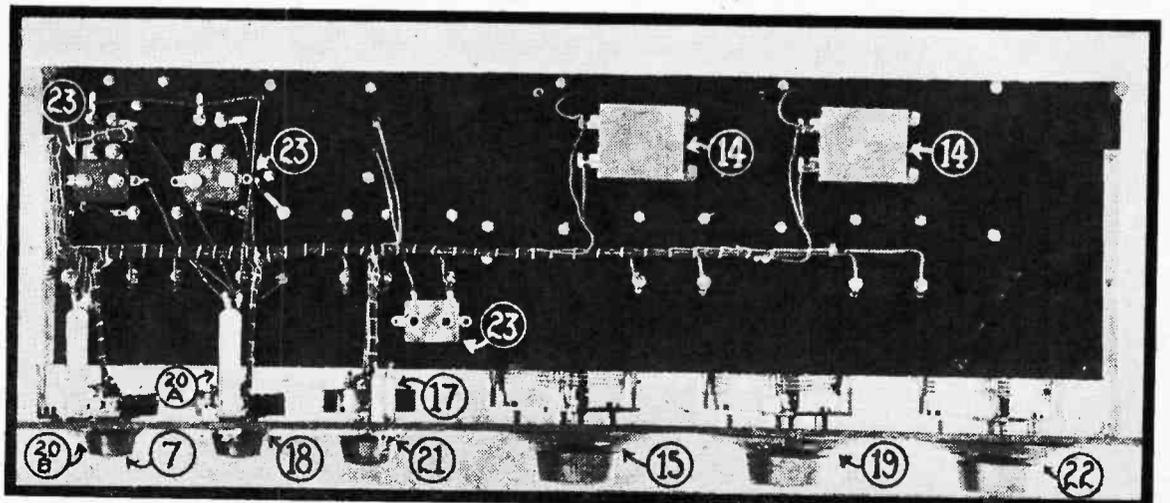
the center of this hole and four inches from the top edge of the panel is the hole for mounting the rheostat (Fig. 18). Three inches to the right of the center of this hole and four inches from the top edge of the panel is the hole for mounting the rheostat (Fig. 7).

One inch from the bottom edge of the panel and one inch from the right edge is the center of the hole for single circuit jack (Fig. 20B). Two and three-quarter inches to the left of the center of this hole and one-inch from the bottom is the center of the hole for mounting double circuit jack (Fig. 20A). Two and three-quarters inches to the left of the center of this hole and one inch from the lower edge of the panel is the center of the hole for mounting filament switch (Fig. 17).

As there is no baseboard the panel is mounted to the sub-base or sub-panel by brackets as shown by the photographs. These brackets are six and one-half inches long. The sub-base measures 25x7 inches and the top is six inches from the top of panel, and when mounted the rear edge is eight and one-quarter inches from the front panel. The six sockets are placed on it with one edge of each three inches from the rear edge. The right edge of the socket at the extreme right (Fig. 10) is four and one-quarter inches from the right edge of the sub-panel. The right edge of socket (Fig. 3) is two and three-quarters inches from the left edge of socket (Fig. 10). Three and one-half inches from the left edge of socket (Fig. 3) is the right edge of socket (Fig. 2). Sockets (Figs. 2, 12, 25 and 8) are separated by one-quarter-inch of space between them.

One of the mounting holes for first radio frequency coil (Fig. 11) is three inches from the right edge of the sub-panel. Five inches to the left of the center of this hole is the center of the mounting hole for radio frequency coil (Fig. 9). Five and one-quarter inches to the left of the center of this hole is the center of the mounting hole for radio frequency coil (Fig. 5). These three mounting holes are all one-quarter of an inch from the rear edge of the sub-base. The Henninger coils are placed on the sub-panel with the "B" and the "P" posts away from the panel. These two posts are the primary windings and the other two posts towards the panel marked "F" and "G" are the second secondary posts.

One of the mounting holes for audio frequency transformer (Fig. 6) is five and one-quarter inches from the left edge of the sub-base and one-quarter of an inch from the rear edge. This transformer is placed with the "P" and "G" posts facing the panel. The resistance (Figs. 13 and 24) are placed with two of the mounting holes one inch and one-



Cabling is placed on the under side of the base panel as is also the by-pass and fixed condensers. The jacks are also shown with their connections on the under side

"It Isn't Everybody That Can Advertise in EVERYBODY'S."

# Barrett & Paden

## Micrometer Condenser

Used in "Everybody's Jim Wells Link Circuit" Model Receiver

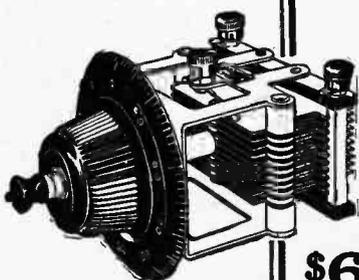
The first model receiver to be published of "Everybody's Jim Wells Link Circuit" appears in next week's issue of "Everybody's Radio Weekly." It uses two Barrett & Paden Micrometer Condensers which are so essential to SHARP tuning receivers.

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quarter from the rear edge of the sub-base. Two of these are mounted together and placed centered directly behind the socket (Fig. 25) with the 1/10 meg. on the right. The other two are set together and mounted directly behind socket (Fig. 8) with the 1/10 meg. on the right.

The posts of each pair are as follows: The "P" post is at the end nearest the panel of the 1/10 meg. resistance. The "G" post is on the end nearest the panel on the 1/2 meg. The "F" post is at the end farthest away from the panel on the 1/2 meg. resistance and the "B" plus post is on the end farthest away from the panel of the 1/10 meg. resistance.

The Jones Multiplug bracket (Fig. 4) is centered between the two pairs of resistances (Figs. 13 and 24) and is at the rear edge of the sub-panel.

The Multiplug should have a hole about one-half inch away from it large enough to admit the cable of twelve wires. The "A" minus post and the "B" minus post and the "ground" post of the Multiplug are soldered together by a small piece of wire. There are six wires going to the "A" minus, "B" minus, "ground connections" and they can be divided by putting two on each one of the three posts that are soldered together.

Turning the set over. There is a .005 fixed condenser mounted across the "P" and "G" posts of the resistance (Fig. 13) and also across the "P" and "G" posts of resistances (Fig. 24). These are placed between the two mounting screws. A .002 fixed condenser is placed with one prong soldered to the "F" minus post of socket (Fig. 2) A piece of flexible wire is soldered to the other prong and runs to the "P" post of audio frequency transformer (Fig. 6). These three fixed condensers are shown in the photograph of the bottom of the set and are all shown as Fig. 23. The two by-pass condensers (Fig. 14) are mounted with one edge three-quarters of an inch from the rear edge of the sub-panel. The edge of one is five inches from the left edge of the sub-panel looking at the bottom, and the edge of the other is three inches to the right of the edge of this first one.

This finishes the laying out of the parts and we are now ready to wire the set.

To simplify the wiring of the set we will describe the wires on the top of the sub-panel first. A lead goes from the rotor of the variable condenser (Fig. 22) to the "F" post of the first radio frequency coil (Fig. 11). Another lead goes from the rotor post of the variable condenser (Fig. 22) to the rotor post of the variable condenser (Fig. 22) to the "F" minus post of the first radio frequency socket (Fig. 10). A lead goes from the stator post of the variable condenser (Fig. 22) to the "G" post of the first radio frequency coil (Fig. 11) and from here continues to the "G" post of first radio frequency socket (Fig. 10).

A lead goes from the rotor post of variable condenser (Fig. 19) to the "F" post of second radio frequency coil (Fig. 9). And continues through a hole in the sub-panel to one prong of the by-pass condenser on the under side (Fig. 14A). Another lead goes from the rotor post of the variable condenser (Fig. 19) to the "F" minus post of the second radio frequency socket (Fig. 3). A lead goes from the stator post of the variable condenser (Fig. 19) to the "G" post of the second radio frequency coil (Fig. 9) and from here continues to the "G" post of second radio frequency socket (Fig. 3). A lead from the rotor post of variable condenser (Fig. 15) goes to the "F" post of the third radio frequency coil (Fig. 5) and continues from this post through a hole in the sub-panel to one prong of the by-pass condenser (Fig. 14B) on the under side. Another lead goes from the rotor post of variable condenser (Fig. 15) to the "F" minus post of detector socket (Fig. 2).

A lead goes from the stator post of variable condenser (Fig. 15) to one side of the gridleak and condenser (Fig. 1) and from this point continues to the "G" post of third radio frequency coil (Fig. 5). The other side of the grid leak and condenser (Fig. 1) is attached to the "G" post of detector socket (Fig. 2).

The antenna lead-in is attached direct to the "P" post of the first radio frequency coil (Fig. 11). A lead goes from the "B" post of first radio frequency coil (Fig. 11) to the "F" post of the same coil. A lead from the "P"

(Continued on page 12)

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# Practical Helps for Home Set Builders

Contest Weekly Develops a Wealth of Practical Ideas for Home Experimenters

## A THREE CIRCUIT TUNER

Contest Entry

By WM. HAWKYARD,  
400 Penobscot Building, Detroit, Mich.  
This tuner works well and is simple to construct. The primary coil can be varied at zero coupling while its maximum is the difference between the thickness of the wooden peg supporting the secondary coil, and close coupling which in this case is negligible. The primary can only be rotated through 180 degrees of a circle but this is enough and to spare.

The diagram of this tuner is self explanatory. The tickler coil is attached to the hollow brass rod. This rod runs through the secondary and the secondary coil is held stationary by the wooden peg and an angle bracket mounted to the baseboard or a peg in the baseboard will do. Part of the hollow brass rod runs through one side of the primary and the other side of the primary coil is attached to the small brass shaft running through the larger hollow brass rod. This enables the primary to be turned without disturbing the tickler or secondary windings. The three coils are wound spiderweb fashion with the number of turns you desire.

A large dial is mounted on the end of the large shaft and a small knob is mounted on the end of the smaller shaft for turning the primary coil. A bracket mount can be attached to the baseboard, having the end of the small shaft going through a hole to it and also serving for binding posts for the primary and secondary coils, the tickler connections being made direct from the coil.

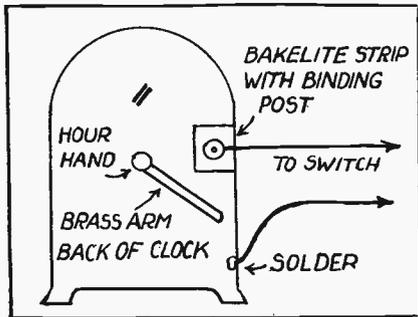
The tickler is fastened to the large shaft with collodion. The small shaft should have a small hole to admit a piece of bus bar to tie the primary coil to the shaft.

## AUTOMATIC SWITCH

Contest Entry

By H. J. NEWMAN,  
2761 N. Windsor Ave., Chicago, Ill.  
Here is a device whereby the receiving set may be automatically turned on without personal attention once it is set. This idea will interest those who find it troublesome and a drain on the batteries and tubes to sit by their receivers waiting for a certain station to come on the air, or for a special address, etc.

I first procured an old clock and soldered a brass strip one-quarter inch wide to the stem of the hour hand. A hole was then drilled in the back of the clock close to the edge and in this



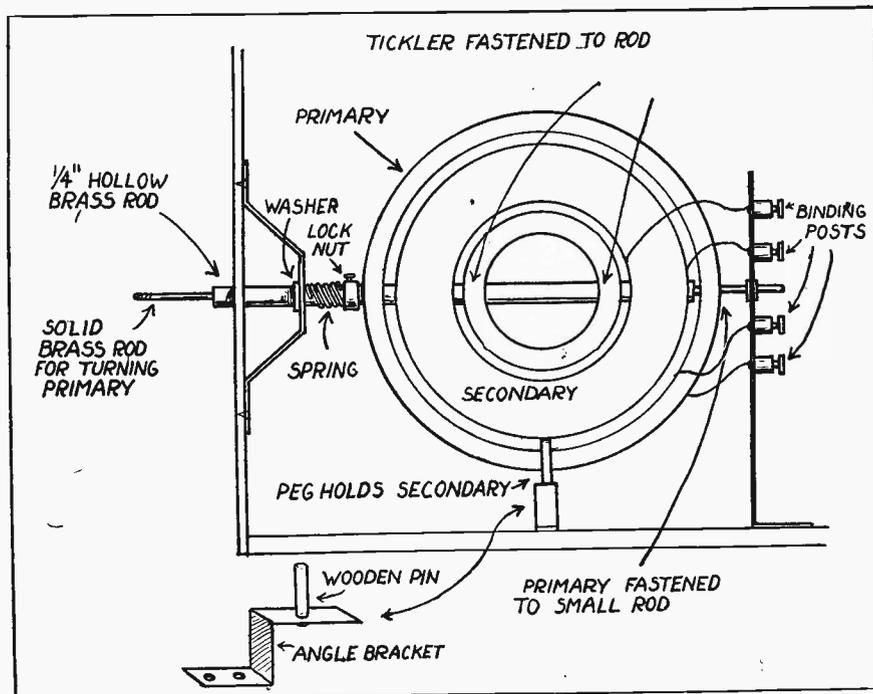
hole was fastened a piece of bakelite which had a screw, bolt and a binding post; this was done to insulate the binding post from the rest of the clock.

The brass strip must be long enough so that in turning it will come in contact with the binding post. A wire is attached to the binding post and another wire is attached to the body of the clock. These wires are attached to the switch. In operating the device for a set station which, for example, is coming on the air in half an hour, set the hour hand of the clock 30 minutes ahead. Some persons may think that the brass arm will slip past the binding post in time but this only makes a better contact and the arm will not slip if it is made long enough.

## DISTILLED WATER

The usual "A" storage battery is made of a number of lead plates in a solution of sulphuric acid and distilled water must be added from time to time to make up for evaporation. Be sure to keep the level of the solution above the top of the plates.

EVERYBODY'S RADIO Weekly will give away one radio set each month for the best and most useful suggestion made by a reader—an "Everybody's 100% Low-Loss" One Tube receiver built in our laboratory. Who wants it? Subjects may range from how to wind a coil to a new super-hot hookup. Judges to be Everybody's experimental laboratory. No manuscripts entered in this contest can be returned. Drawings or pictures to illustrate your ideas are desirable but not essential. Judgment will be on practicality of idea, not literary merit. All manuscripts entered to become the property of this publication. In case of tie prize will be duplicated. Address Home-builder Contest Editor, EVERYBODY'S RADIO Weekly, 2721 S. Michigan Ave., Chicago. Rules—All letters MUST be in ink or typewritten, on ONE SIDE OF PAPER, and addressed as above to help us serve you.



Three coils are mounted on one shaft, the tickler, secondary and primary using spiderweb forms for the construction of the coils. The coils are coated and removed from or cut out of the forms

## PROCURE GOOD RHEOSTATS

Among radio receiving parts the rheostat is extremely important, for while the set is in operation it resists the flow of electricity to the filaments. Otherwise, without a rheostat, your filaments would doubtless be damaged beyond repair, as too much current would pass through and cause the thin thorium coating to deteriorate and flake off.

This often happens if rheostats are turned too far, and is the chief cause of tubes going "dead." In resisting the flow of current, the wire may get quite hot if the tubes need a good deal

of current. As the temperature rises, it causes the wire to expand. Should the wire grow hot enough to char the insulation on which it is wound, it becomes loose and nearby coils may touch each other, and the rheostat loses its smooth operation.

Be sure that the wiping arm makes good contact on the resistance at all times. If turned to the extreme left, the wiping arm should leave the wire and come to rest on the insulated strip, breaking the circuit. Make it a point to select the right type of rheostat. Buy one that is simple and compact. Be certain that the winding is not defective and that no part is missing.

## To Keep Antenna Taut

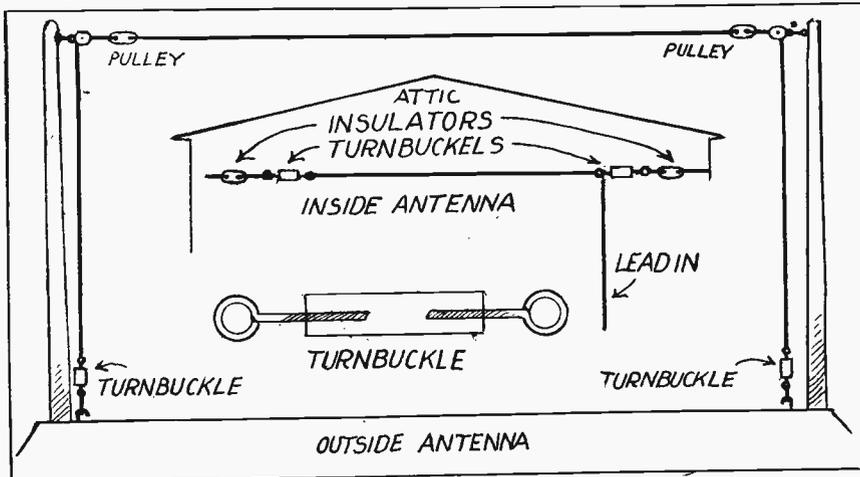
Contest Entry

By BEN LAMBERTH,

7814 Vernon Avenue, Chicago, Illinois.  
One of the best methods of keeping an antenna taut is to use some kind of a turnbuckle. I find a home-made affair as shown in the illustration to do as well as those that can be purchased and at a very small cost. For an in-

side aerial placed in the attic it is superb and will keep the line taut at all times.

The same kind of a device can be used on an outside aerial as illustrated. This is where an aerial is run between two posts. If a tree is used for one support this kind of a fastening will not be effective.



"It Isn't Everybody That Can Advertise in EVERYBODY'S."

## CONDENSER TROUBLE SHOOTING

The average radio phan when encountering trouble in his set, frequently desires to test the fixed and variable condensers to make sure they are O. K. There are two main possibilities of trouble in condensers, namely, short-circuits between plates and poor external connections. The test for a complete short circuit in either fixed or variable condensers is simple.

It is necessary only to connect the condensers in series with a battery and buzzer as frequently shown in diagrams in EVERYBODY'S RADIO Weekly. If the buzzer operates, it is an indication of a complete short. This test does not show a partial short-circuit. In making such a test the condenser must, of course, be disconnected from the receiver.

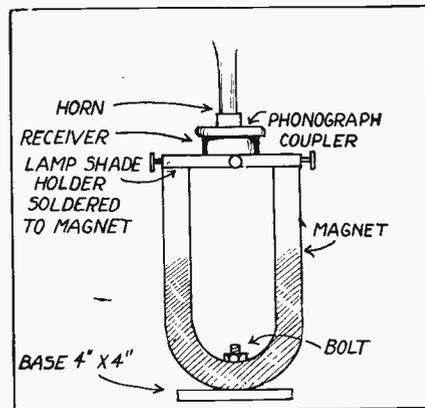
There is a single test for both of these defects in the ordinary small condenser used in radio receivers. This test is simple but, nevertheless, some care will have to be exercised to make it effective. When a direct current, as from a 1 1/2 volt battery, is allowed to flow through a circuit in which a series condenser is connected, the current will flow for only a fraction of a second, or until the condenser becomes charged. If phones are in the circuit during that time, the momentary current flow will result in a single audible click in the phones. Even if the circuit is broken and immediately connected again, there will be no further current flow in the circuit. If the current does flow it indicates a defective condenser.

## LOUDSPEAKER FOR CRYSTAL SET

Contest Entry

By M. F. COSTECK,  
1431 Emma St., Chicago, Illinois  
The materials necessary for making this loudspeaker are a strong horseshoe magnet, such as is used in the construction of a magneto, a ten cent lamp shade holder, a coupling from a phonograph, one ground clamp, one piece of wood four inches square, an old horn and a phone receiver. The shade holder is soldered to the magnet. In placing the phone receiver in the shade holder be sure to have the poles, N and N, S and S, meet. If the poles are not marked they can be determined for polarity by the use of a common compass. Fasten the phone receiver in place with the set screws of the shade holder.

Remove the cap on the phone re-



ceiver and attach the coupling in its place. If you do not have this coupling at hand an old one can be procured at a phonograph store.

Fasten the magnet to a piece of wood four inches square, using an old ground clamp for the holding device. An old horn is fit into the coupling.

With this speaker and my crystal set I can hear KYW, WGN, WLS and WEBH clearly and distinctly all over the room and signals can be heard at the opposite side of the house.

## USE CARE WITH "B" BATTERY

Remember that a high voltage "B" battery can cause considerable damage if carelessly handled. The insulation on the wiring must be sufficient for the voltage used. Care should be taken in the installation of a large capacity storage battery. Short circuits should be guarded against by proper wiring and insulation.

# YAXLEY

APPROVED RADIO PRODUCTS

Used in Jim Wells Link Circuit Receivers

Yaxley Products not only are approved by "Everybody's Radio" Laboratories, but by all other recognized radio authorities and the radio public in general. Good radio depends upon GOOD apparatus, even in the smallest parts. Why invest from \$50 to \$200 in apparatus and skimp on the small parts? Your Jacks and rheostats are just as important to your set as your coils and condensers.

### YAXLEY Radio Jacks



Jacks for every need in finest radio sets. One nut mounting in 1/8-inch panel hole. Genuine phosphor bronze springs; pure silver contact rivets and terminals tinned for soldering. Used in Everybody's Radio hookups because they are efficient. Price, No. 4 Inter stage Jack as illustrated, 80c each

### YAXLEY Rheostats



Don't compare this rheostat with any other rheostat made because it is DIFFERENT. It is a marvel in design and construction. Coil is air cooled, exposed on all sides. Adjustable contact sliding lever. No vernier required. One nut mounting. Price with knob ..... \$1.35

Etched Dial Plate, 15c Extra

### YAXLEY Battery Switch



It's a quick "make" quick "break" "A" battery switch and should be in every radio receiving set. Neat and compact—quick, positive snap-break contact. One nut mounting in single hole. Hard rolled bronze springs—constructed for lifelong service. You see it every week in the laboratory models of "Everybody's Radio." Price each..... 50c

### Yaxley Booklet Free

This is not the entire Yaxley line. Write for the Free Yaxley Booklet describing all the Yaxley Approved Radio Products. One of the newest Yaxley items is the Yaxley Wall Socket Jack. You can wire every room with radio by their use. Write today.



Jobbers Everywhere

Dealers Everywhere

Dept. G, 217 N. Desplains St., Chicago

(Continued from page 10)  
post of second radio frequency coil (Fig. 9) goes to the "P" post of the first radio frequency socket (Fig. 10). A lead from the "B" post of second radio frequency coil (Fig. 9) goes through a hole in the sub-panel to one side of the by-pass condenser (Fig. 14A) and from here following the cable, to the right post of the 200,000 ohm resistance (Fig. 21). A lead goes from the "P" post of the third radio frequency transformer (Fig. 5) to the "P" post of the second radio frequency socket (Fig. 3). A lead goes from the "B" post of third radio frequency coil (Fig. 5) through a hole in the sub-panel to one prong of the by-pass condenser (Fig. 14B) and continuing from this point with the cable, it goes to the right post of the 200,000 ohm resistance (Fig. 21). A lead goes from the "P" post of the audio frequency transformer (Fig. 6) goes to the "P" post of the detector socket (Fig. 2). Another lead goes from the "P" post of audio frequency transformer (Fig. 6) through a hole in the sub-panel to one prong of the .002 fixed condenser (Fig. 23). A lead goes from the "G" post of audio frequency transformer (Fig. 6) to the "G" post of the first audio frequency socket (Fig. 12).

A lead goes from the "B" plus post of audio frequency transformer (Fig. 6) through a hole in the sub-panel and continues with the cable to the Multiplug bracket (Fig. 4), where it is attached to the "B" plus 45 connecting post. A lead goes from the "F" post of the audio frequency transformer (Fig. 6) through a hole in the sub-panel to the "F" end of the 1/2 meg. resistance on the left of (Fig. 24) and continues from here to the "F" end of the 1/4 meg. resistance on the left of (Fig. 13). Another lead goes from the "F" post of audio frequency transformer (Fig. 6) through the hole to the "F" minus post of socket (Fig. 25). This completes all of the wiring of instruments on the top of the sub-panel.

A lead goes from the left post of variable 200,000 ohm resistance (Fig. 21), being cabled with the other two wires from the other post until it reaches the main cable, which it follows until it reaches the "B" plus 90 connection of the Multiplug bracket (Fig. 4). A lead goes from the right post of rheostat (Fig. 18) to the cable, which it follows until it reaches the "F" plus post of first radio frequency socket (Fig. 10). Another lead goes from the right post of the rheostat (Fig. 18) to the cable and follows it until it reaches the "F" plus post of second radio frequency socket (Fig. 3). A lead from the left post of the rheostat (Fig. 18) goes to the right post of filament switch (Fig. 17).

A lead from the right post of the rheostat (Fig. 7) goes to the cable, which it follows until it reaches the "F" plus post of the detector socket (Fig. 2). Another lead goes from the right post of rheostat (Fig. 7) to the cable, which it follows until it reaches the "F" plus post of first audio frequency socket (Fig. 12). A third lead goes from the right post of the rheostat (Fig. 7) to the cable, which it follows until it reaches the "F" plus post of the second audio frequency socket (Fig. 25). A fourth lead goes from the right post of the rheostat (Fig. 7) to the cable, which it follows to the "F" plus post of last audio frequency socket (Fig. 8). A lead from the left post of the rheostat (Fig. 7) goes to the right post of filament switch (Fig. 17). A lead from the left post of the filament switch (Fig. 17) goes to the cable, which it follows to the "A" plus connection on the Multiplug bracket (Fig. 4).

A lead goes from the "F" minus post of first audio frequency socket (Fig. 10) to the cable, which it follows to the "A" minus, "B" minus, ground connection on the Multiplug bracket (Fig. 4). A lead goes from the "F" minus post of the second radio frequency socket (Fig. 3) to the cable, which it follows to the "A" minus, "B" minus, ground connection of the Multiplug bracket (Fig. 4). A lead goes from the "F" minus post of the detector socket (Fig. 2) to the cable, which it follows to the "A" minus, "B" minus, ground connection of the Multiplug bracket (Fig. 4). A lead goes from the "F" minus post of the first audio frequency socket (Fig. 12) to the cable, which it follows to the "A" minus, "B" minus, ground connection of the Multiplug bracket (Fig. 4). A lead goes from the "F" minus post of the second audio frequency socket

(Continued on page 15)

## Everybody's RADIO DEALER Co-operators

To avoid having readers chase here and there hunting for products advertised or specified in EVERYBODY'S RADIO Weekly we have arranged with the retail radio dealers, listed below, to act as our co-operators. They have agreed to stock merchandise advertised in this publication or to obtain same on a few hours' notice. Just tell them you're an "Everybody's" reader and you'll get prompt service.

### Buy from These Dealers—

They're Trustworthy

We have selected these dealers because they are in full sympathy with our quality merchandise policy and will stand back of their promises to you. They have agreed to co-operate with our readers and us because they know that all merchandise advertised in EVERYBODY'S RADIO Weekly has been TESTED and proven for QUALITY and PERFORMANCE and is safe to buy and sell.

#### LOOP DISTRICT—

- CHICAGO RADIO APPARATUS CO. 407 S. Dearborn St., Chicago
- NEWARK ELECTRIC COMPANY 225 W. Madison St., Chicago
- NELSON ELECTRIC COMPANY 508 S. Dearborn St., Chicago
- SILVER-MARSHALL, INC. 105 S. Wabash Ave., Chicago

#### WEST SIDE DISTRICT—

- ATWOOD ELECTRIC COMPANY 3122 W. Madison St., Chicago

#### NORTH SIDE DISTRICT—

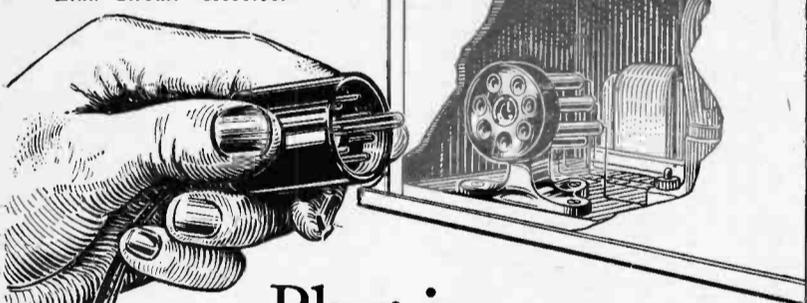
- WONDER SALES COMPANY 3152 Irving Park Blvd., Chicago

#### SOUTH SIDE DISTRICT—

- H. & H. RADIO SHOP 5638 S. Ashland Ave., Chicago

NOTICE TO DEALERS: Your name will be added to this list without charge if you will qualify as an "Everybody's Radio Co-Operator." Phone Mr. Morford, Calumet 3310, for particulars.

Used in "Everybody's Jim Wells' Link Circuit" Receiver



## Plug in Your Batteries!

One plug does the work for all batteries, your aerial and your ground. Just as easy as plugging in your loud speaker to a jack. Once your batteries are connected your troubles are ended. No mistakes—no blown-out tubes. Wires all cabled.

- TYPE BM.....For set building, \$4.50
- TYPE BP.....Adaptable to any set, \$5.00



# Jones MULTIPLUG

THE STANDARD SET CONNECTOR

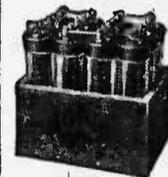
HOWARD B. JONES, 618 S. Canal Street, CHICAGO

# BONG

Radio "A & B" Batteries



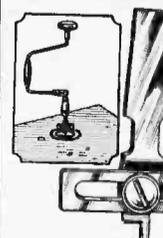
Perfect Reception



No Plates No Separators

BONG BATTERY CORP. 3264 W. GRAND AVE., CHICAGO

### THE G-R CIRCLE CUTTER



Cuts holes in RADIO PANELS

From 3/8 to 3 Inches

For Jacks, Switches, One Hole Instruments, Tube Sockets, Voltmeters, etc.

Costs no more than one large drill.

At your dealer or sent direct on receipt of check or money order.

PRICE 65c

GARRISON-RUMELY 3020 Sheridan Road Chicago, Ill.



### NO MORE LOOSE CONNECTIONS

#### X-L PUSH POST

A Binding Post that really does excel. Looks, action, service and convenience. Push it down—insert wire—cannot jar loose from vibration. No screwing or danger of shearing off wires. Furnished attractively plated with soldering lug and necessary markings. Price, Each, 15 Cents. X-L RADIO LABORATORIES 2424 Lincoln Ave. CHICAGO

# Your Questions Are Answered Here Everybody's Clearing House for Troubled Set Builders

## An Expert Aid on Construction and Operation of Sets

QUESTIONS can be answered only by mail. Write your query on only one side of the sheet and enclose diagram of your circuit whenever it will aid us in locating your trouble. Address all letters for this department to Question and Answer Department, care of this magazine. Inclose stamped and addressed envelope if answer by mail is desired. In writing to other departments, use a separate sheet of paper. This will aid us considerably in serving you quickly.

### Thorola Coils and Link Circuit

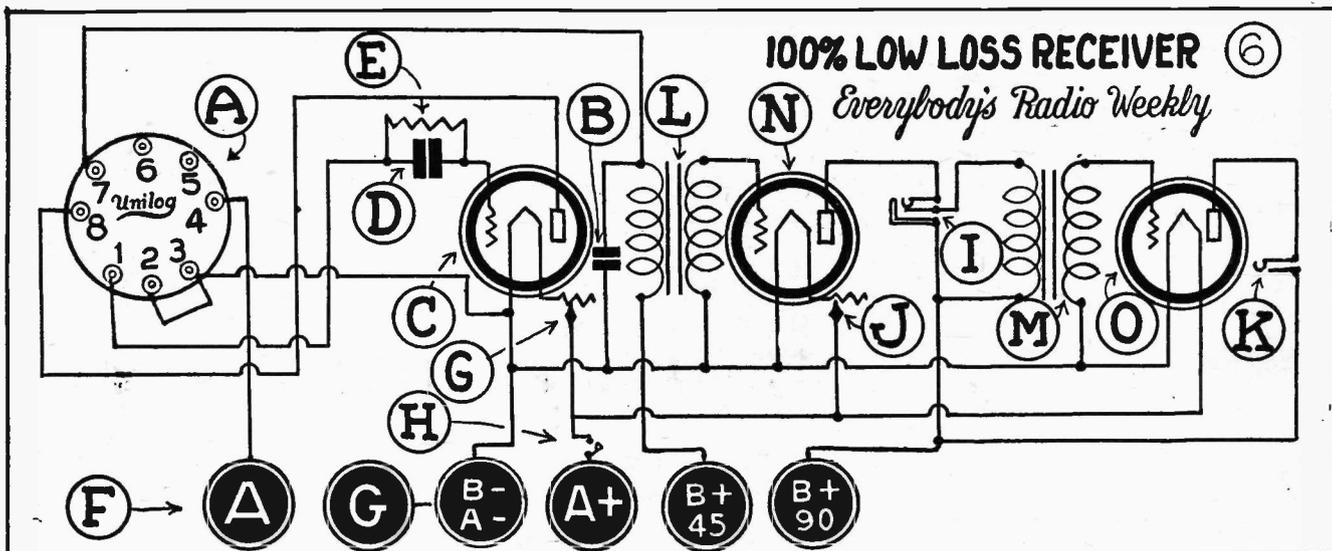
RIVER FOREST, ILL.: I have a Thorola Islodyne five-tube receiver, over which my dad, a new radio phan, has literally gone nuts. What can you say about this receiver's merits? My aerial is a single wire, No. 14 stranded, thirty feet high and eighty-five feet long (best I can do) with a lead-in of about forty feet. With this outfit of the skies, I usually can tune out Chicago stations in three, perhaps 5 points. You know that you have stated that the doughnut coils will not pick up any signals when both aerial and ground are disconnected. My set will. I can get WENR best that way. In fact WENR is almost all I get. I disconnected aerial and ground wires at the set. Why is this? The coils are about half an inch from the condensers at the closest. My dad threatens a lot if I in any way change this set, but nevertheless I am going to build the "Jim Wells Link Circuit" unit for it. Will it help it much?

Set is O. K. outside of that trouble. It delivers good volume, tone, and fair distance (have had it only two weeks), Denver and Miami, Fla., best. But have not, as yet tried with head phones.

Here, also, is a list of miscellaneous questions in want of your answers: (1) How can variable condenser capacities be determined? I have a few extras on hand (good ones, too) and I need one of definite capacity for the Jim Wells Link Circuit unit. (2) How does the Thorola Islodyne stock up with the "Lossless D" coil? (3) How can the ratios of audio transformers be determined? (4) Do you think that Continental tubes are as good as the "trust tube"? (5) You say that the Jim Wells Link Circuit USES NO tubes. Yet Continental Sales Co's add on page 15 of Nov. 14 issue, says that Continental tubes ARE USED in it.

The same applies to transformer ads. Karas Harmonic says Yes. How come? (6) Is it better to build the link circuit into a receiver, or to build the separate unit? Thanks very much. Good luck to the best of all papers.

We have never had one of these receivers in our laboratory for test and cannot report on it. Your aerial is a fair one and probably is as much as your set will stand. In Everybody's Five-Tube-Lossless we prefer a much larger aerial for real distance and volume. One has to take what he can get, however. In giving the height do you measure from the ground and all grounded objects, such as roofs, trees, etc.? Thirty to thirty-five feet in height makes the ideal average aerial. Yes, we have stated that certain types of doughnut coils do not have any "pickup." This is true of those properly designed and is correct, theoretically, of all of this type, but unfortunately not all live up to the theory. The Naxon coils practically have no pickup. The trouble with your Thorola coils, possibly, is that your antenna coupler is too tightly coupled. When these coils were first placed on the market they had that fault, and in our discussion of these coils last spring in these pages we called attention to that defect. We understood the Thorola people since have corrected the defect. Perhaps you have an old set of the coils. You might try moving the coils a little in their positions. A slight adjustment of the angle they are placed in will sharpen them up in tuning somewhat. Your coils also are too close to the condensers. They should be moved back farther. The Jim Wells Link Unit will help your tuning considerably. Your set should bring in all the stations on a loudspeaker. Now to answer your questions in the order asked: (1) The only accurate way to tell the actual capacity of a variable condenser is to use laboratory apparatus. Approximate estimate may



5156—INDIANAPOLIS, INDIANA. I am somewhat confused in making connections to the Unilog tuner for my set. Will you please mail to me a sketch showing the proper binding post connections with wire terminals? The accompanying circuit diagram shows the Unilog unit as it is placed in the 100% Low Loss hook-up. This diagram should clear up obstacles for many phans who are writing to us for this same layout.

be had by counting the plates. Most manufacturers build to a standard, and a certain number of plates, both rotor and stator, is supposed to determine the capacity. Twenty-three plates, counting both rotor and stator plates, are for .0005 mfd.; seventeen plates, .00035 mfd., and eleven plates, .00025 mfd. (2) We do not believe that the circuit you mention, or any other tuned radio frequency circuit is near so efficient as "Everybody's Lossless" circuit. If we did, we would discard the "Lossless" and publish the other as the one we advise our readers to use. As to the coils we believe the "D" coils are sharper than the ones you mention, unless the make you possess has been greatly improved since we ran our tests on them last spring. (3) The ratio of audio transformers only can be told by determining the number of turns of wire wound on the primary, and the secondary coils, unless the transformers carry the ratio in figures stamped on their shells or name plates which they usually do. Most of the modern audio transformers are of the all-stage ratio and it makes no difference how they are placed in the set. This means they are usually of the same ratio—a low one, and that they are interchangeable. The Karas, Melofomers, Wagner, Ambassador, General Radio, Amertran, Rauland Lyrics, Jefferson and the similar jumbo types are all-stage ratios. Thorardson still makes several ratios, but the popular seller is an all-stage ratio, being of two-to-one ratio. (4) The "Continental" tubes not only are as good as the "trust" tubes, but they have the advantage of being acceptable for replacements if defective. You can buy a "Continental" today and take it back that same day or the next and get it exchanged. You can't do this with the so-called trust tube. The "QRS" Red Tops" are in the same class as to replacements. (5) The "Jim Wells Link Circuit UNIT," or the circuit proper, does not require a vacuum tube, but when this is made a part of another hookup, as we show it in the model sets we have published, tubes are required in the receiver, of course. If you add a unit to your present set, for instance, you will not require an additional tube. (6) Whether the Jim Wells Link Circuit is built as a separate unit and attached to a receiver, or built in a receiver as a part of it, will have no effect on the efficient operation of the receiver.

### Winding Radio Frequency Coil

5187—CHICAGO, ILLINOIS: As I am a constant reader of your wonderful magazine and think it great, I am coming to you for help. I have a three-tube Ambassador which uses the new type coil, .00025 Bremer-Tully lowloss condenser, All-American transformers, 5 to 1 ratio. I am troubled with WENR very much. I live more than a mile from them, but can't tune them out, only with an inside antenna. I do not get DX as I should. I would like to rebuild it and would like to know just which hook-up to use, either the "100% Lowloss" four-tube, or the new Jim Wells Link circuit. If you will kindly tell me which of these would be the most suitable for the parts I have.

I want the correct data on the radio frequency coil, as I wish to wind it myself. Your trouble in not being able to tune out WENR is only one of many troubles that has come up to us in the last month. Reports from many parts of the north side are that the station is quite broad and a person living under the shadow of the station, as you do, has a lot of trouble. There is really nothing you can do for it. Under such high power, and being so close to it, the coils, wiring, and other apparatus in the receiver, act as the pick-up factor and receiving could be done without any antenna at all. The usual remedy for this is to use coils designed to partially eliminate electro magnetic pick-up and then shield the entire receiver against electrostatic pick-up. Although the "Jim Wells Link" circuit may be of some help, we fear, as we have said above, that the coils themselves would pick up the energy.

Adding a stage of radio frequency would certainly increase the range of the receiver, and, also, the selectivity.

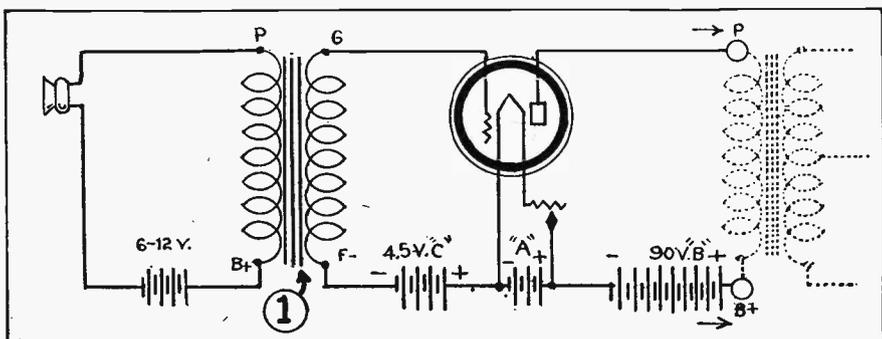
The winding for an antenna coupler to be used in our four-tube hook-up is 50 turns No. 24 D.C.C. wire on a three-inch tubing for the secondary, and 10 turns of the same size wire for the primary coil. This coil is preferably variable, but it may be fixed and wound a half-inch away from the secondary winding. These windings given above are for a .0005 Mfd. condenser, and you state in your letter that you are using an Ambassador tuner with a .00025 condenser. This is not enough capacity for this tuner, as it will not tune above 450 meters. The correct capacity is .0005 Mfd.

### Short Range Transmitting

5193—JACKSONVILLE, FLORIDA: As I expect to install an amplification unit in a church auditorium to carry the services to the basement, I would like to have any data available for the construction of a device or set that will produce results on such short distance. A microphone is to be used.

Herewith is shown a diagram suitable for the work you have for it. The microphone battery is 6-12 volts storage. The transformer, Fig. 1, is a special modulation transformer such as the Thordarson, General Radio, Western Electric, Radio Corporation or the Kellogg.

The posts marked P and B plus are to be attached to a good power ampli-



fier of the push and pull type, impedance type or resistance coupled. The dotted lines show the start of the amplifier.

### Connecting A and B Minus

5134—ELGIN, ILL.: We have just hooked up your three-tube "100% Low-loss" receiver from instructions on page eight of the August 15, 1925, edition. We have checked up the hookup several times. I personally went over it a moment ago. When we turned it on we blew two tubes. The A minus and B minus wires got hot and yet no rheostat was turned on. There must have been a short, of course. We do not believe the hookup is correct. The tubes burned out were the second and third ones, starting from the right—not the detector tubes, but the amplifying tubes. This was not a sudden blow out, but a slower heating of the wires that burned the tubes. Can you tell us what the trouble is? Naturally, we are pretty much puzzled. Thank you for any help you can give.

The circuit diagrams are absolutely correct. Where the A minus and the B minus are hooked together, as shown, there is no possible way to blow the tubes, even though the plates of the condenser touch. You must have an unseen short somewhere in your circuit.

### Reflex Troubles

5116—CHICAGO: I am a subscriber to your magazine and have constructed the reflex set featured in your issue of April 18, 1925. I used the following parts: Howard fixed condensers, sockets, and rheostats, Ambassador tuning coils, Barrett & Paden variable condensers and Federal audio transformers.

I wired it exactly as called for and for results I get locals rather loud without an aerial. Do not get any distance, and do not care for it. The thing that the set does not do is to bring in any of the locals clearly, and that is what I am mainly interested in, to get the locals as clear as a bell.

The only time the set brings them in clearly is when the reception is hardly audible and the moment more power is turned on the reception becomes distorted. This is noticeable in a vocal solo, when I want to hear the voice come in somewhat louder the piano accompaniment becomes very much distorted. The same is true with orchestra music or organ recitals.

Understand I want clarity of reception and not distance and if it is necessary to reconstruct the set for a circuit that brings in clear reception will do so, if you can give me that circuit, where I can still use the parts I have. Or if perhaps you may have helpful suggestions, will gladly appreciate same.

For your information, because of lack of space in my cabinet the "C" battery is resting between first audio transformer and cabinet, perhaps this may be a reason for some of the distortion.

Could a crystal be used with the parts

**THE MARK**



**OF TONE QUALITY**

Used  
in Everybody's  
**JIM WELLS**  
Link Circuit  
Receiver



Cabinet Type  
**\$31.00**

Reproducer  
**\$21.00**

**Sold on Quality—by Direct Comparison**

Nine well known makes of loud speakers—loud speakers which have a national reputation—and the new **TEMPLE** were placed behind a screen. These instruments were all given exactly the same tests under exactly the same conditions. Five acknowledged acoustical experts sat in front of the screen. All five voted for number six as unquestionably the best of the lot. Number six was a **TEMPLE** which had been picked at random from stock.



Every **TEMPLE** sold has been sold on pure merit under free competitive conditions.

The **TEMPLE COMPARATOR** divides demonstrating time by 4 and lets the customer know which speaker he wants. Through your jobber or direct to any part of the U. S. for \$3.50 net.

**DON'T BLAME THE SET—Use a TEMPLE!**

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HAYNES-GRIFFIN, INC. 111 S. Clark St.	MADISON ELECTRIC SHOP 72 West Washington St.	SILVER-MARSHALL, INC. 105 S. Wabash Ave.
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**EVERYBODY'S RADIO LABORATORY**

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Used with the new Jim Wells link circuit receiver



*Burns*

**SPEAKER**

*with*

**CONCERT UNIT**

Distinctive and pleasing in design. Remarkable volume with exactness of reproduction. Adds to the enjoyment of any receiving set. Made up with flare of horn in several handsome finishes.

**THE HEART OF THE SPEAKER**

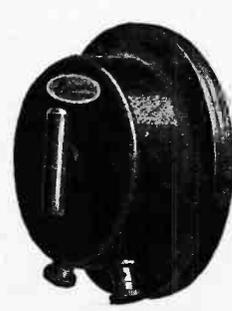
The large size and scientific construction of the Concert Unit gives the remarkable tone values which combined with the special amplifying properties of the Burns Horn produce the wonderful results obtained.

LIST PRICES	
No. 205B With black flare.....	\$22.50
No. 205D Mahogany tinted flare.....	25.00
No. 205P Mother-of-Pearl flare.....	30.00
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CONCERT UNIT

I have to construct a set I mentioned above?

From the information you have given us, we would say that you are having trouble with the grid leak.

The position of the "C" Battery should give you no trouble.

When a set calls for a reflex tube, the tube must be used. Your circuit will have to be changed for a crystal.

**Long 45 Set**

5194—CHICAGO, ILLINOIS: I was the owner of a Long 45 to which I added two stages of audio frequency. KYW is the only station that comes in with any satisfaction. I put a .001 fixed condenser in the aerial, which enabled me to get WMBB and WBCN faintly.

1. I would like to know if you could recommend any changes to increase the selectivity and enable me to bring in some other stations.

2. Would a vario-denser help in any way?

3. Would it be possible to substitute a three-circuit tuner for the Long 45 tuner? If so, will you please tell me what changes to make and what tuner would you recommend?

4. Which tuner do you find gives the most satisfaction as used in your new Link circuit. I am anxious to know as I am intending to build one very shortly.

1. The "Long 45" has given very good reception under test, and one of our readers rebuilt this set using the old tuner, and procured very good results. The description of this change appeared in the November 14 issue. There is no other change we would recommend than was given in this article.

2. A vario-denser would be of some help.

3. A new type of a three-circuit tuner like the Ambassador, Buell, Aero Coil or Gen-Ral would be much better in your set than your old Long 45. You had better follow the circuit of our 3-tube Low Loss set for making changes.

4. There is little choice in a tuner for the "Jim Wells" Link Circuit. You had better follow the advice given in one of our circuits, and keep to those instructions closely.

**Five-Tube Lossless**

5142—ALBUQUERQUE, N.M.: I would like to make a five-tube tuned radio frequency receiver, and would like to know if you could supply me with a Sicidyne or any other standard blue print. I would like to get the best parts for it at any price. Please let me know of a good hookup. Please answer the following:

1. Would straight line frequency condensers do, and what size?

2. What kind of coils would you advise me to use for 150-550 meters, sharp tuning and volume?

3. Would Karas Harmonic transformers do?

4. Please let me know the best coils, transformers, etc., to use, as I want a good receiver, no matter at what cost.

We do not know about the Sicidyne set for we have never had it for a test in our laboratory. Our 5-tube Lossless would be a good circuit to use.

Answering your questions as follows:

1. The straight line condensers are good. However, you must have the right capacity to match with your tuning element.

2. Any make we advertise; such as the Buell and the Ambassador.

3. Karas transformers are very good.

4. Just take a look in our advertising pages for parts required. Any one of our advertisers have their product tested in our laboratory before advertising. Therefore, you may be assured of the parts as being the best.

**Incorrect Coil Windings**

5193—CHICAGO, ILLINOIS: Just finished the three-tube Unilog Reflex as per your issue of April 11, and find it all you say and more as far as volume is concerned, but would like a little help on the antenna coupler. I have twenty-seven turns of No. 28 silk covered wire on the primary and forty-eight on the secondary, but I am unable to get only a half dozen Chicago stations.

At first I wound only twelve turns on the primary, but I was unable to get anything and so I kept putting on more wire until I now have twenty-seven turns on the coil, but it is still far from being right. I did not put any fixed condenser across the Hedgehog transformers and wonder if this should have been done. Won't you please help me straighten out this matter, as I believe this is a wonderful three-tube if it is made right? I am using dry cells and 299 tubes. Forty-ohm on detector and twenty-five on the amplifier. Any helpful suggestions will be appreciated I assure you.

We are unable to make out which coil you refer to in your set. If you have reference to the coil "K," then you have too many turns on the primary. The condenser is .00025, and the coil should have 10 turns for the primary and 62 for the secondary.

There is no need for a fixed condenser across the transformer unless

you have a fine whistle or crashing noises.

We are of the opinion that you will find your trouble in the coil winding.

**Aerial Length**

5174—RACINE, WISCONSIN: 1. I have a B.T. five-tube set, and I am very much satisfied with it. You say that an aerial should be 135 feet from the end of the machine and I have only 90 feet all told. I am advised that if I put on this added length that my outfit will not be so selective and that I will have much trouble with interference. Will I?

2. Is the Ferbend "B" eliminator a success and would you advise purchasing one to take the place of "B" batteries in my set?

This eliminator is made by The Ferbend Elec. Co., of 427 Superior St., Chicago.

I made one of the chargers you had in a recent issue and it works perfectly. Cost me about \$10.00 to build.

1. It would be best for you to try out your set on an aerial of 135 feet, straight line, including lead-in, to see if you will get more selectivity. If the set is broad in tuning, take off about five turns of wire from the adjustable primary on the first of the radio frequency coils.

2. We have not had the Ferbend "B" eliminator in our laboratory for a test, and, therefore, can not advise you on it.

**Lowloss Reflex**

5189—CHICAGO, ILLINOIS: Can you tell me how I could hook another tube onto the set I am showing in the pencil sketch? Do you think that I would get better results with your three-tube "100% Lowloss Reflex"? I have two lowloss condensers, two Barawik transformers and an Ambassador radio frequency transformer, and an old style Ambassador tuner. Do you think that I could get fair results with these parts?

We believe that much better results can be had by using our standard three-tube Reflex, due to its stability, distance getting, and tone quality. The hook-up you submit is a standard two-tube reflex, using a crystal which will always cause trouble as there is no regeneration present to any degree. This receiver will not be found very selective, or with distance getting qualities.

The Barwick transformer you mention will work all right, although we have made no test of it in our laboratory, and as audio frequency transformers are very critical in reflex cir-



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Storage "A" Batteries

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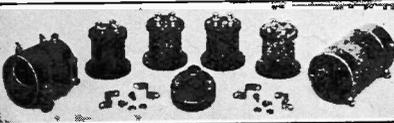
7 x 18.....	\$4.00
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It will pay anyone to come direct to our factory. We are located one-half block west of Fullerton "L" station. Samples can be seen at Everybody's Radio Laboratory.

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#### SAVE MONEY ON THIS COMPLETE OUTFIT

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Superadio Inductance and Transformer Kit, 3 Heath Radiant Condensers, 2 Keystone Audio Transformers, 8 Benjamin Sockets, 2 Carter Rheostats, 1 Potentiometer, all necessary fixed condensers, 2 "Megits" Grid Leaks, 1 Mounted Binding Post Board, 1 Base Board, 1 Drilled Panel, 2 "Dialog" Vernier Dials, 2 Tru-Tune Rheostat Dials, 3 Carter Jacks, 1 Carter Filament Switch, Soldering Lugs, Bus wire and wood screws, diagram and instructions.

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cuts you may find that you will have to substitute the ones you have mentioned as being tried and tested as OK.

#### Parts for 100% Low Loss

5178—ROCK ISLAND: I have a "100% Low-Loss" outfit with Karas Harmonik transformer, Barrett & Paden condenser, and a Flewelling special tuner.

I kindly ask if you can send me a hookup for a five-tube outfit, using parts that I have from this "100% Low-Loss."

If you have blueprints of same, please send one and whatever the charges are, send them C.O.D.

You can use the same audio amplifier units and the Barrett & Paden condenser, also, the three sockets. The Flewelling tuner will be useless in the five-tube circuit. You will have to buy two more Barrett & Paden condensers and a set of three radio frequency coils. The coils should tune to your condensers, so when buying the coils, tell the dealer what capacity your condenser has. You will also have to buy two more sockets and another rheostat, and one ohm resistance.

We have sent the blue print C. O. D., as suggested.

#### Link Unit Won't Help Here

CHICAGO: Have a four-tube reflex of which I am sending you the hookup. Can you tell me if the Jim Wells' Link Circuit will help this set, if it can be added? Also, I have bought the parts for this set for a friend and the dealer, one of Chicago's biggest, had all parts but the No. 115 radio frequency transformer and said he would get it the next week, but it has been five weeks now and he tells me he can't get it. Is there any other transformer I can use with the same results?

Yes, you can attach the Jim Wells' Link Circuit unit to your hookup.—A "Modern Reflex."

However, you are fortunate that the dealer could not get you the transformer you asked for, as the No. 115 Modern R. F. transformer is an UNTUNED radio frequency transformer, and therefore won't work in the Jim Wells Link hookup. Buy a Gen-Ral, Aero or Buell antenna coupler and a variable condenser to match. Most any dealer has them. You surely can get the coils from those dealers whose names we have listed as "Everybody's Co-Operative Dealers."

The Jim Wells Link Circuit Unit will not work satisfactory with your receiver unless you do a considerable job of rebuilding and redesigning. Yours is an untuned radio frequency loop aerial set and we are afraid you cannot be helped.

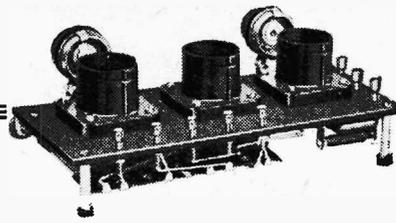
## Tuned R. F. Set

(Continued from page 12)

(Fig. 25) to the cable, which it follows to the "A" minus, "B" minus, ground connection of the Multiplug bracket (Fig. 4). A lead goes from the "F" minus post of the last audio frequency socket (Fig. 8) to the cable, which it follows to the "A" minus, "B" minus, ground connection of the Multiplug bracket (Fig. 4).

A lead goes from the "B" plus end of the 1/10 meg. resistance on the right of (Fig. 24) to the cable, which it follows to the "B" plus 90 connection of the Multiplug bracket (Fig. 4). A lead goes from the "P" end of the 1/10 meg. resistance on the right of (Fig. 24) to the "P" post of the first audio frequency socket (Fig. 12). A lead goes from the "G" end of the 1/2 meg. resistance on the left of (Fig. 24) to the "G" post of second audio frequency socket (Fig. 25). A lead goes from the "P" end of the 1/10 meg. resistance on the right of (Fig. 13) to the second prong from the top of the interstage jack (Fig. 20A). A lead goes from the "B" plus post of the 1/10 ohm resistance on the right of (Fig. 13) to the third prong from the top of the interstage jack (Fig. 20A). A lead goes from the top prong of the interstage jack (Fig. 20A) to the "P" post of the second audio frequency socket (Fig. 25). A lead goes from the bottom prong of the interstage jack (Fig. 20A) to the cable, which it follows to the "B" plus 90 connection of the Multiplug bracket (Fig. 4).

A lead goes from the "G" end of the 1/4 meg. resistance on the left of Fig. 13 to the "G" post of the last audio frequency socket (Fig. 8). A lead goes from the "P" post of the last audio frequency socket (Fig. 8) to the top prong of the single circuit jack (Fig. 20B). A lead goes from the bottom prong of the single circuit jack (Fig. 20B) to the "B" plus 90 connection of the Multiplug bracket (Fig. 4).



The following standard merchandise will be used in the laboratory models to be shown in early issues of "Everybody's Radio Weekly" of the new JIM WELLS LINK CIRCUIT described in this week's issue; WELTY'S Detector-Amplifier Unit; WELTY'S Keystone Audio Transformers (3 1/2-1); WELTY'S Pioneer Sockets, and HEATH'S Variable Condensers.

## Anyone Can Hook Up Any Set With This Unit

In a Few Minutes, Saving Time, Labor and Cost

You can use it with "Everybody's Jim Wells Link Circuit" Receiver, "Everybody's 100% Low-Loss Three-Tube set," "Everybody's Five-Tube Loss-Less," Welty's "Superadio" Lopez set, or any three, four, five or eight-tube set. It is Detector and Audio (two stages) circuit completely wired with all necessary rheostats, switch, sockets, transformers, binding posts, etc. Add any three-circuit tuner and condenser and make an efficient three-tube. Add tuned radio frequency to it and make a four or five-tube set. Everybody's Laboratory uses it in their highly efficient model receivers. You can use it in the set you are building or intend to build. It eliminates wiring, no soldering, no blue print as color scheme is used throughout. Any three-tube set can be built up quickly and without mistakes.

## WELTY'S Detector-Amplifier Unit "Makes Building Easy"

It's a small, compact unit 4 1/4 x 9 3/4 inches. Every part necessary ready wired, even battery binding posts with color code and cable battery wire ready to hook up. Four color code posts for attaching either flexible or bus wire to color marker points on condenser and tuner. Positive

contacts are assured. The grief is all taken out of set building and you are assured of a set that will function on Loudspeaker as soon as set up. Simply mount unit, tuner and condenser on panel, make the four connections, hook up batteries, plug in, and listen to stations far and near.

#### PRICES

- Welty's Detector - Amplifier Unit as illustrated above and ready to hook up to your tuner circuit. At any dealer's or retail store or sent by post-paid mail. Price.....\$19.50
- Welty's Detector - Amplifier Unit in a kit with Heath or Barrett & Paden S. L. F. Condenser and Buell Tuner with panel. Price.....\$28.50
- Welty's Detector - Amplifier Unit with same kit as above kit with "Aero" three-circuit Tuner. Price.....\$32.50

Lopez Tuner also in stock.

All parts are of highest grade and standard, guaranteed by us, and approved by Everybody's Laboratory as well as other engineers. Comes in single unit or in kits consisting of "Detector Amplifier," condenser, and tuning unit and panel. It is distortionless and gives wonderful volume and tone.

Write for description and catalogue of all of Welty's Quality Radio Products. We will save you money.

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(Editorial Announcement)

# We Have Some New Hookups Coming Soon In "Everybody's Radio Weekly"

As a result of experiments made in the Laboratories of **EVERYBODY'S RADIO Weekly** the past few months several new hookups have been developed for our readers. Some of these are modifications or improvements on other hookups. Others might be termed entirely new products, although they are based on fundamentals long used in one form or another.

These hookups cover the entire range of regeneration, radio frequency, a combination of regeneration and radio frequency, and of audio frequency. The first of the hookups appeared on Page Three Aug. 1 issue—the first successful use of **FOUR** stages of audio frequency, as far as we know. Others will appear later. Here are some you may expect in early issues, none of which, as far as we know, ever has been given public introduction:

The first **SUCCESSFUL** employment of three or more stages of **RADIO** frequency amplification.

The first **SUCCESSFUL** employment of a unit that will convert any regenerative or tuned radio frequency receiver into a super heterodyne receiver with only an outlay of \$8 to \$10. This device, which can be made

by any home setbuilder, will rescue thousands of useless neutrodynes that now are laid away on the shelf. Even the muchly abused and now discarded single-circuit receiver can be turned into a useful and non-interfering, unobjectionable receiver, with all the advantages of a super heterodyne.

The first **SUCCESSFUL** remote control **AUTOMATIC** radio receiving set, by which from ten to twenty of your favorite stations may be tuned in by simply pushing a button. No tuning will be required and the set can be operated from the electric light circuit, only one dry cell battery of 1½ volts being used. It will be far easier to operate than a victrola. Any home set-builder can construct the set at a cost of from \$15 to \$50, this depending upon how much of the apparatus he will construct himself or purchase ready-made.

Another new hookup is an All-Wave Receiver which will tune in on both the present radiocast wavelength programs and the short-wave station programs which will be so popular this Fall and Winter. It also will cover contemplated lower radiocast wavelengths which Mr. Hoover threatens to impose upon the owner of radio sets.

*This catalogue of coming hookups does not cover the entire list of new hookups we have in store for our readers by any means. It merely gives you an idea of what you can expect if you are a consistent reader of EVERYBODY'S RADIO Weekly. You are advised not to pass up a single issue from this date on. If you do*

*you will MISS something. Better go to your newsdealer TODAY and tell him to save you a copy each week, or better still use the coupon below and have EVERYBODY'S RADIO Weekly delivered each week at your home. Then you will be SURE.*

## Sign Below and Mail This Coupon TODAY

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I want to get all the new hookups you have devised for this Fall and Winter. I don't want to miss a single one. So enroll me as a regular yearly subscriber. I enclose \$2 for a year's subscription.

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