

The RADIO DEALER

Vol. 2 No. 3 DECEMBER, 1922 One Dollar The Year

Published monthly at 1133 Broadway, New York, N. Y., by The Radio Dealer Company. Entered as Second, Class Matter, at the Post Office at New York, N. Y., under the Act of March 3, 1879

Buy Nationally
Advertised Radio
Merchandise from the



Wholesale Radio Equipment Co.

OUR dealers are secure, confident, prospering. They sell high class merchandise that radio fans trust and readily purchase. We back them up with SERVICE—prompt shipment, immediate action on every request and various forms of valuable co-operation. You can promise customers and keep your promises when you tie up with Wholesale Radio Equipment Company. Put it up to us to prove it on your very first order.



Nothing Demonstrates Like Sales—Order
The "Four-Way" Radio (Switch) Plug

Four Combinations Without Removing Plug from Jack

This combination switch and plug accommodates two head sets or a head set and a loud speaker, in series or in parallel. Switch operates without removing plug from jack. Takes the place of two plugs and a jack. Of course, it sells almost on sight. It is exactly what every fan wants. The price attracts—its excellent construction and materials build increasing demand.

LIST
\$1.50
DEC 3 1922
PERIODICAL

Products of 22 or More Radio Manufacturers of National Importance

Write TODAY for Attractive Discounts on Complete Line.

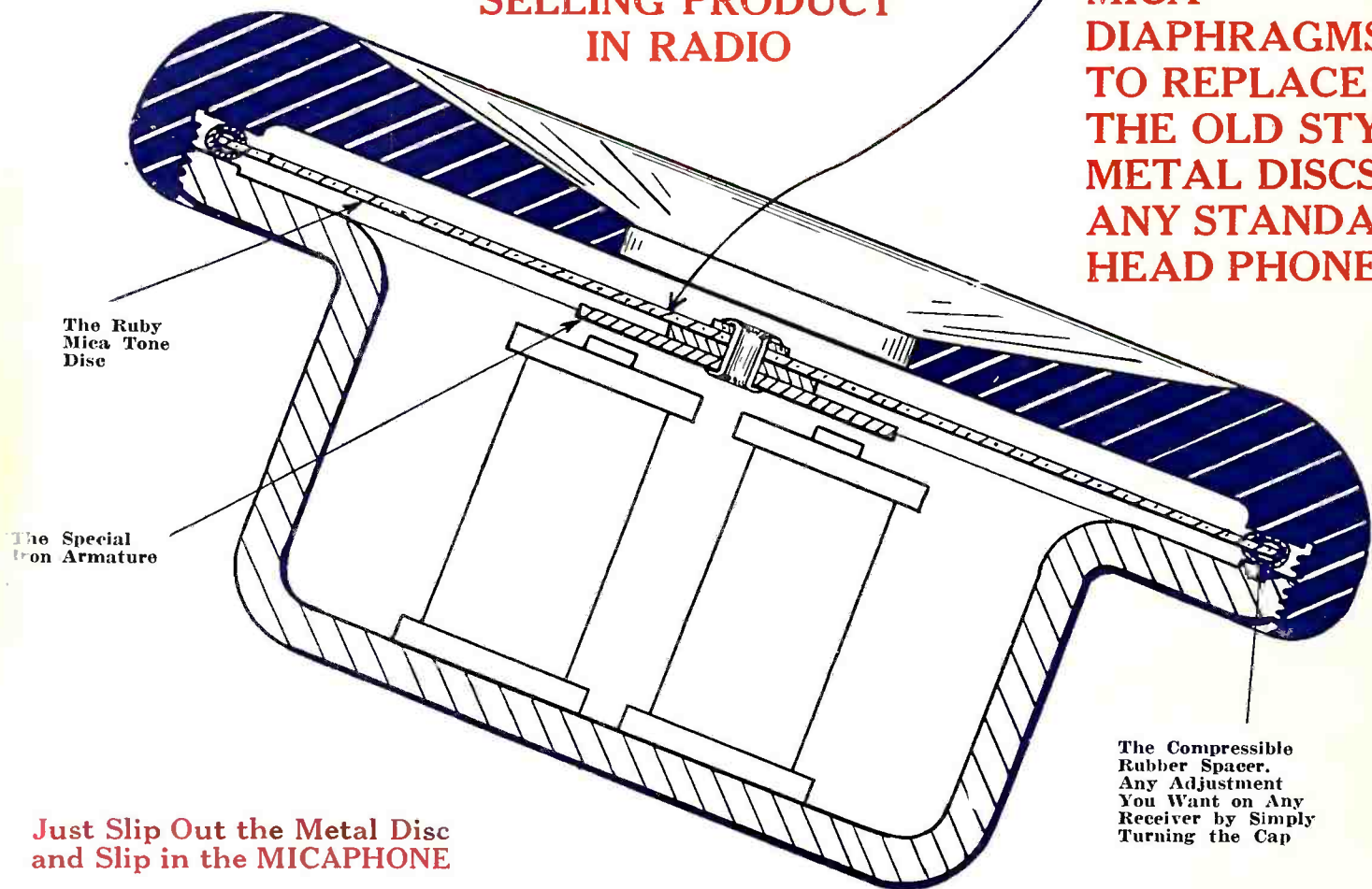
- DISTRIBUTORS FOR
- Acme
 - American Transformer
 - All Wave Couplers
 - Baldwin
 - Bradlevstat
 - Brandes
 - Chelsea
 - De Forest
 - Dubilier
 - Electrad
 - Eveready
 - Federal
 - Homcharger
 - Jefferson
 - Klosner
 - Magnavox
 - Murdock
 - Paragon
 - Radio Service Laboratories
 - Thordarsen
 - Tuska
 - Western Electric
- WHOLESALE ONLY

Wholesale Radio Equipment Co.
24 WILLIAM STREET, NEWARK, N. J.

We make only the diaphragm

**THE FASTEST
SELLING PRODUCT
IN RADIO**

**MICA
DIAPHRAGMS
TO REPLACE
THE OLD STYLE
METAL DISCS IN
ANY STANDARD
HEAD PHONES**



**Just Slip Out the Metal Disc
and Slip in the MICAPHONE**

**The Compressible
Rubber Spacer.
Any Adjustment
You Want on Any
Receiver by Simply
Turning the Cap**

There is as much difference in tone and clearness of reception between a head set equipped with MICAPHONE MICA DIAPHRAGMS and one with ordinary metal diaphragms as there is between the actual hearing of the concert or singer and an old worn out phonograph record.

**TRIAL OFFER
SMALL INVESTMENT**

Trial Assortment (12 pair)
Costs only \$13.75, cash with
order or C. O. D.
Sells for \$24 (\$2.00 per pair)
You make \$10.25

**A Nice Big Profit
QUICK SALES**

Average of our sales shows
three reorders per month per
dealer.
Send \$13.75 today for Trial
Assortment.
Satisfaction Guaranteed.

DEALERS: MICAPHONE mica diaphragms are made for all makes of phones, so no matter what kind of a head-set your customer has you can fit him out with MICAPHONES and make a sale.

IMMEDIATE DELIVERIES

Radio Mica Products Co., 156 East 43rd St., New York City

SOLE MANUFACTURERS



Look for us at the N. Y. Show, D. C. 21-30, Space 83, Main Floor.

American RADIO Exposition

THE OFFICIAL EXPOSITION FOR
AMERICAN MANUFACTURERS

with the endorsement of the
National Radio Chamber of
Commerce and sanction of
the Radio Apparatus Section
of the Associated Manufac-
turers of Electrical Supplies

Grand Central Palace, New York

December 21st to 30th

(Sunday excepted but Christmas Day included)

This first really comprehensive Expo-
sition is to be staged in a manner
worthy of a great industry.

The leading manufacturers have con-
tracted for space. This opportunity to

display Radio products to thousands
of buyers during the holiday season is
an unusual one. The exposition will be
one of New York's big features in
connection with National Radio Week

For further particulars write or wire

AMERICAN RADIO EXPOSITION COMPANY
120 BROADWAY Telephone John 0009 NEW YORK

MAKE THIS A RADIO CHRISTMAS

DX TYPE NO. 58 R. F. RECEIVER

GREAT
SELECTIVITY
AND
**EXCEPTIONAL
LONG RANGE**
ARE SOME OF THE
CHARACTERISTICS
OF THE



Federal

DX TYPE NO. 58 R. F. RECEIVER

If you don't like the program you are listening to—you may find another more suited to your taste

Literature Descriptive of Radio Frequency Apparatus Supplied Upon Request

WRITE FOR BULLETIN 119-W

Federal Telephone and Telegraph Company

MANUFACTURERS OF STANDARD RADIO APPARATUS

BUFFALO, N. Y.

DICTOGRAPH *Radio* HEADSET

Was \$12.00 **NOW** →

\$8

Why This Sensational Reduction in Price?

An unprecedented opportunity for dealers! The announcement of the sweeping reduction of \$4.00 in the price of the Dictograph Radio Headset will bring a tremendous demand. At \$12.00 this supreme quality instrument was an established success; at \$8.00 it will be a sensation. No other headset of like quality has ever been sold at such a low price.

New production plans on a gigantic scale make this new price possible. If not already stocked, protect yourself on delivery now. Order through your jobber or write direct for names of authorized distributors. *Stock now for the Xmas demand.*

List Price
\$20.

The Standard of the World

DICTOGRAPH Radio LOUD SPEAKER

The Perfect Loud Speaker for the Home

One of the greatest successes in the radio field! A handsome instrument of Dictograph standard quality. For all vacuum tube receiving sets. Reproduces every sound in crystal-clear tones, full volume, free from distortion and noise. Retail at the popular price of only \$20.00, complete with 5 ft. flexible cord.

DICTOGRAPH PRODUCTS CORPORATION

220 West 42nd Street

(Branches in all principal cities)

New York, N. Y.

Note: Plans are now under way for the production of the new 4,000 ohm Dictograph **SUPER-TONE** Headset at a list price of \$12.00. The most perfect instrument that can be made to meet the most exacting requirements.

THIS IS A RADIO CHRISTMAS!

New York Coil Company's Radio Products

THE LEADING LINE OF THE MOST SUCCESSFUL JOBBERS AND DEALERS IN RADIO

Our products embrace only the most needed and rapidly moving articles. Quality, engineering and workmanship the best obtainable.

Our extensive advertising *and worth-while discounts* cannot be overlooked.

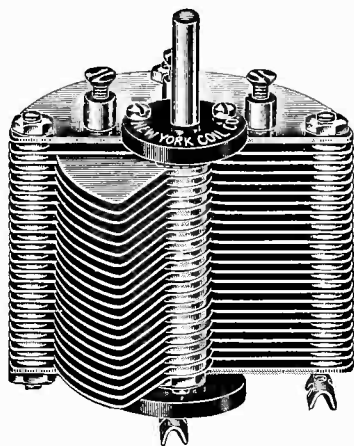
STANDARD VARIOCOUPLER, - - \$4.00
STANDARD VARIOMETER, - - 4.00

These items are large, full size *proven* products, the value of which is seen at a glance.

New York Coil Company's Variable Condensers have set a standard by which all others are judged. Plates are of extra heavy aluminum, accurately spaced. The frame work of the supporting elements is such that permanency results. Adjustable bearings with provision to take up wear and means for always insuring positive contact is provided.

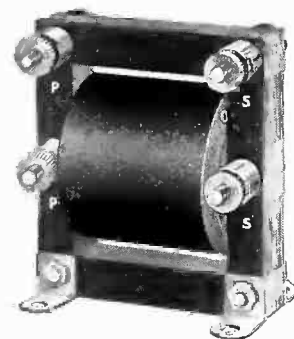


COMBINED MOUNTED VARIO-COUPLER—The only Variocoupler on the market that allows panel or table connection and eliminates the connecting of taps, soldering, drilling, etc. A great advantage in Radio. Nothing like it on the market. Handsomely finished. Price \$8.00.

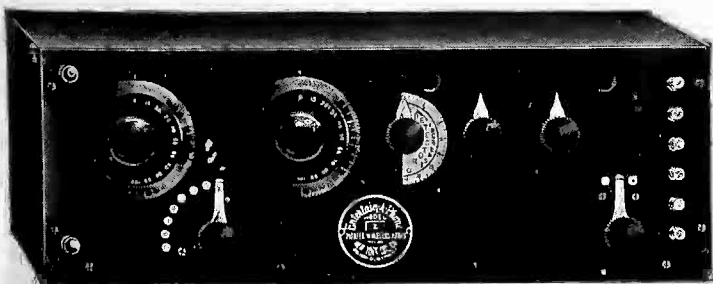


LIST PRICES:

3 Plate Vernier	-	-	-	-	\$1.25
11 "	-	-	-	-	1.50
23 "	-	-	-	-	2.00
43 "	-	-	-	-	3.00



AUDIO FREQUENCY TRANSFORMERS—Choice of leading manufacturers and radio engineers. Guaranteed to give high magnification, less distortion and better all round efficiency. No howling. Price \$4.00.



NEW YORK ENTERTAIN-A-PHONE RECEIVING SET No. 2—Complete with detector and two stages of amplification, all in one cabinet. Contains a non-regenerative two circuit hook-up with two stages audio amplification. Results are simply a revelation. It must be operated and heard to be appreciated. Workmanship and design and material of exceptional character throughout. Of unusual interest to the jobber. Price \$50.00, fully guaranteed.

NEW YORK COIL COMPANY, Inc.

338 Pearl Street

New York City, N. Y.



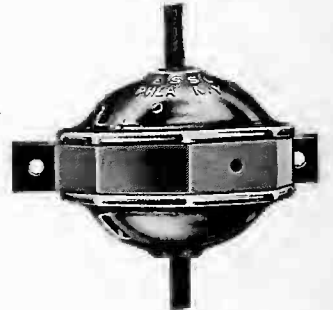
Type B, Keystone Radio Arrester. Retail Price, \$2.00

KEYSTONE LIGHTNING ARRESTERS

Listed as Standard by Underwriters' Laboratories (No. 362 A-4)

You can sell hundreds of Keystone Arresters for these reasons—Small in size; weatherproof; entirely enclosed and sealed; foolproof; constructed by a Company having 30 years' experience in lightning arrester design; low capacity and high resistance; no vacuum to lose and so reduce the efficiency of the arrester to a point where it is practically valueless.

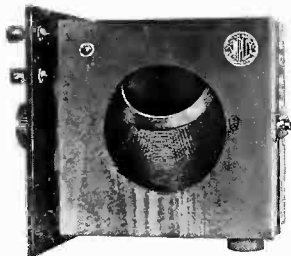
Get your order in before there is a possible scarcity. Liberal Dealer discounts. Write for complete information.



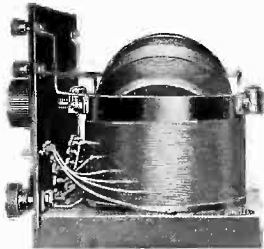
Type A, Keystone Radio Arrester. Retail Price, \$2.00

Simplex Panel Units

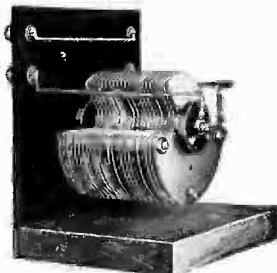
and
Unmounted
Variometers
and
Vario-Couplers



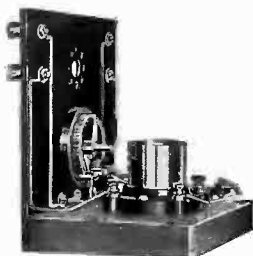
No. 47488 Simplex Variometer, Showing Side View of Panel Mounted Type



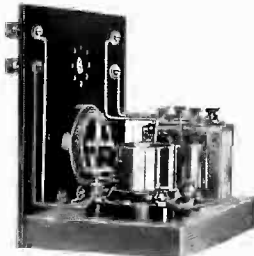
No. 47489 Simplex Vario-Coupler, Showing Side View of Panel Mounted Type



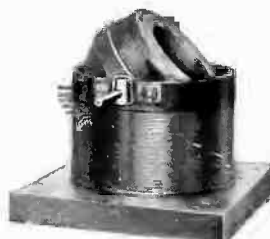
No. 47541 Simplex Condenser Panel—Side View



No. 47490 Simplex Detector Panel Side View



No. 47491 Simplex Amplifier Panel Side View



No. 47483 Simplex Vario-Coupler, Unmounted



No. 47482 Simplex Variometer, Unmounted



Manufacturer of Lightning Arresters for 30 years
Distributors for
SIMPLEX RADIO CO.

There is a big demand for Simplex Panel Units among your customers because they permit trying out many different hook-ups and thus determining the best for their certain locality without having to disassemble a complete outfit. This is a decided advantage, but of no less interest is the fact that the beginner can first purchase one Vario-Coupler Panel and one Detector Panel and have a fairly good receiving set at minimum cost with the advantage of later adding additional units to obtain greater sensitivity and selectivity. Thus the user can add to his Simplex outfit and when he has purchased it complete it is unquestionably one of the most attractive and efficient receiving sets now offered to the public. This is a very attractive line for Jobbers and Dealers. Write for new descriptive circular and discounts on Panel Units and Unmounted Variometers and Vario-Couplers. Simplex Material is high grade in every respect.

ELECTRIC SERVICE SUPPLIES CO.

PHILADELPHIA
17th and Cambria Streets

NEW YORK
50 Church Street

CHICAGO
Monadnock Bldg.

Branch Offices: Boston, Scranton, Pittsburgh
Canadian Distributors: Lyman Tube & Supply Co., Ltd., Montreal, Toronto, Winnipeg, Vancouver

THIS IS A RADIO CHRISTMAS!

RADIO MAGNA-TONE PRODUCTS



Lift the switch and this **MAGNA-TONE** Two stage Amplifier is in operation with filaments under fixed control. Circuit is automatically rearranged for one stage by lifting the first tube—at the left. Size, 13 x 5 x 5½ inches. Ebony finish.

JOBBER AND DISTRIBUTORS—There's a big demand for this radio essential. Write at once for our special proposition.

List Price **\$24**

MAGNA INSTRUMENT COMPANY

340 West 42nd Street
New York City

MAGNA-TONE Vacuum Tube Receiver—a radio set without fussy adjustments. Only two adjustments necessary. Provided with Fahnestock terminals which insure positive connections throughout. Size 13 x 5 x 5½ inches. Ebony finish.

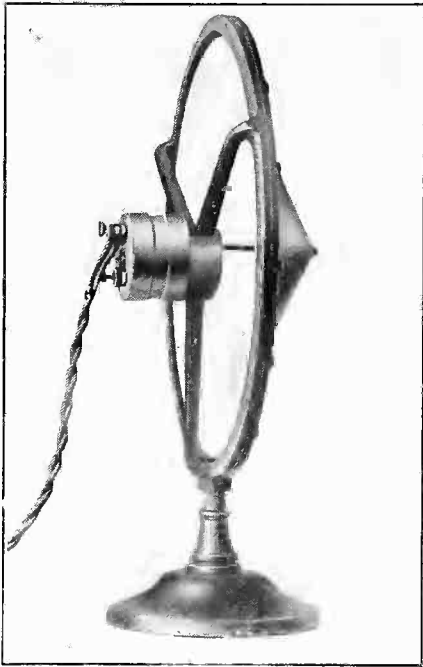
DEALERS—Radio fans want simpler apparatus. Here it is. Discounts are generous. Big sales reported. Get in touch with your Jobber.

List Price **\$16**



Catalog on Request

THE PATHÉ LOUD SPEAKER



ORDERS MUST BE
PLACED AT ONCE
FOR DELIVERY PRIOR
TO CHRISTMAS.

List Price
\$24.00 Nickel Finish
\$22.00 Japan Finish

The Sound Wave Corporation has been consolidated with the Pathe Freres Phonograph Company and the new firm is known as

THE PATHE PHONOGRAPH AND RADIO CORPORATION
10-34 GRAND AVENUE, :: :: BROOKLYN, N. Y.

Radio's Most Attractive Merchandising Proposition



THE HOMCHARGER

is unquestionably the most popular and the most successful battery charger on the market. A necessity to every Radio Fan and Auto Owner.

Over 50,000 Now in Use.

Homcharger dealers are backed by the most comprehensive advertising campaign in the entire field—over thirty-five publications regularly carry the Homcharger message to ten million prospects.

Attention compelling sales helps, window trims, streamers, counter cards, circulars, etc., will bring *these* prospects into *your store* to buy.

The Homcharger's exclusive selling points will make nearly every inquiry a sale—*self-polarizing—over five ampere charging rate—approved by Underwriters.* Finished in mahogany and gold, and furnished complete with Ammeter, Charging Cable and Battery Clips, at the popular price of \$18.50.

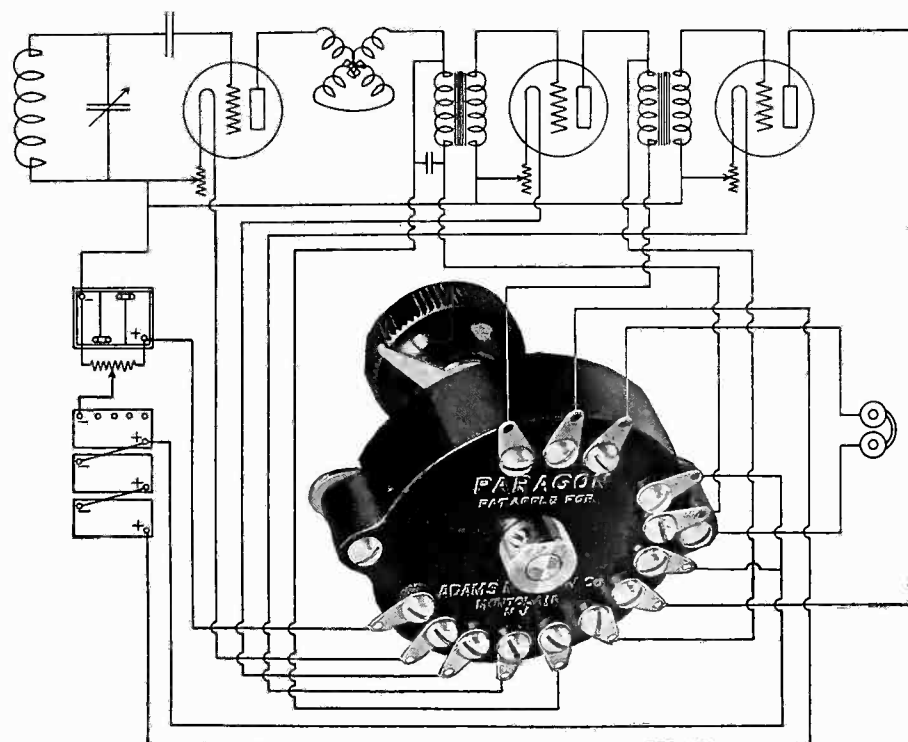
Our LIBERAL Discounts and close Dealer Cooperation insure more sales and greater PROFITS than any other Charger on the market. Write for proposition.

The Automatic Electrical Devices Co.

144 West Third Street, Cincinnati, Ohio

THIS IS A RADIO CHRISTMAS!

INSTANT—POSITIVE—NOISELESS



Paragon Stage Control Switch

Plugs and jacks are now obsolete. The PARAGON Stage Control Switch combines the functions of three multi-circuit jacks and the telephone plug. It controls, automatically and progressively, all the filament circuits, plate battery circuits and input and output circuits of the detector - two - stage amplifier.

Switching from stage to stage is instantaneous, positive, noiseless. All battery circuits are protected. The wiring of amplifier is simplified.

The switch base is made of molded Condensite. One piece serves as a commutator

support and housing. No moving switch parts are open to view when switch is in position on panel. A ratchet gives proper feel and locates switch position. The wiring diagram, illustrated above, shows the method of connection when this

new PARAGON switch is employed for control of detector and two-stage amplifier. The switch may also be used for an unlimited combination of vacuum tube circuits. $2\frac{3}{8}$ " in diameter, $\frac{3}{4}$ " in thickness. Price \$3.00.

We have just issued a new illustrated catalogue of Paragon radio parts. A copy is yours for the asking.

Also Manufacturers
of
PARAGON
Radio Telephone
Transmitters
V. T. Control Units
Rheostats
Potentiometers
V. T. Sockets
Amplifier
Transformers
Detectors
Control Dials
Amplifiers
Receivers
Switches
Variometers

ADAMS-MORGAN CO., 12 Alvin Ave., Upper Montclair, N. J.

PARAGON

Reg. U. S. Pat. Off.

RADIO PRODUCTS

NATIONAL RADIO WEEK, DECEMBER 23-30

THE AUDIOPHONE LOUD SPEAKER METHOD OF RECEIVING

Makes You Forget It is Radio-Phone

SO LIKE THE ORIGINAL VOICE AND ORCHESTRAL INSTRUMENTS

the tone is big in volume, rich, round and free from mechanical distortion.

The result of over six years' work on "Sound Reproduction" in the laboratories of The Bristol Company, a world known engineering firm, the Audiophone is not a temporary piece of equipment, but a permanent contribution to the Radio Field.

NO AUXILIARY BATTERIES are required for magnetizing.

About one watt is necessary to give the Audiophone full volume.

Most amplifiers are two stage and designed to give good response in head phones, but there is not sufficient power to operate loud speaker, except for small audiences. For this reason it is desirable to provide another stage of power amplification and Bristol's One Stage Power Amplifier is available which will give volume enough to be easily heard in a room seating 500 persons and over, when added to one or two stage amplifier.

Our representatives are located in all parts of the country. We can come to you with demonstration. Shall we send bulletins?

THE BRISTOL COMPANY
WATERBURY, CONN.



AUDIOPHONE SR.
Horn 15 Inches Dia.
Price \$40.00



AUDIOPHONE JR.
Horn 11 Inches Dia.
Price \$22.50



ONE STAGE POWER AMPLIFIER
Price \$25.00

Santa's Taking His Orders by Radio
This Year—And They Are Demanding

FROST-RADIO



These Radio accessories are the big hit of the season. They win the whole-hearted approval of every Radio dealer. The reason is simply that every item is built to perform best the particular function for which it is intended—priced to satisfying trade-holding levels and quality unsurpassed.

FROST-RADIO Is the Front Door Key
to Radio Satisfaction!



HERBERT H. FROST

NATIONAL FACTORY DISTRIBUTORS
TO THE ELECTRICAL-RADIO JOBBER

154 W. LAKE ST. CHICAGO, ILL.

THIS IS A RADIO CHRISTMAS!

\$5.001500 Ohms
13,000 turns**\$7.50**2200 Ohms
16,000 turns

Phones May Come, and Phones May Go, but "Royalfones" Go on Forever



*Orders may still be placed
for immediate delivery*

ROYAL ELECTRICAL LABORATORIES

MANUFACTURERS OF

Electrical and Radio Equipment

NEWARK N.-J.

During the past year many phones have been advertised; but few have survived because they lacked one or another of the many qualities which are essential in the perfect phone.

Radio phones are not blanked out like sauce pans, nor are they assembled like toys. A phone is an electrical instrument. Precision and skill are required in its manufacture.

When we built the "Royalfone" we were equipped to manufacture electrical instruments. Our personnel consisted of men who know phones. These are the reasons why the "Royalfone" is mechanically perfect.

We know that every "Royalfone" will give entire satisfaction because every "Royalfone" is thoroughly tested before it leaves our factory.

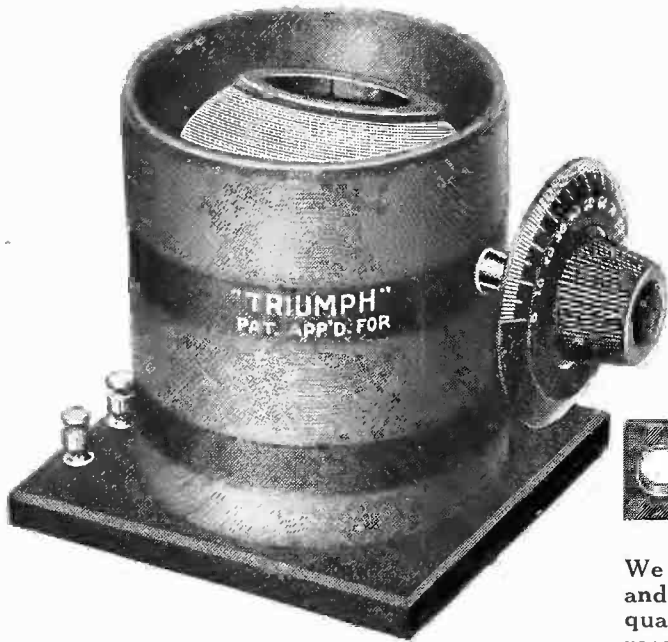


Royalfone

NATIONAL RADIO WEEK, DECEMBER 23-30

"SIGNAL TRIUMPH"

COMBINATION COUPLER - METER



The "Two-in-One" Instrument

The "Triumph" Combination Coupler Meter fills the urgent need for a simple and efficient instrument to serve the purpose of both Coupler and Meter. We have solved the Problem. Our Coupler Meter is simple and efficient. There are no taps, no soldering and no complications. List Price, \$6.50 with Dial.



We are headquarters for Phone, Grid and Grid Leak Condensers. Price and quality are right. Free sample upon request.



"TRIUMPH" A1 V. T. Receiving Set
List Price \$30.00
Best Value in the Radio Market To-day

Write Us To-Day for Samples and Full Particulars

SIGNAL RADIO & ELECTRIC CORP. 64 UNIVERSITY PL. NEW YORK CITY

We present to the Radio public a new Triple Coil Calibrated Mounting

There is nothing more fascinating than the reception of Radio messages from high power stations located thousands of miles away. These stations use wave lengths between 1,000 and 25,000 meters. This is far above the receiving range of the average receiver designed for amateur broadcast reception.



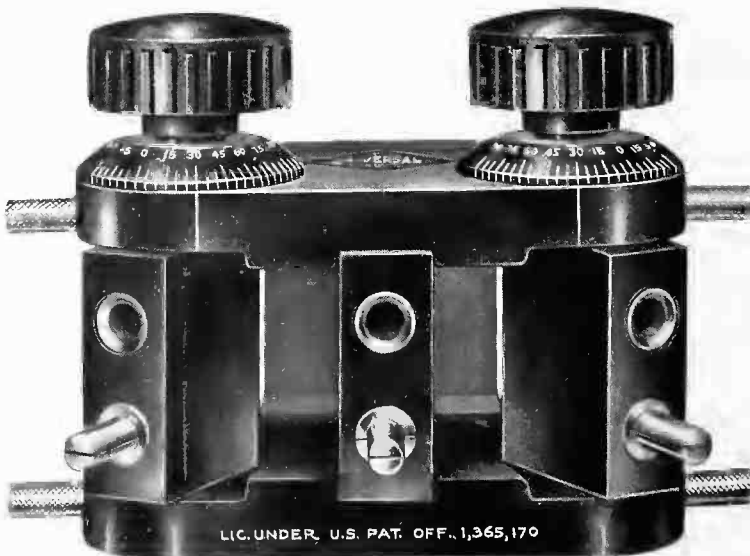
This "Crown" Mounting has the following special features:

1. Made of **Thermoplax**, a high grade insulating material; it possesses the advantage over rubber of resisting heat to a far greater degree. It has high dielectric and mechanical strengths, is non-hygroscopic, is unaffected by atmospheric agents and will not deteriorate with age.

2. **Special Locking Device** to keep the coil in place, thus preventing it from being thrown out of adjustment.

3. **Special Adjustable Bearing** feature.

4. **Special constructed Bushing**, preventing wear on top and bottom plates.



LIC. UNDER, U.S. PAT. OFF., 1,365,170

Licensed under DeForest U. S. Patent, No. 1,365,170

5. **Special constructed Calibrated Dial**, showing the stations tuned.

6. **Positive Connections** on rear of blocks.

7. **Complete with Flexible Leads**.

8. **All Metal Parts** of brass and highly nickel plated. Its high polish and fine finish give it a very attractive appearance.

9. **The simplest Mounting** to install on your set,

List Price

- Triple Coil Mounting \$5.00
- Single Coil Mounting50
- Telephone Plugs 1.00
- Audio Transformer 5.00
- Telephone Jacks .. 65c, 80c, 95c
- Dials 2", 3", 3 1/2" .. 35c, 50c, 75c

DISTRIBUTORS WANTED. WRITE FOR OUR PROPOSITION AT ONCE.

CROWN RADIO MFG. CORPORATION

78 FIFTH AVENUE

NEW YORK

THIS IS A RADIO CHRISTMAS!

Tone
Tells
Sound
Sells



MODEL XL

PATENTS PENDING

Reg. U. S. Pat. Office

THE Oranola

PATENTS - PENDING

NO AERIAL USED

LOOP ANTENNA self-contained in artistic piano-finished cabinet eliminates any wiring by purchaser.

COMBINATION RADIO and PHONOGRAPH

RADIO ENGINEERS universally agree that radio and audio frequency transformation of energy received is best for receiving broadcasting.

That is why we use the radio and audio frequency amplification.

NO EXPENSE has been spared to make our product the best in every detail. Having passed through the experimental stage, we are prepared to stand behind each instrument with our unqualified guarantee.

OUR TALKING MACHINE (well known as THE PERFECT TALKING MACHINE), combined with our radio instrument, provides a universal means of sound reproduction without equal. Pureness of tone in ample volume without distortion makes the ORANOLA almost human.

OUR KEYNOTE is simplicity of operation. No knowledge of electricity or wireless is required

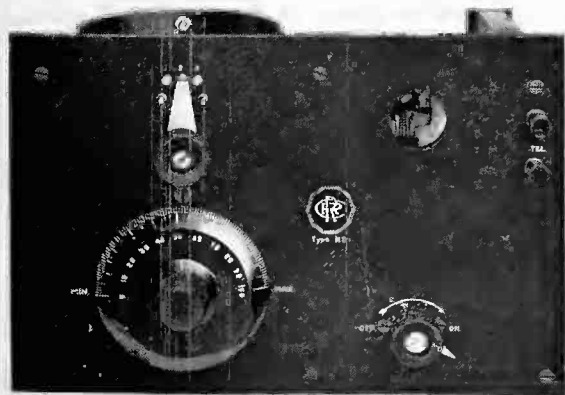
SEVERAL MODELS with or without talking machine combination, listing from \$150 to \$450. Descriptive circulars and discounts on application. WIRE OR WRITE for exclusive territory proposition. DEMONSTRATIONS at our office during broadcasting periods.

ORANOLA RADIO CORPORATION

228 SEVENTH AVENUE

NEW YORK CITY

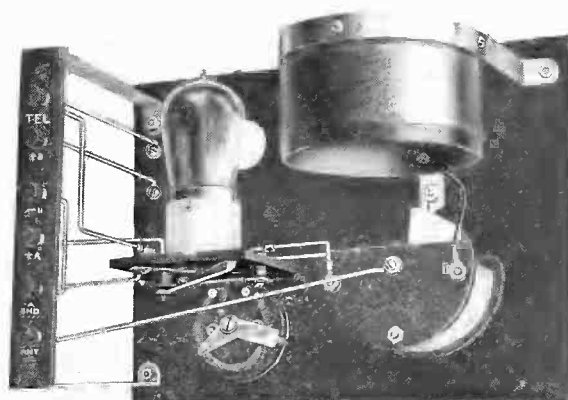
THE RADIO BUILDER SET



Shipped to customer in "knock-down" form and requiring only a screwdriver and a few moments to complete its assembly.

When finished it provides a vacuum tube set which is very selective, giving extremely loud and undistorted signals.

Price, \$20.00



SOME DISTRIBUTERS PROPOSITIONS STILL OPEN

ORANOLA RADIO CORPORATION

228 Seventh Ave.

::

New York City

WANTED MANUFACTURERS' AGENTS



We have still some territory open for real live personal representatives. We want men who can handle a really good proposition which gives a square deal to the buying public and at the same time ensures a good profit for themselves, and for the dealer.



Our line comprises Rheostats, Switch Levers in all styles, including Series Parallel, Crystal Detectors, &c., &c. These goods are all of the highest type of manufacture. They stand out. They also stand up and we stand back of them.

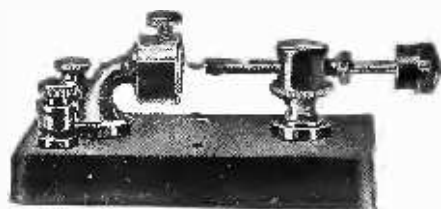


THE HOUSE OF PROMPT DELIVERY

That is what they call us. Orders are shipped the day they are received.

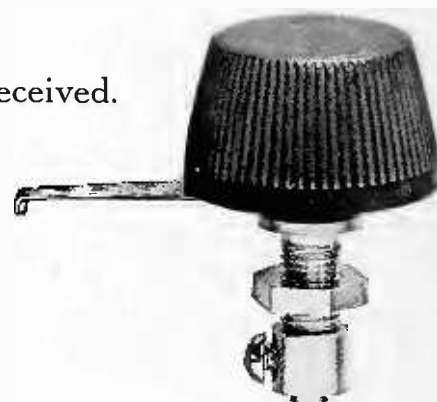
Write Now for our proposition.

We sell complete assemblies or individual parts for Rheostats and Switch Levers.



HAYDON  FENTON CO.

167 Chambers Street - New York



THE CHANGE FROM A 6-VOLT TO A 1½-VOLT TUBE

CAN NOW BE ACCOMPLISHED IN 30 SECONDS WITH THE

BURKE SOCKET ADAPTER

FOR WD-11 TUBES

(Patents Pending)



Fits Any Standard Open Base Socket
As Easy to Insert as a Tube
No Change of Hook-Up Necessary
Raises Tube Less Than 1/8th Inch
Made of Best Materials and Absolutely Guaranteed

DISTRIBUTORS, JOBBERS, DEALERS—The Burke Adapter is in demand everywhere. Act immediately and make some liberal profits. Orders are being filled strictly in rotation as received.

NATIONAL DISTRIBUTORS

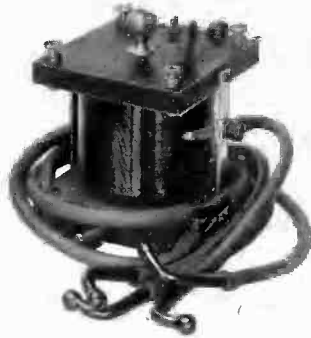


845 BROAD STREET NEWARK, N. J.
WESTERN SALES DEPT., 8905 DETROIT, AVE., CLEVELAND, O.

THIS IS A RADIO CHRISTMAS!

THE BEE RADIO SET

\$7.50
RETAIL



COMPLETE
For two to hear

No Phones Required. A Combined Crystal Set with
Phone and Sound Connections for Two Listeners.

*Can be used also with head phones. Can be used as an auxiliary
phone in connection with V. T. Sets for several persons to hear*

The Greatest Value on the Market
A Quick Seller. Regular Discounts to Dealers

F. W. MATTHEWS 167 Bloomfield Ave.
BLOOMFIELD, N. J.

RECORD BREAKING ACCOMPLISHMENTS!

by users of the DX Radio Frequency Transformer and JM-6
Radio-Audio Amplifier.

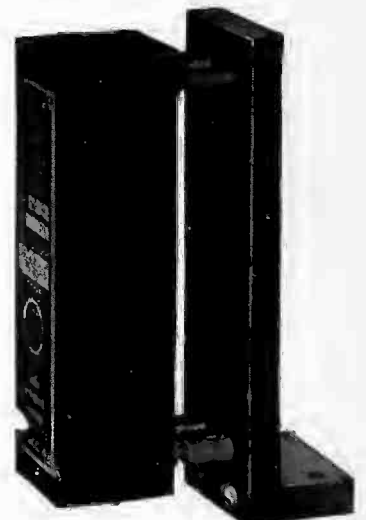
New York State man hears broadcasting stations in NINE-
TEEN different states using JM-6 Amplifier, which employs three
stages of DX Transformers. He used only a THREE FOOT
COIL AERIAL.

A third district amateur picked up over ONE HUNDRED
200 meter C W stations outside of 3rd and 8th districts in ONE
EVENING, USING HOUSE WIRING PLUG ATTACH-
MENT FOR AERIAL. He made his own amplifier, using three
stages of DX Transformers. Stations he heard were located in 1st,
2nd, 3rd, 4th, 5th, 6th, 8th and 9th districts.

A well known New York CONSULTING ENGINEER
made comparative tests of Radio Frequency Transformers and writes that he obtains
results with ONE STAGE of DX-1 RF Transformer equal to TWO STAGES of sev-
eral other well known makes of RF Transformers.

It Pays to Have the Best

RADIO
INSTRUMENT COMPANY, INC.
WASHINGTON, D. C.
HUTCHINS BLDG., 10TH AND D STS., N. W.



Patents allowed

THIS IS A RADIO CHRISTMAS!

“Woodehorn” Loud Speaker

MAXIMUM AMPLIFICATION NO METALLIC SOUND NO DISTORTED TONES

\$7.50

List Price

Most Startling Loud Speaker

AT

MOST STARTLING PRICE

The name “Woodehorn” suggests without much effort the character of the Loud Speaker.

“Woodehorn” Loud Speaker brings you closer to the broadcasting station—the rich mellow tones are brought out in such natural clearness that you can almost feel the living breathing presence of the artist.

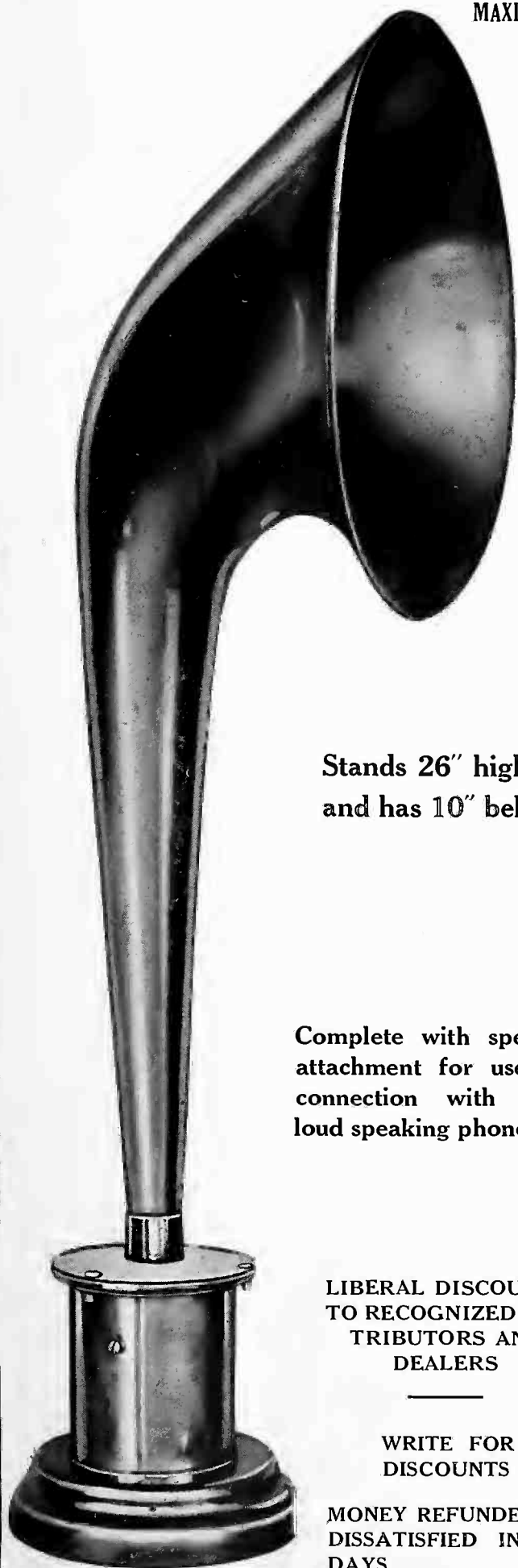
If you would have the tones of a rare violin—then do not hesitate to try a “Woodehorn” Loud Speaker. Its results will astound you.

Hear “Woodehorn” before you stock Loud Speakers.

MADE BY

INTER-OCEAN RADIO CORPORATION

1140 BROADWAY, NEW YORK CITY



Stands 26" high
and has 10" bell

Complete with special attachment for use in connection with any loud speaking phone.

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TO RECOGNIZED DIS-
TRIBUTORS AND
DEALERS

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DISCOUNTS

MONEY REFUNDED IF
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Let Our Free Service Bureau Help You Supply Your Needs

Tell us your needs and we'll put you in touch with reputable firms to the end that you will receive information on the latest and best equipment. A post card will do or use the coupon below.

- | | | | | |
|--------------------------|----------------------------|----------------------------|----------------------------|--------------------------|
| A | 62 Condensers, mica | I | 182 Patent wire | 238 Switches |
| 1 "A" Batteries | 63 Condensers, loading | 126 Indicators | 183 Patent wire terminals | 239 Switch levers |
| 2 Aerials | 64 Connection blocks | 127 Inductances, C. W. | 184 Plans | 240 Switch points |
| 3 Aerial wire | 77 Contract work | Transmitting | 185 Phonograph attach- | 241 Symbols |
| 4 Aerial protectors | 65 Control panels | 128 Insulators | ments | T |
| 5 Aerial switches | 66 Condenser parts | 129 Insulation | 186 Plate condensers | 246 Tapes |
| 6 Aerial insulators | 67 Copper wire | 130 Invention develop- | 187 Porcelain | 247 Telephone cord |
| 7 Aerials, loop | 68 Cords | ments | 188 Porcelain cleats | 248 Telephone pings |
| 8 Air condensers | 69 Cord tips | J | 189 Porcelain insulators | 249 Telephone receivers |
| 9 Adapters | 70 Crystals | 131 Jacks | 190 Porcelain mountings | 250 Telegraph keys |
| 10 Amplifiers | 71 Crystal detector units | K | 191 Porcelain tnbes | 251 Telegraph teachers |
| 11 Amplifying units | 72 Crystal receiving sets | 132 Knock down units | 192 Porcelain V. T. recep- | 252 Testing instruments |
| 12 Aluminum wire | 73 C. W. Transmitter | L | tacles | 253 Testing clips |
| 13 Ammeters | sets | 136 Lead-in wire | 193 Porcelain V. T. sock- | 254 Terminals |
| 14 Amplifying tnbes | 74 C. W. Filament heat- | 137 Lead-in switches | ets | 255 Thermometers |
| 15 Amplifying horns | ed transformers | 138 Lead-in bushings | 194 Precision instruments | 256 Tools |
| 16 Amplifying transform- | 75 C. W. Inductances | 139 Lead-in insulators | 195 Polarity indicators | 257 Trade marks |
| mers | 76 C. W. Power trans- | 140 Levers, Switch | 196 Plate connectors | 258 Transformers |
| 17 Antennae, cage | formers | 141 Lightning arrestors | 197 Paste solder | 259 Transmitters |
| 20 Antenna light wire | D | 142 Lightning switches | 198 Phosphor-bronze wire | 260 Transmitting sets |
| plugs | 81 Detectors | 143 Loading coils | sheets | 261 Towers |
| 18 Audio frequency | 82 Detector panels | 144 Loading inductance | Q | 262 Three coil mounting |
| transformers | 83 Detector tnbes | 145 Loose conplers | 307 Quenching spark gaps | 263 Tin foil |
| 19 Automatic transmlt- | 84 Detector minerals | 146 Loud speakers | R | 264 Tuning coils |
| ters | 85 Detector units | 147 Locked lever switches | 308 Radio books | 265 Tubes, amplifier |
| B | 86 Dictionary, Radio | 148 Lock nuts | 309 Radio schools | 266 Tubes, detector |
| 21 "B" Batteries | 87 Dials | 149 Loop aerials | 310 Radio publications | 267 Tubing, flexible |
| 22 Batteries, "A" | 88 Dry batteries | 150 Lugs | 199 Radio frequency | 268 Tube sockets |
| 23 Batteries, dry | 89 Drawings | M | transformers | 269 Tubes |
| 24 Batteries, storage | 90 Diagrams | 313 Mailing lists | 200 Reactor, plate circvlt | 270 Tuner and detector |
| 25 Battery chemicals | E | 314 Metals | 201 Reactor, filter | cabinets |
| 26 Battery chargers | 91 End mountings | 151 Magnetic modniator | 202 Receiving sets | 271 Two stage cabinets |
| 27 Battery testing in- | (tnbes) | 152 Modulation transform- | 203 Receiving head sets | 272 Two stage amplifier |
| struments | 92 Engraving | mers | 204 Receiving transform- | unit |
| 28 Battery switches | 93 Electrotypes | 153 Machine screws | mers | U |
| 29 Battery rheostats | F | 154 Magnet wire | 205 Receptors | 276 Unit type receiving |
| 30 Battery clips | 95 Fibre spools | 155 Magazines, Radio | 206 Receiver magnets | sets |
| 31 Battery handles | 96 Fan switches | 156 Mica | 207 Rectifiers | 277 Unassembled sets |
| 32 Battery potentiom- | 97 Filter reactors | 157 Mica diaphragms | 208 Rectifying tnbes | V |
| eters | 98 Fixed condensers | 158 Mica condensers | 209 Regenerative sets | 281 Vacuum tubes |
| 33 Binding posts | 99 Fire extingnlsbers | 159 Mica dlapfram trans- | 210 Rheostats | 282 Vacuum tube sockets |
| 34 Books | 100 Filament rheostat | formers | 211 Rheostat wire | 283 Variable condensers |
| 35 Boxes | 101 Filter coils | 160 Microphone transform- | 212 Rods | 284 Variometers |
| 36 Brass parts | 102 Flashlights | mers | 213 Rotary lever switches | 285 Varlo couplers |
| 37 Bushings | 103 Fuse terminals | 161 Milliammeters | 214 Rotary spark gaps | 286 Variable grid leak |
| 38 Buzzers | G | 162 Milli-voltmeters | 215 Rotary variable con- | 287 Vernier adjusters |
| O | 106 Gaps, Spark | 163 Motors | densers | 288 Vibrators |
| 41 Cabinets | 107 Generators | 164 Motor generators | 216 Rubber parts | 289 Vocalouds |
| 42 Cam switches | 105 Glass | 165 Mounting coils | 217 Rotors | 290 Voltmeters |
| 43 Carbon potentiomet- | 108 Grid condensers | 166 Minerals | S | 291 Vulcanized fibre |
| ers | 109 Grid leaks | 167 Mountings | 221 Safety switches | sheets |
| 44 Change-over switches | 110 Grid leaks, variable | N | 222 Safety fuses | 292 V. T. receiving sets |
| 45 Charging rectifiers | 111 Grid coils | 171 Name plates | 223 Sliders and rods | 293 Variogrid leak |
| 46 Choke coils | 112 Ground clamps | 172 Nickel parts | 224 Sockets | 294 V. T. detector nmlts |
| 47 Cat whlskers | 113 Ground wires | 173 Nuts | 225 Soft metal | 295 V. T. control units |
| 48 Cap nuts | 114 Ground switches | O | 226 Shielded dials | 296 V. T. receptacle |
| 49 Carbon walls | H | 176 One stage amplifier | 227 Short wave sets | W |
| 50 Cardboard tnbes | 116 Headsets and bands | units | 228 Solder | 297 Washers |
| 78 Charts | 117 Honeycomb coils | 177 Oscillation transform- | 229 Solder, bar | 298 Watch case recelvers |
| 51 Chopper, rotary | 118 Honeycomb moun t- | mers | 312 Soldering irons (elec- | 299 Wattmeters |
| 52 Clamps | tings | P | tric) | 300 Wavemeters |
| 53 Clips | 119 Honeycomb plugs | 178 Panels | 230 Spark transformers | 301 Wave tuner |
| 54 Coils | 120 Hook switches | 179 Panel plugs | 231 Spark coil selectors | 302 Wire |
| 55 Coil mountings | 121 Horns | 180 Panel controls | 232 Spaghetti tnbing | 303 Wire, aeriail |
| 56 Coil plugs | 122 Hydrometers | 181 Paper tubes | 233 Special apparatus | 304 Wire phosphor bronze |
| 57 Coils, spark | I | 311 Patent registration | 234 Spark gaps | 305 Wire, copper clad |
| 58 Condensers | 126 Indicators | J | 235 Spring clips | 306 Wire, magnet |
| 59 Condensers, fixed | 127 Inductances, C. W. | 131 Jacks | 236 Storage batteries | |
| 60 Condensers, variable | Transmitting | K | 237 Sectional receiving | |
| 61 Condensers, air | 128 Insulators | 132 Knock down units | sets | |
| | 129 Insulation | L | | |
| | 130 Invention develop- | 136 Lead-in wire | | |
| | ments | 137 Lead-in switches | | |
| | J | 138 Lead-in bushings | | |
| | 131 Jacks | 139 Lead-in insulators | | |
| | K | 140 Levers, Switch | | |
| | 132 Knock down units | 141 Lightning arrestors | | |
| | L | 142 Lightning switches | | |
| | 136 Lead-in wire | 143 Loading coils | | |
| | 137 Lead-in switches | 144 Loading inductance | | |
| | 138 Lead-in bushings | 145 Loose conplers | | |
| | 139 Lead-in insulators | 146 Loud speakers | | |
| | 140 Levers, Switch | 147 Locked lever switches | | |
| | M | 148 Lock nuts | | |
| | 313 Mailing lists | 149 Loop aerials | | |
| | 314 Metals | 150 Lugs | | |
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| | 152 Modulation transform- | | | |
| | mers | | | |
| | 153 Machine screws | | | |
| | 154 Magnet wire | | | |
| | 155 Magazines, Radio | | | |
| | 156 Mica | | | |
| | 157 Mica diaphragms | | | |
| | 158 Mica condensers | | | |
| | 159 Mica dlapfram trans- | | | |
| | formers | | | |
| | 160 Microphone transform- | | | |
| | mers | | | |
| | 161 Milliammeters | | | |
| | 162 Milli-voltmeters | | | |
| | 163 Motors | | | |
| | 164 Motor generators | | | |
| | 165 Mounting coils | | | |
| | 166 Minerals | | | |
| | 167 Mountings | | | |
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| | 171 Name plates | | | |
| | 172 Nickel parts | | | |
| | 173 Nuts | | | |
| | O | | | |
| | 176 One stage amplifier | | | |
| | units | | | |
| | 177 Oscillation transform- | | | |
| | mers | | | |
| | P | | | |
| | 178 Panels | | | |
| | 179 Panel plugs | | | |
| | 180 Panel controls | | | |
| | 181 Paper tubes | | | |
| | 311 Patent registration | | | |

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Service Bureau The Radio Dealer,
1133 Broadway, New York City.

We are interested in buying radio equipment and have circled the numbers on this coupon of the items we are ready to buy now. Please have manufacturers of these lines quote us dealers' prices.

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Address.....

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We are
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—Jobbers
—Manufacturers
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THIS IS A RADIO CHRISTMAS!



RADIO FREQUENCY AMPLIFICATION

MU-RAD Receiving Sets are the original product of independent experiments and experience of leading radio engineers. Five years intensive development of Radio Frequency Amplification have given Mu-Rad Sets exclusive points of difference—points that are well worth your consideration. First, unequalled **sensitivity**. Distances in excess of 1000 miles have been covered by Mu-Rad Sets using a 3-inch diameter, inside loop aerial. Second, the **selectivity** of Mu-Rad Sets which permits differentiation of stations 1% off tune, and third, the **simplicity of operation**. All tuning can be done with one hand. The high selectivity is retained by the use of patent circuits and Mu-Rad R F Amplifier Transformers.

SPECIFICATIONS

- Cabinet:** Solid mahogany, varnished piano finish.
- Panel:** Mirror polished black Radion.
- Dials:** Non-warping metal—prevent body capacity effects.
- Condenser:** 21 plate, permanent capacity.
- Modifier:** A circuit unit, dial operated from panel, for controlling signal strength and stabilizing circuits.
- Rheostats:** Special sector wound, smooth operation, positive contact.
- Filament Switch:** Special positive toggle knife-blade construction.
- Binding Posts:** Polished nickel, all in rear, plainly marked.
- Name Plates:** Extra deep reversed etched, black with satin silver high-lights.
- Wiring:** Tinned copper bus-wire, all interior metal white nickel finish.



The MA-12

Three stages of radio frequency amplification and detector. With 2 telephone plugs\$128.00

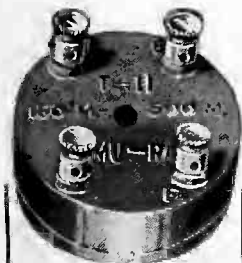
The MA-13

Three stages of radio frequency amplification, detector and two stages of audio frequency amplification. With 2 telephone plugs, \$160.00



1000 Mile Range Guaranteed

Each MU-RAD set is sold with an attached guarantee of 1000 mile reception under average conditions using a small loop aerial



Three Types

- Type T-11 for the first stage..\$6.00
- Type T-11A for the second stage 6.50
- Type T-11B for the third stage 7.00

MU-RAD R F AMPLIFYING TRANSFORMERS

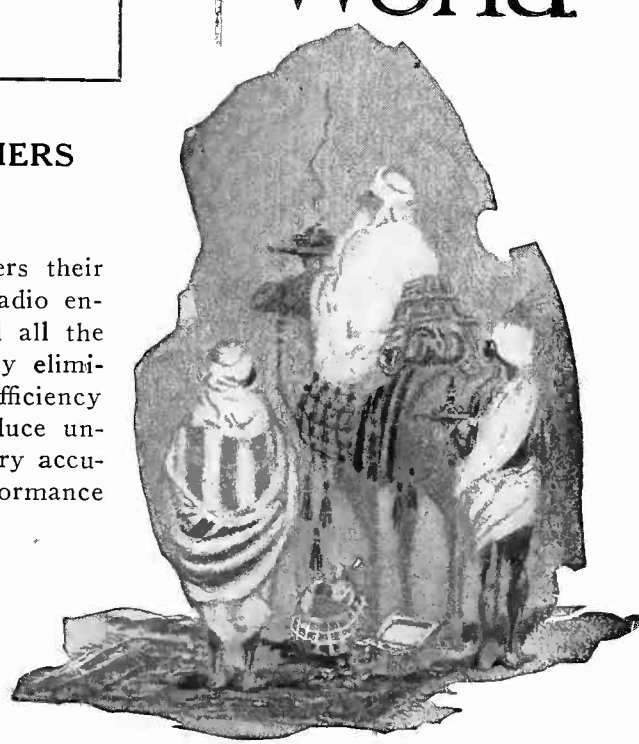
200-600 Meters—Air Core

The same transformer that gives to MU-RAD Receivers their extreme R F Amplification. The skill of MU-RAD Radio engineers has been concentrated on this instrument until all the objections common to most transformers were entirely eliminated. The absence of the usual iron core increases efficiency through elimination of iron losses. No metal to produce undesirable capacity effects and eddy current loss. So very accurately are MU-RAD Transformers made that their performance varies less than half of one per cent.

MU-RAD Apparatus brings good will and better profit. Write for proposition

MU-RAD LABORATORIES, INC.

800 FIFTH AVENUE, ASBURY PARK, N. J.



NATIONAL RADIO WEEK, DECEMBER 23-30

First In The Field

The Radio Dealer (monthly edition) leads the field of Radio publications *because it has the circulation.*

The following analysis is of PAID Circulation, note printer's statement of press run.

Circulation By States THE RADIO DEALER

Alabama.....	21	East Orange.....	10
Arizona.....	11	Elizabeth.....	17
Arkansas.....	5	Jersey City.....	44
California.....	286	Newark.....	191
Los Angeles.....	34	Paterson.....	19
Oakland.....	13	Trenton.....	27
San Francisco.....	67	New Mexico.....	2
Colorado.....	28	New York.....	1094
Denver.....	14	N. Y. City.....	710
Connecticut.....	185	Brooklyn.....	144
Bridgeport.....	12	Buffalo.....	28
Hartford.....	17	North Carolina.....	27
New Haven.....	12	North Dakota.....	5
Waterbury.....	12	Ohio.....	236
Delaware.....	11	Cleveland.....	34
Wash., D. C.....	34	Cincinnati.....	18
Florida.....	25	Columbus.....	13
Georgia.....	42	Toledo.....	22
Idaho.....	13	Oklahoma.....	15
Illinois.....	537	Oregon.....	11
Chicago.....	337	Pennsylvania.....	240
Indiana.....	87	Pittsburgh.....	84
Indianapolis.....	18	Philadelphia.....	68
Iowa.....	35	Rhode Island.....	14
Kansas.....	33	Providence.....	12
Kentucky.....	5	South Carolina.....	9
Louisiana.....	23	South Dakota.....	2
Maine.....	12	Tennessee.....	14
Maryland.....	10	Texas.....	75
Massachusetts.....	224	Dallas.....	43
Boston.....	88	Utah.....	13
Michigan.....	183	Vermont.....	12
Detroit.....	109	Virginia.....	20
Minnesota.....	41	Washington.....	37
Mississippi.....	14	West Virginia.....	19
Missouri.....	195	Wisconsin.....	106
Montana.....	18	Milwaukee.....	63
Nebraska.....	24	Wyoming.....	2
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New Jersey.....	662	Foreign.....	185
Atlantic City.....	19		
Camden.....	18		

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The Williams Printing Company

Complete Manufacture of Publications

Eleventh Avenue, 36th to 37th Streets

New York City

October 2, 1922.

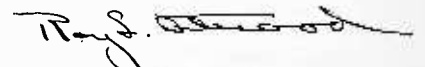
The Radio Dealer
1133, Broadway,
New York City.

Attention Mr. L. A. Nixon

Dear Sir:

I, Roy L. Atwood, Manager of The Williams Printing Company, hereby testify that we have printed and bound Eight Thousand (8000) copies of the current issue of the "Radio Dealer".

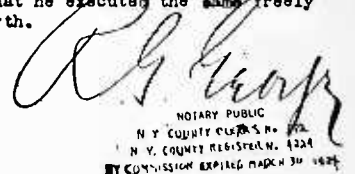
Very truly yours,



for THE WILLIAMS PRINTING COMPANY.

State of New York)
County of New York) Ss:

On this second day of October 1922, before me came Roy L. Atwood to me known to be the person who subscribed the foregoing instrument and acknowledged that he executed the same freely and for the purposes therein set forth.



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N. Y. COUNTY CLERK'S OFFICE
N. Y. COUNTY REGISTRATION, 1924
BY COMMISSION EXPIRES MARCH 30, 1927

First In The Field

THE RADIO DEALER

1133 Broadway, New York, N.Y.

35 South Dearborn St., Chicago, Ill.

THIS IS A RADIO CHRISTMAS!

THE FIRM BEHIND

1897

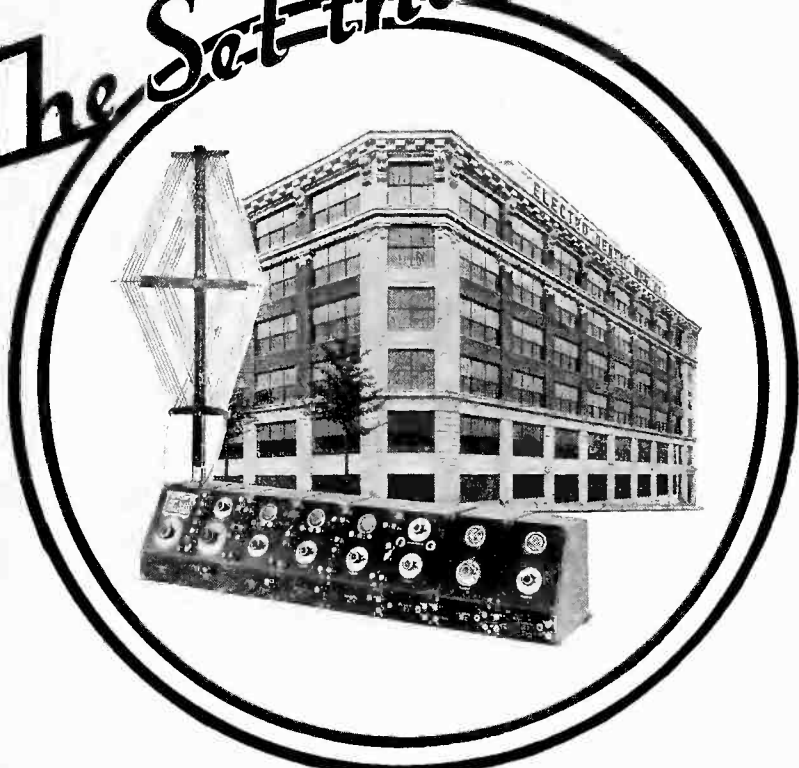
1922

The Set that Grows

TRADE



MARK



FOR twenty-five years the firm behind the E-D radio sets has been manufacturing delicate, high-grade electrical appliances. Its reputation amongst dealers for its universal "square-dealing" policy is excelled only by the reputation of its products. Today, the Company stands solidly behind every switch and panel made on any one of the three floors in our own building shown here.

The E-D set comes in unit-panels matching each other as illustrated. The radio novice can begin his set with only two E-D panels and then purchase more as his pocketbook permits. This exclusive feature assures you of endless sales and re-sales. You can always "Sell 'em Some More" E-D equipment!

You'll never regret the day that you wrote E-D. Tell us NOW to send you full information—and the next time you're in Philadelphia drop in and inspect our plant. We want to meet you.

The E-D Manufacturing Co.
33rd and Arch Streets
PHILADELPHIA, PA.

"AEREX" Long Range Radio Receiver Model RA-4

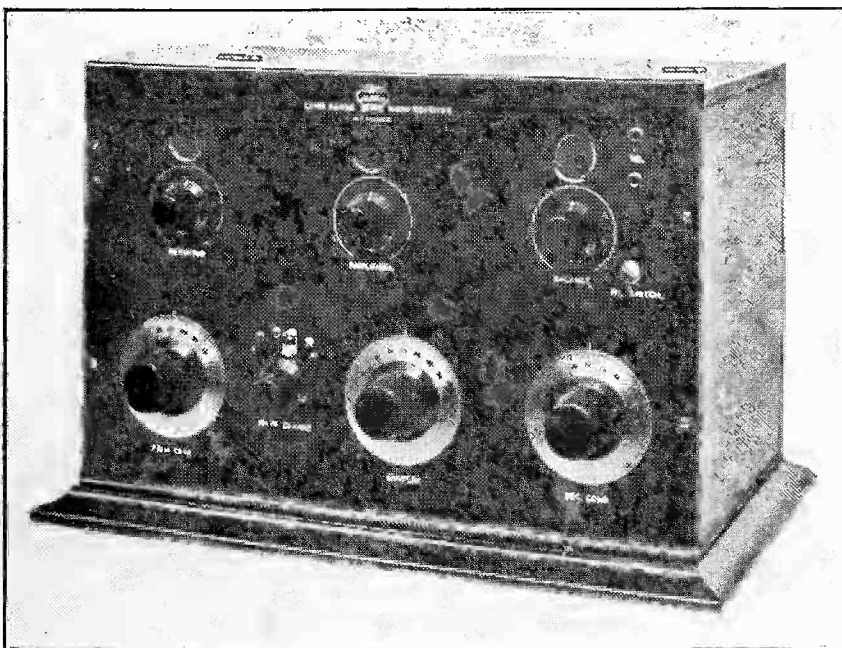
2 Stages Radio Frequency Amplification

2 Stages Audio Frequency Amplification

Using Only Two Amplifier Tubes

Features

1. Longer mile range
2. Supersensitive
3. Quality workmanship
4. Quality material
5. Saving of batteries
6. Saving of vacuum tubes, only three required to perform the work of five
7. Adapted for use of loop or outside aerials
8. All binding posts on back, no messy wiring
9. Four stages of amplification.
10. Attractive appearance



This set is guaranteed to receive broadcasting within a radius of 400 miles. Provision is made for using a loop aerial. The marvel set. Equal to super-regeneration. A long range radio receiving set which is also adapted for use with a loop antenna for local broadcasting. Long Range sets will be in demand this year. Will you be able to supply such a set in a THREE TUBE UNIT. Some territories still open for live dealers.

LIST PRICE, \$125.00 Discounts Upon Request

SPECIFICATIONS

- Cabinet—Solid Mahogany. Rubbed piano finish. 16 x 11 x 7.
- Panel—Genuine Bakelite beautifully engraved.
- Dials—Three-inch metal engraved.
- Knobs—Tapered Bakelite Knobs.
- Condensers—Permanent capacity.
- Rheostats—Specially designed, positive contact, smooth action.
- Transformers—2 Radio Frequency and 2 Audio Frequency.
- Sockets—Standard moulded Bakelite.
- Binding Posts—Hard rubber composition. All mounted on back panel, plainly marked.
- Circuit—Patents pending. 2 stage radio frequency amplifications, 2 stage audio frequency amplifications, one detector using only three vacuum tubes to perform the work of five.

AEREX RADIOPHONE CORP., 342 Madison Avenue, NEW YORK CITY

Still a Chance for the Xmas Trade

THERE are thousands of families in your community, who, though vitally interested in receiving Radio Broadcasting, are unable to spend a high price for vacuum tube receiving sets. It is to satisfy this great number of folks, primarily, that we have conceived the

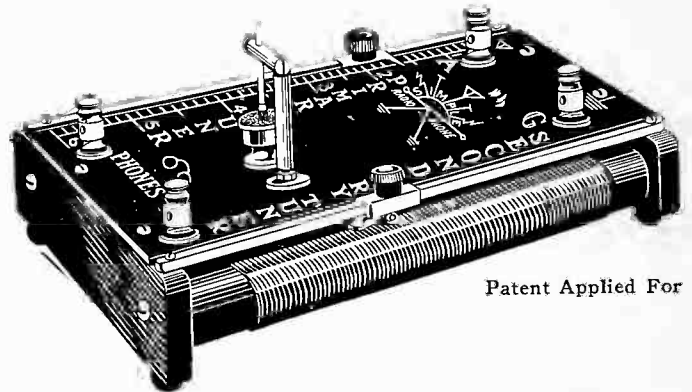
Simple-X Crystal Radio Receiver

Superior to Sets Costing Five Times
the Price of This Wonderful Set, Only

\$4.75

THE Simple-X will receive broadcasting within a radius of 25 miles—the only set equipped with the Simple-X Fool-Proof Detector and the Mul-Ti-Tec Crystal—a thousand crystals in one. No fussing to find sensitive spot, no loss of time or interruption of program. Built with Roller Slides to give smooth, constant contact. No wearing or short-circuiting of coil wires due to frictional scraping. The only set having a flat coil and indicating sliders. Awarded Certificate of Excellence by N. Y. Eve. Mail and approved by the N. Y. Tribune Institute.

For Discount Schedule Write, Wire, or Call
CARAGOL-CLARKE CO., INC.
82 Beaver Street :- New York City



KING QUALITY ALL THE NAME IMPLIES RADIO APPARATUS

The KING QUALITY Line Radiates Quality

KING QUALITY BINDING POSTS of genuine Bakelite

An article of unsurpassed beauty and service—the peak of perfection in design. Diamond finished knurl predominates as an exclusive feature. Highly polished finish.

EVERY article in the King Quality line is the Best that modern machinery and human skill can produce.

The only character of radio goods you want to carry today are those made of finest materials, accurate in design and workmanship, superior in finish and excellent in appearance. You'll find all these in

the KING QUALITY line

We use genuine Bakelite Parts exclusively made in our own Bakelite plant.

JOBBERs AND DEALERs:—Valuable territory now open. Write today for King Quality proposition.

RADIO APPARATUS DIVISION
King Sewing Machine Co., Buffalo, N. Y.

Lower in Price :- Highest in Quality

KING QUALITY RHEOSTATS

The resistance value 6.5 ohms. Brass Panel Bushing Special feature, which insures smooth operation and solid construction. Bakelite Base and Knob. Resistance wire wound on heat resisting hard fibre strips.

KING QUALITY SWITCH LEVER

With perfect mechanical and electrical features. Mirror finish Bakelite knob with polished knurl that glows like a diamond. 3 sizes: 1 in., 1 1/4 in., 1 1/2 in.

THIS IS A RADIO CHRISTMAS!

Here They Are At Last!

Two Non-Technical Books Answering Every Question of the Radio Fan

THE RADIO TELEPHONE HANDBOOK

By H. G. CISIN, M. E.

A Book of Authentic Information About Radio. It explains—

- The Operating Principles of Radio*
- How Crystal Detectors Work*
- How the Vacuum Tube Works*
- The Principles of Regeneration*
- How Amplification May Be Obtained*
- How to Check Up the Condition of the Storage Battery*
- Causes and Remedies for Weak Signals and Local Noises in Connection with Vacuum Tube Sets*
- When an Indoor Aerial Can Be Used*
- What the Loop Aerial Is*
- What Batteries, If Any, Are Necessary*
- When Shielding Is Necessary*

and many other important branches of Radio. It defines in language which the novice can understand.

- | | | |
|------------------------------------|--------------------------------------|-----------------------------|
| <i>Aerial</i> | <i>Ball-Type Voltmeter</i> | <i>Coil Receiver</i> |
| <i>Alternating Current</i> | <i>Bakelite</i> | <i>Compass</i> |
| <i>Alternation</i> | <i>Bellini-Tosi Direction Finder</i> | <i>Condenser</i> |
| <i>Alternator</i> | <i>Blocking Condenser</i> | <i>Connection Block</i> |
| <i>Ampere</i> | <i>Bridging Condenser</i> | <i>Counterpoise</i> |
| <i>Amplifier</i> | <i>Broadcasting</i> | <i>Coupling</i> |
| <i>Ammeter</i> | <i>Buzzing</i> | <i>Coupling Condenser</i> |
| <i>Anode</i> | <i>By-Pass Condenser</i> | <i>Coupling Transformer</i> |
| <i>Antenna</i> | <i>"C" Battery</i> | <i>Crystal Detector</i> |
| <i>Antenna Coil</i> | <i>C.W.</i> | <i>Cycle</i> |
| <i>Atmospheric Disturbance</i> | <i>Capacity</i> | <i>Detector</i> |
| <i>Audibility</i> | <i>Carborundum</i> | <i>Diaphragm</i> |
| <i>Audio Frequency Transformer</i> | <i>Cascade Amplification</i> | <i>Di-Electric</i> |
| <i>Audion</i> | <i>Cathode</i> | <i>Direct Current</i> |
| <i>Autodyne Receiver</i> | <i>Cat-Whisker</i> | <i>Discharge</i> |
| <i>Auto-Transformer</i> | <i>Change-Over Switch</i> | <i>Dummy Aerial</i> |
| <i>"B" Battery</i> | <i>Charging Rectifier</i> | <i>Dynamotor</i> |
| | <i>Choke-Coil</i> | <i>Dynatlon</i> |
| | | <i>Earth Connection</i> |

AND NUMEROUS OTHERS

Mr. Hall of Ludwig Hommel & Co., Pittsburgh, Pa., says "We have given The Radio Telephone Handbook careful study and we believe that it is a very good publication. It should meet with very popular demands among those interested in radio."

PRACTICAL ELECTRICAL ENGINEERING

By H. G. CISIN, M. E.

The easiest book to understand which has ever been written on electrical engineering.

No higher mathematics—no symbols—no Greek letters—no algebra.

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NATIONAL RADIO WEEK, DECEMBER 23-30

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1400 Broadway, N. Y. City

Gentlemen:
Send
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..... The Radio Telephone Handbook
Find Enclosed \$.....

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Address

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EISEMANN

THE advanced design of Eisemann radio units has met with instant favor wherever shown. The concave dial gives a mounting flush with panel. In appearance it is in marked contrast to the usual protruding knobs and dials. Another distinctive feature is the complete self-insulation of each part, making possible the use of a panel of wood, metal, or any other material.

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Both Rotor and Stator forms moulded of Bakelite. Extremely light in weight. Electrical losses reduced to a minimum.

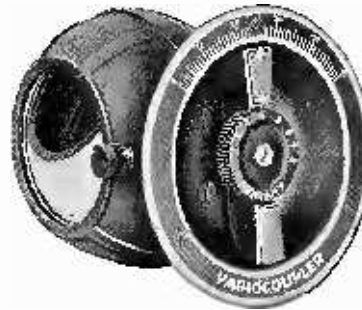
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The primary Tap Switch for tuning the antenna circuit is an integral part of the Variocoupler. No external switch, shielding, dial, or knob necessary.

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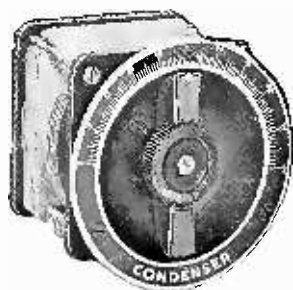


In addition to the units illustrated, other Eisemann products are Head phones, Vacuum Tube Sockets and Audio Frequency Transformers—all made to the highest electrical and mechanical standards.

Variable Condenser *Balanced type*

Rigidly constructed. Metal bearings front and rear. Rotary plates balanced, assuring constancy of setting. Vernier equipped.

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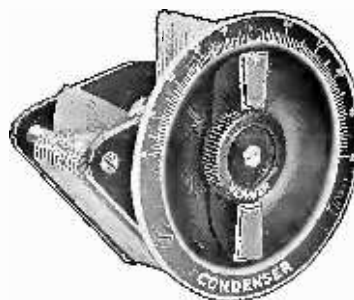


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BROOKLYN, N. Y.

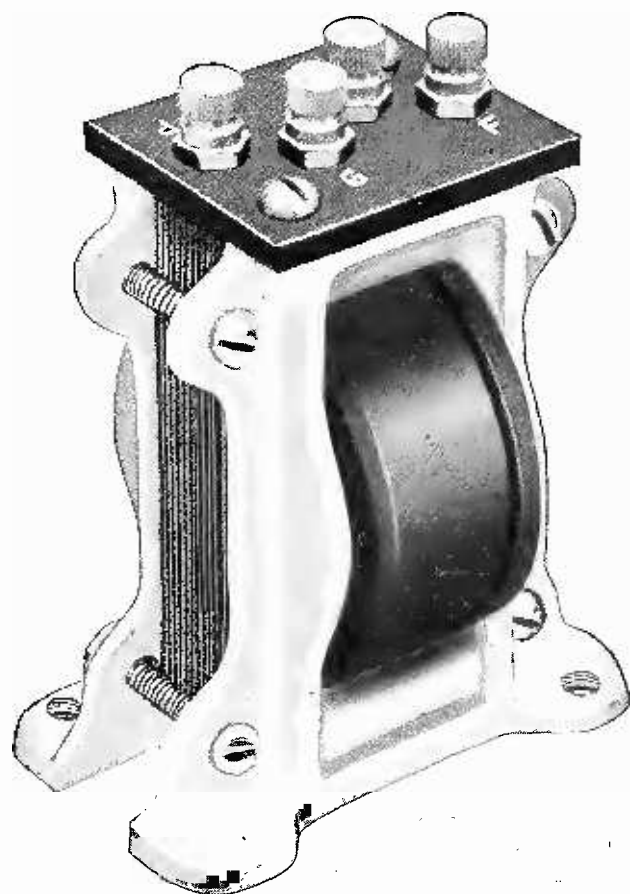
CHICAGO

THIS IS A RADIO CHRISTMAS!

3 Y Q Transformers for Christmas Profits —and all the rest of the year

We don't expect dealers to overload themselves with even such a high grade product as the 3 Y Q Audio Frequency Transformer and we thoroughly appreciate the fact that many dealers are still overstocked, due to dullness that has been so general in the radio business. But when you do place an order for more transformers, be sure to get the 3 Y Q, because

1. It is a high grade specialty built up to the highest quality and not down to a price.
2. It creates good will in your customers and proves to them that you are a dependable retailer of efficient radio parts and especially because
3. The 3 Y Q is a business getting profit maker *all* the year—not just a holiday sale catcher. You can't go wrong with the 3 Y Q—and you'll want a sufficient supply when business does open up, which we hope it will do soon for you. So remember the name—3 Y Q—and order from your jobber.



RETAIL PRICE, \$6.00

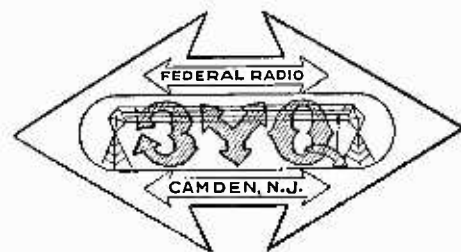
**ORDER FROM YOUR
JOBBER**

**“Amplification
without
Distortion”**

Federal Institute of Radio Telegraphy

Second and Federal Streets

CAMDEN, N. J.





Extremely sensitive and distinct—pure and clear tonal qualities. 3000 ohms. List \$8.00

Quick Service

in

WIRELESS



APPARATUS

Radio Apparatus

Also DICTOGRAPH Head Sets and Loud Speakers

Wire or phone us your orders now to ship by express for your Christmas Sales.

Be prepared to meet the certain demand for radio presents and that of the boys who receive cash for Christmas.

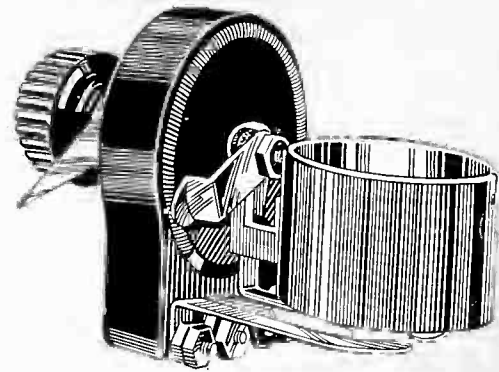
We are fully prepared to render you prompt service and attractive discounts on a full line.

Don't Delay

Frederick H. Pruden
Incorporated

991 F
Lerner Bldg.
Journal Sq.

Jersey City
New Jersey



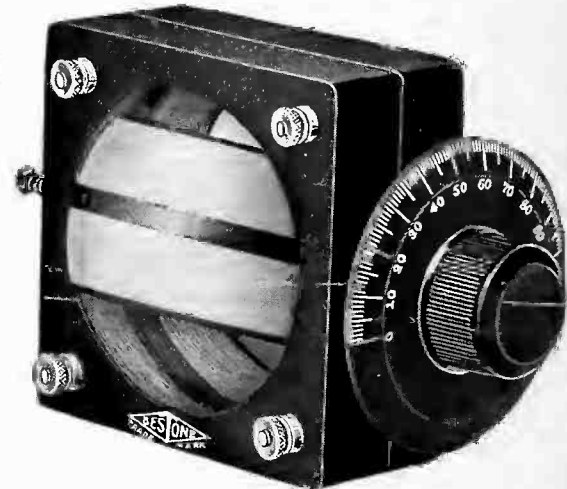
Ajax Socket Rheostat — A device for which amateurs and professionals have long been waiting. Eliminates wiring between socket and rheostat. List \$2.00.



Bestone Variocoupler—Moisture repellent, dielectric and is wound with double silk covered wire. Assures maximum selectivity.

712 with 3-inch dial, 150-600 meters. List \$8.00.

714 with 3-inch dial, 150-580 meters. List \$7.00.



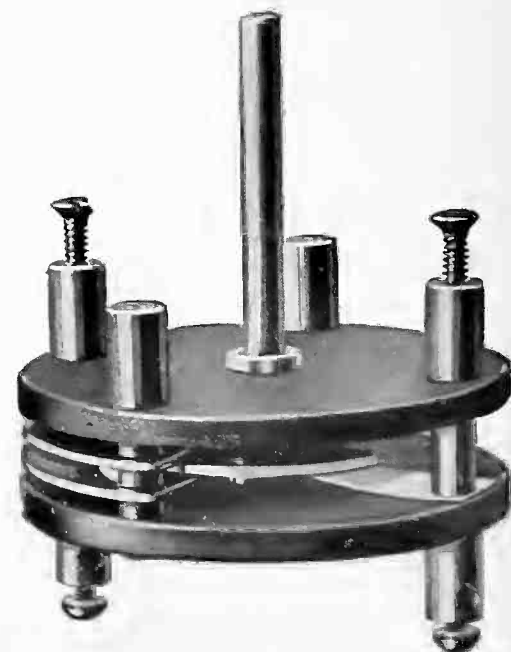
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Bestone Potentiometer — A correctly designed potentiometer with 2-inch molded dial. 300 ohms resistance. List \$1.50.
Bestone Rheostat. With 2-inch dial assures accurate control of filament current. List \$1.10.



"DICTOGRAPH" LOUD SPEAKER
The last word in simplicity and efficiency. List \$20.00, including a five-foot cord.



Vernier Condenser, the best of its kind. Capacity .000246 Mfd.
List without dial.....\$1.50
List with dial.....\$1.75

THIS IS A RADIO CHRISTMAS!

RADIO TRADE PICTURES



Photo by Bachrach

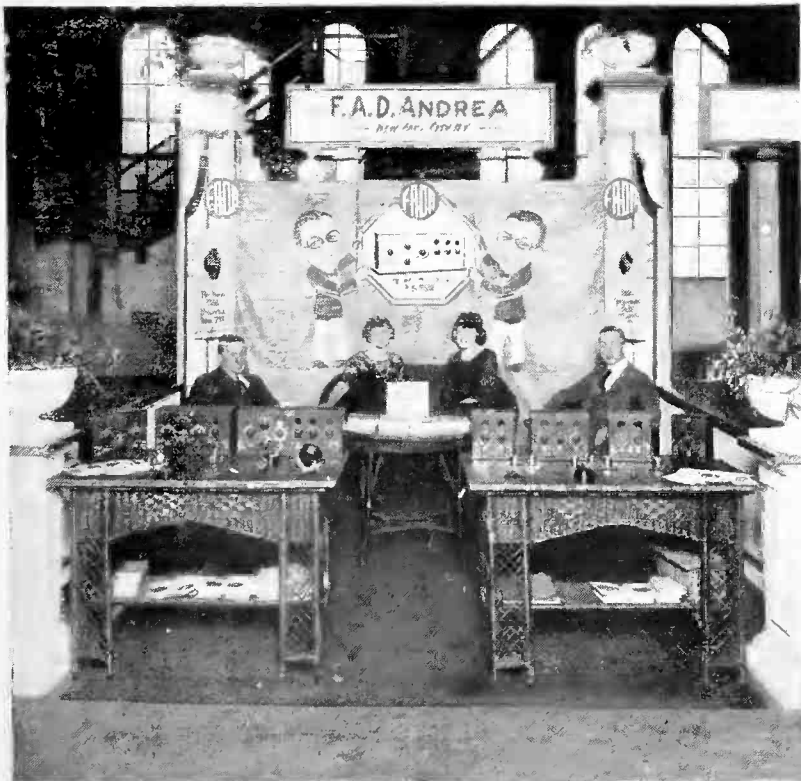
Gordon Sleeper

Through an error in a photograph gallery, THE RADIO DEALER last month printed the picture on the left over the caption of "M. B. Sleeper," when in fact it was his brother, Gordon, who is also associated with him in the Sleeper Radio Corporation. The portrait of Milton B. Sleeper, Jr., is shown on the right



© Bachrach

Milton B. Sleeper, Jr.



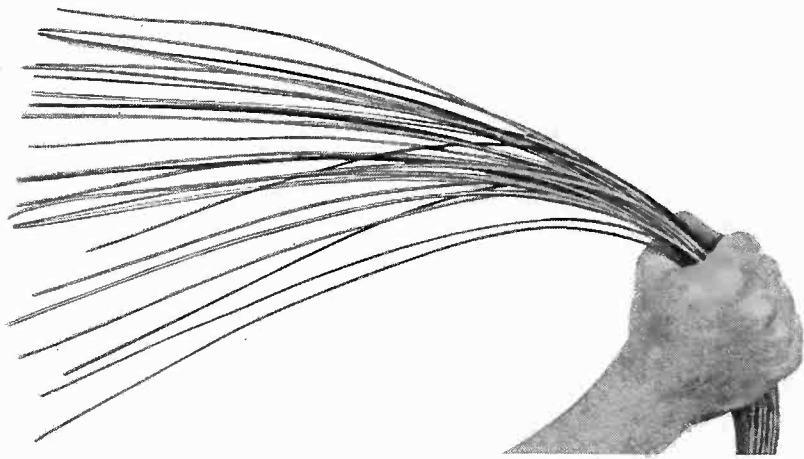
This illustration shows the booth of F. A. D. Andrea of 1581 Jerome Avenue, New York City, the manufacturer of Fada equipment, as it appeared at the recent Chicago Radio Show

Elmer E. Bucher, the sales manager of the Radio Corporation of America, heads the Dealers' Committee on National Radio Week



EMPIRE OILED TUBING

sometimes called spaghetti



Empire Tubing builds solid business for Radio Dealers. It brings both amateur and professional back for more, because the purchaser and his friends like its superior flexibility, durability, smoothness, high dielectric strength and insulating value. Empire Tubing is a standard product among engineers throughout the electrical industry. Made in black and white, yellow and other colors, in all radio sizes, 36 inch lengths.

Send today for Empire Tubing samples and quotations on 500, 1,000, 5,000, 10,000, 20,000 foot lots. Get acquainted with our other time tested radio insulation products

MICA INSULATOR COMPANY

68 Church Street, New York. 542 So. Dearborn Street, Chicago. Works: Schenectady, N. Y.
 Agencies—The Monroe Brass & Wire Co., Cincinnati; G. Arthur Morrell, Cleveland; Electrical Specialty Co., San Francisco and Los Angeles

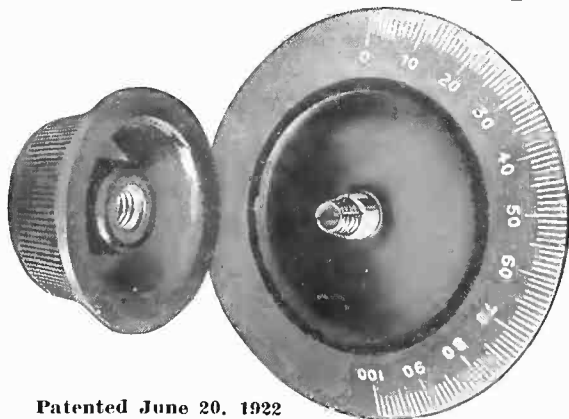
2022-F

THE - ONLY - KNOB - AND - DIAL - WITHOUT - A - SET - SCREW



The unsightly and troublesome SET-SCREW is at last eliminated. No more loosening of dials, splitting the head of the set-screw, or stripping of threads, perhaps ruining the dials.

To mount the TAIT KNOB AND DIAL simply hold the dial with one hand and screw on the knob with the other; a few seconds does it. No tools are necessary; when fastened it is self centering and self aligning. Numerals at correct angle for the best visibility.



This beautifully patterned KNOB AND DIAL is made of the best grade of BAKELITE.

MANUFACTURERS—It will greatly beautify your receiving sets, also reduce your labor costs in assembly.

JOBBERs—This product is merchandized to the trade strictly through you. It sells on sight and is revolutionary in its field.

Patented June 20, 1922
 Also Licensed Under Grebe Design Patent No. 57900

Dealers—write us and we will notify you of nearest jobber

List
 Price
 4 in.—\$1.50
 3 in.—\$1.00

TAIT - KNOB - AND - DIAL - CO., Inc.

MANUFACTURERS

11 EAST 42nd STREET

NEW YORK


THIS IS A RADIO CHRISTMAS!

For Christmas- Sell Radio Sets and Parts

Why? Because—

1. Your margin of profit is high and your turnover is quick.
2. You need not carry a large stock, but can use our stock to draw upon as you require it.
3. Each Set you sell is a living advertisement for you—it will sell other installations to neighbors and friends. It brings repeat orders for renewal parts and additions.
4. Radio is easy to sell. A man will buy his wife a Radio Set much more readily than a washing machine at the same price. His boy does not want stockings or shoes for Christmas—he wants Radio.
5. You can suit every purse—an expensive Set for those who wish it, a moderate priced Set or Parts for the others.
6. Radio gives you an entry into your customers' homes and brings you new customers. When you install a Set you pave the way for the sale of other apparatus.
7. A big demand for Radio exists—profit by it—get your share.

DISTRIBUTORS FOR Radio Corporation of America


 Westinghouse General Electric
 Acme Atwater Kent Baldwin
 Brach Brandes Burgess
 Chelsea Clapp-Eastham
 Cunningham Cutler-Hammer
 Dubilier Fada Fahnestock
 Formica Frost General Radio
 Hipco Homecharger Hopewell
 Kellogg Kennedy Klosner
 Murdock Omnigraph Pacent
 Radio Service Radiall (Amperite)
 Remler Rhamstine Tuska
 Western Electric
 and other Leading Manufacturers



How? Because—

1. Radio brings to the home concerts, opera, lectures, speeches, election returns, sporting news, crop and weather reports, etc.
2. Radio keeps the family together in the home.
3. A home is incomplete without a Radio Set.
4. Radio is an ideal gift for the boy because it is education and fun combined. "Learn while you play."
5. Radio is a godsend to the aged and the sick.
6. There is a Set for each purse, for the grown-ups and for the young.
7. An inexpensive Set, or Parts for making a complete Set, can be purchased and additions made as the customer's interest and pocket-book may suggest.
8. Radio never stales. It is a fascinating present that is used daily and appreciated more and more as time goes on.
9. It appeals to the music lover, the sports fan, children, adults, everybody.

Tie Up With Ludwig Hommel & Co., Because—

1. Their discounts are liberal.
2. They are Distributors for Radio Corporation and all other leading manufacturers.
3. They carry an enormous stock of sending and receiving material, insuring you quick shipment and a positive source of supply.
4. They maintain a Dealers' Service Department to help you with your problems. This service is free and cheerfully given.
5. You can rely absolutely on Ludwig Hommel & Co., apparatus. It is guaranteed by the manufacturers, and by them.
6. They wholesale to dealers exclusively and do not compete with their dealers by retailing.
7. They do more advertising than any other distributor of radio apparatus and refer to their dealers, consumers' inquiries resulting from that advertising. They advertise for you.
8. They have been wholesale distributors for 16 years and play square with everybody at all times.

Wire Collect Trial Order
Write for our new illustrated Catalog No. 200

LUDWIG HOMMEL & CO.
530-534 FERNANDO ST.  PITTSBURGH, PENNA

Introducing
“VICTOR JUNIOR”

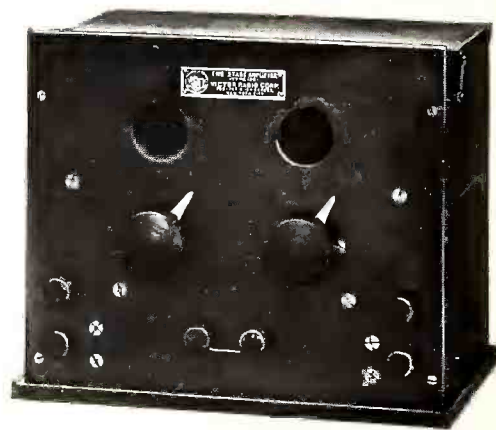
(A highly efficient tuner and detector at the price of a crystal set!)

and its

Two Stage Amplifier



TUNER AND DETECTOR
 TYPE 600. PRICE **\$22.50**



TWO STAGE AMPLIFIER
 TYPE 625. PRICE **\$27.00**

Look at the prices—think of it—a *guaranteed* outfit for less than \$50.00! You can't beat it anywhere, and it is selling like wildfire.

The VICTOR JUNIOR demonstrates wonderfully. It is *there* on performance. Simplicity, efficiency and quality are its strong points and it is the simplest set to operate now on the market *at any price*. Tunes with only one dial. Interference is easily tuned out.

DISTANCE IS ONE OF ITS STRONGEST FEATURES

The tuner-detector has a wave length range of 150 to 600 meters. With the amplifiers it has brought in stations clearly up to 1,500 miles.

Built up to the VICTOR standard of quality, and at a price which *sells it*. Even the schoolboys can afford this—the cost is *less* than that of the *usual parts* required for a tube set.

VICTOR JUNIOR can be supplied with either WD-11, or Radiotron sockets—and it's a knockout!

Swing in on this for the XMAS trade. *Write or wire* for a sample and get started on this live one NOW!

LIBERAL DISCOUNTS TO JOBBERS AND DEALERS



VICTOR RADIO CORPORATION

795 East 135th Street, New York City

Manufacturers of Complete Radio Sets and Parts

THIS IS A RADIO CHRISTMAS!

THE RADIO DEALER

The Radio Trade Journal
For The Radio Retailer

CONTENTS DECEMBER, 1922

SPECIAL ARTICLES

Air Monopoly Is Real Future Possibility.....	By Harry M. Konwiser	42
Dealer Lets Fans Prepare His Broadcasting Programs.....		38
Dealers Should Push Advertised Goods.....	By Thomas J. McElroy	34
Efficiency from the Amplifier Tube.....	By Sterling G. Sears	43
How to Determine Manufacturing Costs.....	By Henry L. Seidman	39
Importing American Agents May Register Trade-Marks.....	By Chauncey P. Carter	42
Major-General Harbord New Head for Radio Corporation.....		44
Make It a Radio Christmas This Year.....	By John R. Hall	38
Manufacturers Analyze Trade Conditions.....	By "Executive"	45
Miss Koewing in Charge of WOR.....		44
National Radio Week Brings Trade to Dealers.....	By Laurence A. Nixon	33
Panel Is Important.....	Interview with George J. Levy	53
Publicity and Its Effect on Market for Radio Securities.....	By Frank R. Stanton	94
Radio Trade Pictures.....		27
Retail Radio Salesman and Raspberries.....	By Edward H. Lerchen	46
Stations Improving Radio Programs.....	By L. N. Allen	47
Test Specifications for Radio Receivers.....		36
Twenty Receiving Sets Now to One a Year Ago.....	By Martin P. Rice	46
Vital Points in the Radio Business.....	By H. F. Jefferson	35
When and Where Dealers Meet Success.....	By R. P. Worden	37
White Bill Should Be Passed by Congress.....		48

DEPARTMENTS

Book Reviews.....	By Bernard J. Farrell	54
Editorial.....		40, 41
Service Bureau.....		18
What the Manufacturers Are Doing.....		50

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Advertising forms close the 15th of the month prior to date of issue.

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Endorsed!

\$70.00 List

H. A. BRIGGS
ROCKY RIVER, OHIO.

QUINCY RADIO LABORATORIES,
654 HAMPSHIRE ST.,
QUINCY, ILL.

Nov. 14th, 1922.

Nov. 14th, 1922.

Mortimer Radio Corp.,
114 Fulton St.,
New York City.

Mortimer Radio Corp.,
114 Fulton St.,
New York City.

Dear Sirs:

Gentlemen:

Received the Radio set on Friday, Nov. 10th. It came in good shape.
IT IS A FINE SET. I have received concerts from:

Your set received last Sunday and tested Sunday night. This is the greatest place to argue in the world. The entire day of Saturday and Sunday were spent arguing on the practicability of a Detector Unit alone.

- Detroit, Mich.
 - Atlanta, Ga.
 - New York City
 - Davenport, Iowa
 - Pittsburgh, Pa.
 - Cincinnati, Ohio
 - Schenectady, N. Y.
 - Louisville, Ky.
 - Newark, N. J.
- Please send me your catalogue.

Upon actual test, we found that stations that could not be heard, due to interference in static, on the one stage and two stage amplifier, came through very clearly on the Detector alone. Newark, New Jersey, WJZ, was heard very plainly on the Detector, but due to interference from Davenport, it was impossible to hear them on the one stage or two stage.

Very truly yours,

You may expect to hear something definite regarding your unit in the very near future. IT CERTAINLY LOOKS GOOD SO FAR.

H. A. BRIGGS,

Very truly yours,

Rocky River, O.
R. F. D. No. 1, Box 120.

W. P. Lear,

QUINCY RADIO LABORATORIES.

W. P. Lear/T. R.

Save Sales Company

Sales Engineers

City Hall Building, New York City
(Broadway and Warren Street)

Manufactured by Mortimer Radio Corp., New York City

MELCO

TYPE 400

Tuner and Detector Unit

Two-Stage Amplifier

—with the Litz Wire Wound Super-sensitive Vario Coupler

THIS IS A RADIO CHRISTMAS!

The Radio Dealer

THE RADIO TRADE JOURNAL

Edited and Published at

1133 Broadway, New York, N. Y.

FOR THE RADIO RETAILER

VOL. 2. NO. 3

DECEMBER, 1922

ONE DOLLAR THE YEAR

National Radio Week Brings Trade to Dealers

Monster Publicity Drive by Affiliated Publishers and Manufacturers
Will Bring Business to Every Live Dealer

By LAURENCE A. NIXON

Member National Radio Week Committee

National Radio Week, which has been set for December 23rd to 30th inclusive, promises a real opportunity for retailers all over the United States to cash in on a live demand for radio apparatus.

Directed by a committee composed of representatives of every radio publication this movement is assured of success, and the measure of local benefit will be gauged only by the amount of co-operation the local dealers and jobbers give the national committee.

Through the courtesy of the leading broadcasting stations throughout the country special programs of very great interest will be broadcasted from every station, the programs in each section being made up to conform to the general style judged most effective by the committee. One night will be devoted to one feature or class of program, while another night will cover another class, another another, etc.

Special publicity is being given the week and the programs by the general committee while a number of manufacturers have agreed to aid the committee by sending out considerable literature on the subject. The local dealer can do his share by using a portion of his newspaper advertising during this week to call attention to the programs and by displaying in his show window placards and signs calling attention to the week.

The dealer can also help the industry, and himself, by throwing his store open every night dur-

ing this period so that the general public—those who do not own sets—can gather and have radio demonstrated under the best of conditions. Live wire dealers will be quick to see the possibilities of increased sales during this period from these demonstrations.

One of the drawbacks to previous special concerts given by local dealers have been that only sporting events have been broadcasted as "special stunts" appealing only to a small class of people. With the varied appeals of the special nights of National Radio Week every class of people will be reached, and a higher class of prospects drawn into the dealer's store.

To aid the local dealer in his newspaper publicity the committee has prepared special advertisements for use in local dailies, while publicity about the week will be sent to daily newspapers on request.

Dealers having special plans for publicity for this week are invited to communicate with the committee at once so that the plans may be passed on to other dealers in other sections.

THE RADIO DEALER will be glad to receive photographs of special Radio Week windows for publication in an early issue of this journal.

Full information may be had by addressing the Service Bureau of this publication, or Major J. Andrew White, chairman, National Radio Week Committee, 320 Broadway, New York, N. Y.

Dealers Should Push Advertised Goods

Advertising Manufacturers Win Public's Confidence and Often Render Merchandising Helps to Dealers

By THOMAS J. McELROY, JR.
Lincoln Advertising Service

The dealer should get behind and push only the radio goods that are advertised by the manufacturers. This is a thing that a great many dealers have always frowned at, and will always frown at. They fail to see any benefit in it for them individually. They can see no farther than the size of profit they make on an individual sale. These dealers, one will find, are the small fellows and always will remain as such. They are the ones who are always looking for larger discounts in preference to quality—who are always claiming they are not making money. On the other hand, their competitor on the next corner is smiling—he is making money, and the reason? He is selling advertised goods.

Let us consider why it pays dealers to stock and push only advertised goods.

On account of the many new dealers who leaped into the category of radio dealers and also due to the newness of radio itself as applied to its use by laymen for entertainment purposes, general radio ignorance is crystal evident. In other words, many dealers themselves do not understand the art of radio. Such being the case, and it surely is, how in the name of heaven can they expect to explain this eighth wonder to their customers—the people who, too, know nothing of radio, but look to the radio dealer for enlightenment? It is very true, to be sure, that the dealer employs a radio amateur—a radio technician—to sell his radio goods and answer these very questions put to him by the customer. That is all very well, but so far as salesmanship is concerned this self same radio amateur or radio technician is a total loss. He is generally a fellow who has spent all his life with his radio instruments, but has never before sold anything. How, then, can the dealer expect him to sell radio goods?

Let us record one instance of how one of these radio amateurs explained the technical parts of a headset but could not answer a simple question on sales. In the first place, the writer is greatly interested in radio, but is far from being a technician. He had occasion recently to purchase a pair of headphones. He called on one of the

best known radio stores in New York and asked to be shown headphones. The clerk, who, by the way, was a dyed-in-the-wool radio amateur, showed him three or four pairs of phones, ranging in price from \$4.50 to \$14.00 per pair.

The writer asked why the difference in price and was told that the higher priced sets were made better. Natu-

printed word, the advertisement, will pound the story home to both the dealer and the customer. It will eliminate a great many of the questions now necessary to ask.

The manufacturer who advertises naturally tells the story of his product—why it is better and what it will do. He thereby furnishes valuable selling points to the dealer who sells his goods. He instructs the dealer to know more about his product. He proves to the dealer that he has faith in his product and tells him why. He shows the dealer by this constant advertising that he is no “fly-by-night” manufacturer, but is here to stay, and, lastly and of greatest importance, he creates a public demand for his apparatus.

It can be readily seen, therefore, why it pays both the dealer and the manufacturer for the latter to advertise. It is also crystal clear why the dealer should get behind and push these advertised goods.

Another question arises: Should the dealer stock all the apparatus that is advertised? Decidedly no. The dealer should carefully study the construction advantages of each piece of apparatus and should only stock the best apparatus at varying prices. In other words, in headsets, for example, he should stock a low-priced set, a middle-priced set and a high-priced set, of course, the best in each class. And these should be the products of high-class manufacturers who constantly advertise them and also who are always ready to assist the dealers in other ways.

The manufacturer should not feel that he has given the dealer enough co-operation by just advertising his apparatus in magazines and newspapers. He should go further and the dealer should insist that he go further. The manufacturer should keep up a constant advertising schedule to dealers and consumers. He should display in prominence in his advertisements not only his products but the retail prices of same.

The reason for this is obvious. He should investigate his trade before selling to every Tom, Dick and Harry dealer and in this way help to eliminate the cut-price fellows. Should

(Continued on page 75)

Customers Want Them

The general popularizing of goods through advertising is a development of recent years. Manufacturers have found it one of the most practical methods of assisting in the sale of a factory's products.

Advertised products are recognized by customers as possessing quality, for every one realizes that it does not pay to advertise anything that is not good. Such advertised merchandise does not have to be sold; it sells itself, for buyers want it and have confidence in it.

Is there any better reason why radio dealers should sell advertised goods than the fact that their customers want them?

rally they should be. The clerk informed the writer that this one had bakelite earpieces, while the earpieces of this one were made of hard rubber. This one had an eight-foot cord, while this one only had six. This one had a leather headband, while cotton was the material used in this one's headband. And the point he laid most emphasis on and continually mentioned was the fact that one was of 2,000 ohms resistance and another 6,000 ohms. After listening to him unravel a few paragraphs on technical radio points without any meaning whatever, so far as the writer was concerned, the writer then put the question to him this way: “I want a pair of phones that will receive the broadcasting the best. Now, why won't the \$4.50 pair receive it as well as the \$14.00 pair?” He couldn't answer.

And so it goes in all branches of the selling end of the radio business. The

Vital Points in the Radio Business

Better Broadcasting, High Quality Apparatus Properly Inspected and Good Service Are Essentials

By H. F. JEFFERSON

Vice-President and General Manager, Kilbourne & Clark Manufacturing Company

The summer slump brought to the radio trade in a forcible manner the necessity of good broadcasting. It is almost needless to say that the activity of the amateur radio trade is essentially bound up with good broadcasting.

Good broadcasting involves not only efficient transmitting apparatus and modulating systems, but programs of such a nature that they are really entertaining for the home. In every community where broadcasting has been active, there is a desire that an end be put to "canned music." Possibly on the Pacific Coast this was more noticeable than in the East because the eastern section has already had the advantage of some high class broadcasting stations.

Much activity has been noticeable among the radio trade on the Pacific Coast in an effort to obtain good broadcasting by co-operative plan, the formation of radio trade organizations, and a good deal of study has been given to what may be termed the economics of radio broadcasting. This is the most important phase of all, for unless it is proved definitely and conclusively that broadcasting is a profitable operation, either from a strictly commercial standpoint, or from a community benefit standpoint, broadcasting must eventually stop and with it the amateur radio trade will again languish to a comparatively unimportant business. It is daily being proved, however, that it is a profitable proposition.

Well managed and stable department stores, as well as conservative newspapers, are now purchasing and installing the most expensive broadcasting equipment. These installations are made only after they have been studied from a strictly economical standpoint. The first radio craze has been over for some time now, and consequently it is not emotion of the moment or a passing fad that brings about installations by such stable business organizations. That these installations are being made, and made in increasing numbers, is proof of the future of broadcasting and of the amateur radio trade.

Aside from the optimism this should



H. F. JEFFERSON

give us, it has a further benefit in its effect on the minds of bankers and financial men who have been disposed to regard the amateur radio business as a very uncertain and fleeting proposition. The fact that stable businesses enter the field of radio broadcasting is a plain intimation to financial men that the amateur radio trade has a future of no mean importance, and with this further knowledge, bankers will extend their assistance more readily in the development of the radio business.

Like the airplane and the automobile, radio telephony shows indications of its sphere of usefulness to the world in communicating with isolated groups of people and in the general dissemination of information and entertainment at a low cost.

There is no cheaper means known than radio broadcasting of reaching a large body of people for the purpose of disseminating general information.

Quality of Products

Radio merchandise, being technical in nature, demands engineering service and inspection in its manufacture as much, if not more, than any other electrical product. During the recent rapid growth of the industry, it has been considered by many that any in-

dividual or organization could manufacture radio equipment, but it is fast becoming obvious to the public that only those organizations that have the experience and engineering services available can produce radio apparatus of quality.

Every single piece of radio apparatus produced in a factory should be given a thorough electrical test, and in addition detailed inspection under the supervision of an experienced testing engineer. In our factory, standard tests are laid out for every piece of apparatus even if only mechanical in its function, as it is recognized that with the many small and numerous parts entering into radio equipment, the failure of one small piece will often spoil the equipment.

It is important for a manufacturer to provide for its dealers and customers as complete a line of radio apparatus as possible. Dealers, when purchasing radio equipment, naturally wish to avoid shopping around and if they can be assured of obtaining a complete line from one source, will naturally be more satisfied.

Service

The service feature is most vital in the radio trade, as so much education in radio is required by those entering the business and users new to the art. Service must extend from the manufacturer through to the jobber, dealer and to the customer. The whole line of distribution must co-operate in an educational effort with the object of giving the public, or ultimate consumer, the maximum enjoyment and value derivable from the radio art.

The manufacturer should be willing to assist his distributors with steady advertising, dealers' signs, leaflets, and all such assistance which has come to be recognized as a necessity in the merchandising of domestic electrical equipment. It is particularly necessary to lay stress on advertising and printed matter which assists in the education of the users of radio apparatus.

For successful and full enjoyment of radio, it is necessary that some skill be acquired in the use of the equip-

(Continued on page 76)

Test Specifications for Radio Receivers

Methods of Determining Sensitivity, Selectivity and Distortion Are Described

At the invitation of Gregg and Company a committee met on August 23 for the purpose of deciding on some methods for testing the overall efficiency of radio sets. The main purpose of these tests is to provide some figures for the comparison and rating of broadcasting receivers for the benefit of the manufacturer, dealer and purchaser.

It was agreed that such policy would greatly help to stabilize radio trade in effecting the valuation of products of different manufacturers, and in protecting the public.

In the determination of the sensitivity and selectivity of receiving equipment it is first necessary that we establish a definition for these two terms and the following are offered:

The sensitivity may be defined as the ratio of the signal voltage applied to the telephone to the voltage applied to the antenna circuits of the radio receiver under test, when this radio receiver is set up in connection with an antenna circuit having the constants of the average novice antenna, and where the output is supplied to a standard pair of head telephones. The selectivity of the radio receiver may be defined as the percentage change of telephone current to the percentage change in wave length or frequency as this latter is changed, the radio receiver being set up with a phantom antenna circuit having the constants of the average novice antenna and being supplied with a standard pair of head phones.

Both of these definitions assume a predetermined in-put and output circuit and for this purpose a series of measurements made on a number of novice antennas indicate that the constants of a representative antenna are: capacity .00025 mfd; resistance 20 ohms.

It is felt that some well known reliable phones may well be standardized upon as the output circuit.

Sensitivity Determination

For the actual measurement of sensitivity it is necessary that a known voltage be applied to the antenna circuit of the receiver under test and that the voltage available at the telephones be measured.

To accomplish this it is necessary

that a generator simulating a transmitting station be available and that some means be devised whereby the voltage on the telephones may be measured. The need for the former can be most easily met by means of a vacuum tube generator, modulated at audio frequency, such a generator consisting of two five-watt tubes, one of which is connected into one of the commonly used generator circuits, the other of which is supplied by the audio frequency source of power, care being taken to secure complete modulation; or if that is not advisable a constant degree of modulation as indicated by the ratio of the direct voltage being applied to the plate of the oscillator to the alternating voltage being applied to the modulator tube. A method of connections for modulation may be any of the many forms that are used in radio phone operation, the only essential being that means be available for measuring the output current and for the determination of the consistency of the degree of modulation.

The method for determining the voltage applied to the telephone is briefly this: A source of alternating current of the same frequency as that used for the modulation of the radio frequency supplied is passed through a potentiometer, means being provided for the measurement of the current, and by means of a transfer switch the telephones are made transferable from the radio receiver to the potentiometer in such a way that the audio frequency voltage across the telephone may be varied at will and may be determined from the value of the current flowing in the potentiometer and the resistance which shunts the telephone. The value of the voltage on the phones is then the product of these two quantities.

It is to be observed in this measurement that sufficient power must be available so that the power taken from the potentiometer by the telephones be so small in comparison with that available with the current in the potentiometer is not materially affected when the phones are connected to the potentiometer.

It is suggested that if the total resistance of the potentiometer is maintained at something of the order of 1,000 ohms, and the resistance across which the telephones are connected is

never made more than 10 ohms, the simple condition described above can be realized. The source of supply for the audio frequency to supply the potentiometer may well be a vacuum tube generator or an electrically driven tuning fork, the only requirement that it be of reasonably constant frequency and that its wave form depart not too seriously from the sinusoidal. A serious departure from good wave form will make manipulation more difficult and result in reduced precision. This may, however, be guarded against by the operation of the vacuum tube generator if that is used at a rather small part of this maximum output.

In setting up the receiver it is essential that it be thoroughly shielded from all electrical influences and that the voltage which is supplied to the antenna circuit be the only voltage being induced in it. This condition can be easily secured by housing the entire generator in a copper mesh box, shielding the coupling coil from which the excitation voltage is secured by means of copper sheet and providing electrostatic shields between it and the receiver proper so that only a known degree of electromagnetic coupling exists between the generator coupling coil and the receiver circuit. The coupling coil in the antenna circuit can best be made of a few turns of wire on a four or five inch tube, the coil itself being thoroughly shielded by means of copper sheet and the leads to the receiver proper being equally well shielded with copper.

Measurements will be found much simplified if the entire setup is made on metal covered table tops, preferably of copper sheet or mesh, the entire metal system being grounded to some common point. The coils, themselves, which are used for coupling should be raised above the metal sheet sufficiently to reduce the losses in these coils due to the nearness of the metal (about 5 inches) and not so much as to allow of electrostatic coupling between the coils proper.

It is preferable to remove the receiver itself eight or ten feet away from the coupling system and to bring the leads from the receiver coupling coil to the receiver through brass

(Continued on page 77)

When and Where Dealers Meet Success

It Pays to Stock Up for Christmas and Other Busy Seasons and Cultivate Good Customers

By R. P. WORDEN

Manager Radio Department, The Newman-Stern Company, Cleveland

The radio dealer today knows what class of merchandise he must carry to meet the demands of his trade and to build up a sound business. If he is a good merchant he also knows how to sell radio. The questions which now confront him are when and where he can expect his efforts to meet with success.

Regarding the former, the writer has observed a very definite cycle through which the radio business passes year after year. It is, of course, affected by general business conditions, and the actual volume of sales varies greatly. However, the ratio of summer trade to winter trade seems to be constant. In fact it seems to be about the same as it was when radio business merely meant supplying the needs of the radio-telegraph experimenter.

Summer is, naturally, the slack season. This is not due to market conditions or to the much maligned static. It is due to one thing only—human nature. No “indoor sport” enjoys widespread popularity while the weather is favorable for outdoor amusements. The cool days of October bring an increase in the demand for radio apparatus. The increase is gradual, but in our vicinity no heavy buying on the part of the consumer is noted before the latter part of November. Christmas trade is always good and, if properly merchandised, should show a nice profit.

We have always found the week from Christmas to New Year to be one of the busiest of the year. It is not uncommon to find that the sale of parts and accessories for this week exceeds even the weeks preceding Christmas. It is a school vacation. Then, too, a large number of boys and young men, feeling that their parents or friends cannot intelligently choose gifts for a Radio Christmas, ask that they be given money instead. Their request is usually granted and all through the week the retail stores are crowded with radio fans. They know what they want and they have the money right in hand. Tubes, batteries, amplifier parts, phones—in fact, anything to add to a radio set is always in demand at this time. The dealer will

do well to have a supply of such goods on hand after the Christmas rush. Of course, local conditions enter into this; we certainly would not recommend stocking up where the market is already over-supplied.

January and February are very profitable months. The demand for complete sets is heavy, the season for long distance radio-telegraphy is at its best, hence the experimenter is constantly buying and building. The time of the spring let-up cannot be set definitely, but it is about due when the first heavy thunder storms come. This past year the novelty of broadcasting and the shortage of apparatus kept the consumer demand heavy for nearly two months after a slump might have been expected. The dealer who is a radio fan, or who has several of them in his employ, is quick to notice the symptoms of decreasing interest.

The second question raised at the beginning of this article—where he can expect his efforts to meet with success—is hard to answer definitely. However, certain types of men are especially good prospects.

In the cities we find the well-to-do man who is in search of a new hobby. He is in many cases the head of some large business concern. Radio proves fascinating to a man of this type. He takes intelligent interest in it and will spend freely as long as he is getting satisfactory results. Furthermore, he is usually active in clubs and social organizations and his enthusiasm over radio is contagious. One sale, followed by good service if required, will often bring five or six friends in the place where the first set was bought. In most cases these new customers purchase expensive sets and in turn become boosters for the dealer who is giving service.

In the smaller towns we find the same type of man we have been discussing. Often he is a banker or a retail merchant. He is one of the leaders in his community. When a radio set is installed in his home the whole town knows it and is awaiting the outcome with interest. Hence it is very important that this man be sold a high grade set and that he be

given all the service and personal attention possible.

In the foregoing paragraphs we have considered the sale of complete sets only. The business in parts and accessories is large and to many dealers is the bread-winner. This is normal, and the sale of parts should by no means be neglected. We have placed the emphasis on complete sets because we believe there is a large market for them which has not been cultivated enough. The enterprising dealer can greatly increase his sales by consistent effort along this line.

In conclusion we wish to express our opinion as to the future of the radio business in our locality. We believe there will be a steady growth for several years at least, with the usual seasonal fluctuation. At present the market is over-supplied with parts and small instruments. On small items the chain store and the ten-cent store are factors to be considered, but they will never interfere with the sale of high grade receiving apparatus. We believe the future of radio is assured, provided broadcasting is properly regulated and good programs transmitted on a regular schedule.

Germer Manages States

Well-Known Newarker Connected with the States Electric Co.

Frederick W. Germer, former manager of the General Merchandise Company, Newark, N. J., has become a member of the States Electric Company, with offices at 20 Clinton street, Newark, N. J.

The States Electric Company have added a radio department of which Mr. Germer will assume sales-management. The company will act as selling agents for radio manufacturers and have already secured several attractive items. Arrangements have been made for their handling exclusively the sale of the Sheltone loud speaker and other products of the Sheltone Company and also the Hampson Company who manufacture radio frequency transformers.

Make It a Radio Christmas This Year

Dealers Using Windows and Newspapers Can Persuade Public to Make Radio Gifts

By JOHN R. HALL

The term "Christmas Season" is inclined to be misleading from the point of view of merchandising, and particularly so in connection with the radio trade. Too many retailers are apt to think that only the business occurring two or three days before Christmas is worth-while going after. As a matter of fact the Christmas trade can be made effective a month before the holidays and as long after Christmas as the ingenuity of the dealer and the conditions in his locality permit.

Though "Do your Christmas shopping early" is now a time worn phrase, its aptness, especially to the radio dealer, is none the less striking. To many people radio is still a mystery, and people are not anxious to give as presents the things which they themselves do not appreciate. This is not to say that people as a rule, Americans particularly, are satisfied to go through the same routine, year after year—a neck tie for Charlie, a box of chocolates for Lillian, a hot water bottle for the Smiths, etc., etc. On the contrary, they turn with relief to any new suggestion for a gift, if only for the reason that they may be known as givers of original gifts.

In grasping the opportunity presented by the average man's perplexity at what to give for Christmas, the radio dealer should drill in the idea of "Radio for Christmas" at least a month before the holiday.

A window display which immediately suggests itself is one showing the home circle gathered around a fireplace, each with a headset over his ears. The window should be illuminated by subdued lights, coming entirely from the fireplace if possible. A Christmas tree may be added to give more of the holiday atmosphere. Holly wreaths in the window spread the season's cheer and indicate that Christmas business is on.

To this, and to every window should be added a showcard to drive home some idea that the window is intended to impress on the passers-by. A card something like the following might serve the purpose, although it is recommended that the dealer prepare the text of each card he uses so as to appeal particularly to the conditions that exist in his locality:

WILL IT BE A RADIO CHRISTMAS IN YOUR HOME?

Will your family enjoy the best of music, humor, literature, sport, oratory and world events this winter, without stepping beyond your family circle?

Will your family be enabled to keep in touch with what the world is doing through radio?

They will thrill at the thought of radio! They will marvel with you at its wonder—and its simplicity! Let us explain.

This display may be too pretentious for certain dealers, and is offered only as a suggestion. It should be remem-

bered, however, that if at any season a pretentious window display is worth while it is at Christmas when the public is trying to spend money.

Another effective display can be made to illustrate the simplicity of radio. This is one of the arguments that dealers should always advance. It was tried out successfully by an Eastern retailer recently, and consisted of skeletonizing a radio set. A neat mahogany tube receiving set was displayed with a card at the bottom, reading "front view." The same model with panel removed, stood alongside, marked "back view." From each of the principal parts of the two receiving sets blue ribbons led to a large card at the back on which was neatly printed in bold letters: ALL THERE IS TO RADIO.

(Continued on page 80)

Dealer Lets Fans Prepare His Broadcasting Programs

The importance of good broadcasting to the radio industry is leading to much deliberation about the matter. Arguments in favor of the elimination of the smaller stations so that greater effort and pains may be concentrated on a few selected and powerful stations scattered throughout the country have been advanced from time to time. These arguments have been based on the belief that many small stations are of little value from the point of view of quality broadcasting.

A recent program sent out to listeners from a dealer's station in Newark, N. J., however, contraverts the popular theory that only the big stations can put on a worth-while program. This dealer is D. W. May, the proprietor of an old established firm in the radio city. With some of the biggest broadcasting stations in the country centred in Newark, Mr. May manages to make his program interesting to the large body of listeners-in who look forward to the May waves every day.

As an instance of the interest the May station arouses, the fact may be cited that fans have the privilege of

phoning in to the May station requesting that such and such a selection be put on the program. This statement may be put in another way: the May station's programs attract attention because the listeners-in are permitted to make up the programs.

A May program is not pretentious, but it is decidedly interesting; as the following sample program for an evening will testify:

7:30—8:30 P. M. Cornet Solos by Master Ludwig Guenther; Accompanist, Miss Julia Guenther.
 1. Sing Me To Sleep.
 2. Perfect Day.
 Trombone Solos: By William Frances—Accompanist, Miss Helen Speckman.
 1. At Dawn.
 2. Answer.
 3. Romance.
 Vocal Solos by Peggie Keuchner.
 Anna Shaw's Ideal Girls' Jazz Orchestra.

The selections played by the orchestra were chosen by the listeners-in, who accepted the invitation of the broadcasting station to "Phone in your selection to Branch Brook 2700." The idea is a good one, and shows what the dealer can do to bring his name before the radio public.

How to Determine Manufacturing Costs

Simple Method Described to Enable Producers to Find Costs so They Can Properly Fix Selling Prices

By HENRY L. SEIDMAN
Certified Public Accountant

In arriving at the cost of an article one must take into consideration first, the material, and then the labor. At this point no one can help the estimator. He alone is the only one who can determine how much material is to be used, how long the labor time should be, and what the cost of it all should be. There are, however, some items which are part of the cost of materials, but which are usually ignored. The expressage paid on materials purchased or, if the merchandise is imported, the duty, ocean freight, insurance in transit, custom-house entry, broker's fees, etc., all these are as surely a part of the cost of the materials you purchase as the materials themselves.

A number of clients have contended again and again that the discounts deducted when materials are paid for within ten days should be deducted from the cost of the materials purchased and the discounts allowed to customers under similar terms are to be added to the merchandise costs.

It is the economist's and the accountant's contention that to do so would be grossly unjust, both to the factory manager and to the owner of the capital invested in the business. The theory of cash discounts is a simple one. It is that cash discounts are offered for payment of bills before the date on which they are due because there is a lack of capital in the firm that offers it; a form of interest for prepayment of bills; and an inducement to pay bills promptly. To the man who pays his bills promptly, and takes a discount for such payment, the discount so earned is earned because he has an abundance of cash with which to operate his business, and it is his abundance of capital that makes the extra profit, not that the merchandise costs less.

Surely, then, if a firm lacks capital, and in order to secure cash quickly offers a discount to its customers, shall that discount be charged to the cost of the material? Shall the manufacturing department show a higher cost because capital is lacking? And on the other hand, shall the manufacturing department show a lower cost

because the firm has an abundance of capital and discounts its bills?

The answer must be no; for to say otherwise would be to place the different manufacturers and dealers on unequal terms at the most vital point; or to give one man an immediate and powerful advantage over the other.

The materials purchased would cost less if a man bought them in large quantities; the dealer with less capital would at this point be at a disadvantage. But the large-lot purchaser is entitled to this advantage, because to purchase in quantities presupposes the ability to sell in quantities.

Another item often neglected when materials are figured is waste. For instance, if the material comes in square sheets and the article cut from it is circular, the cost of all the circular articles is equal to the cost of the entire sheet. Where circular articles are cut out of such a sheet, there must necessarily be left some parts of the sheet that cannot be used.

Having established the cost of the material, he next determines the labor cost. One of the items usually ignored is what, for want of a better term is called "idle time." Usually an estimator holds a stop-watch on a man who is manufacturing the article, and by practical experience determines the length of time required for each operation. He then determines how

many articles can be made in a working day. He leaves out, however, the fact that he cannot hope to secure every day the exact number of articles he figures on. Sometimes the materials do not arrive on time, or are defective, or are not the right kind, or the machine breaks down or the material is tougher than usual, and a thousand and one other reasons that cause delay, and higher labor costs.

The next thing to determine is the cost of Manufacturing Overhead. What is that?

Manufacturing Overhead consists of all expenses other than labor and materials incurred directly in the manufacture of the article. They may consist of: Indirect labor, as porters who clean the factory; heat, light and power used in the factory; superintendence; repairs to machinery and other equipment; supplies, like oil and waste, brooms, ash cans and other things of a similar nature.

At this point there always arises an argument between the man who insists that the rent of the factory and depreciation of the machinery are manufacturing costs, and the man who insists that they are not. Discussion and theorizing on this subject has gone on for years. The one insists that since the manufacturing is done within four walls, the rent of the factory is incurred only because of the manufacturing, and therefore is an added cost.

The other insists that rent is paid because it is necessary to protect the capital invested in the machinery from undue wear and tear of the elements.

The economist and the accountant have always been at loggerheads on this point, and because they cannot reach an agreement each accountant must formulate his own rule. We are firm believers in charging it to Manufacturing Overhead.

The same situation exists where where depreciation of machinery is involved. One man insists that the machinery is used for nothing else but manufacturing and the wear and tear on it is due to manufacturing, and therefore a proper charge to its cost.

(Continued on page 81)

SPECIAL ADVERTISEMENTS FOR RETAILERS

for use in local newspapers during National Radio Week have been prepared by the committee and may be had on application to this publication's Service Bureau or to the committee direct.

National Radio Week
December 23-30

can be made the biggest thing in every city—if the dealers will take advantage of the stunts planned for this time. Details on request.

National Radio Week Committee,

Major J. Andrew White, *Chairman*,
326 Broadway, New York City.

Mr. Radio Dealer, Study Your Business

Much as we dislike to admit it, there are a number of dealers who entered the radio business during the boom with the intention of closing up as soon as their sales slowed down and with little knowledge of radio or general retail merchandising. They looked upon their advent in the ranks of radio dealers as an experiment which could be conducted with comparatively small capital and little trouble.

Some of these dealers tired of the experiment and retired from the field poorer and yet no wiser. Others were carried along with the tide of popularity which caught the public. A few became imbued with the conviction that retail radio was a good business and settled down to hard work. They changed their window displays frequently and arranged them with an eye to artistry and attractiveness, realizing that the same good practices that applied to other businesses were applicable to their business also. They studied the trade journals devoted to radio; these dealers read the amateur radio papers and in every other way possible tried to keep up-to-the-minute. They were always glad to lend a helping hand to amateurs, to answer their questions.

As a result these wise dealers have built up growing stores and won for themselves an enviable prestige in their localities. No new dealer hiring a store in their vicinity has a great chance of successfully competing with them. These dealers are secure in their knowledge that the radio receiver is not simply an experiment or a toy but a recreational and utilitarian commodity, whose use is steadily growing. They do not consider their retail custom as temporary, as something they will drop at the first slump. Having found the retail radio trade a legitimate, dignified way of making a living and governed by the same broad principles of merchandising that govern other lines, they know that a well-established business weathers the little slumps which must be expected occasionally.

The Trade Can Sell a Million Crystal Sets

The advent of the many recently established broadcasting stations makes it possible for retailers, everywhere, to specialize in crystal sets. There are over 500 broadcasting stations now, and when crystal sets are sold to receive within a 25-mile radius it means that the residents of the territory covered by these broadcasting stations can easily be sold crystal sets.

Crystal sets have, in the mind of the radio expert, been cast aside. Your amateur scientist of yesterday glories in tube sets, in battery attachments and socket things—but the average person who knows none of the scientific things about radio wants the crystal set.

Crystal sets, once adjusted, once properly tuned, continue in operation indefinitely. What more need a buyer know. Too many of the new crop of manufacturers of radio equipment have overnight cast aside their crystal set business—aiming to sell to the technical radio enthusiast.

Well and good—but what about Mr. Neighbor and Mrs. Neighbor? They know nothing about radio. They ought to know they can purchase a simple crystal set, erect an outdoor aerial and presto—the concerts come forth!

Retailers must remember that there are more potential crystal set buyers than anything else? There

are twenty million homes in the United States. Sell to the majority. Don't all flock to sell to the experts. The retail and wholesale trade will err in commercial judgment if they do not make proper effort to sell crystal sets. That's where the trade volume is to be had.

After a person has had a crystal set that person becomes a radio enthusiast, in the majority of instances, and then come thoughts of tube sets and what they can bring in as entertainment. As the proposition now stands the broadcasting stations reach the larger centres of population. Crystal sets bring in the air entertainment.

Of course there is no real comparison between the tube set and the crystal, but it is better to start off with a crystal set; to learn a bit about radio and then acquire a tube set. This system means reaching the masses; means making sales in proper fashion means making business for radio. In its essence it makes for interest on the part of new devotees of radio, and that is what must be done to keep up the big radio industry.

The makers of tube sets and the makers of parts will best be served right now by the sale of, say one million crystal sets, and the trade can sell that one million by employing proper business methods.

Crosley Says, "Too Much Broadcasting"

Powel Crosley, Jr., president of the Crosley Mfg. Co. of Cincinnati, is of the opinion that there is too much broadcasting on the same wave lengths. We quote Mr. Crosley:

"Something should be done as quickly as possible to separate the stations over a broader band. As soon as this is done conditions will improve very materially.

"It requires today a sharp tuning set to separate the stations crowded

together on 360 and 400 meters. The heterodyning effect is awful at times, but nevertheless there is always something going on in the evening, and it is always possible to pick up one or more stations satisfactorily at any time.

"The present evil is merely a phase that will correct itself in the course of time. This cannot be done in a day, but it requires action at the earliest possible time by Congress, to allot a special band of wave lengths to broadcasting stations so that they can be separated, for the present arrangements are not at all satisfactory."

Political Hokum Not for Radio

Political broadcasting was indulged in, during the recent campaign, to the extent that the candidates of the leading political parties were requested to broadcast speeches on certain evenings.

Whether these air speeches were well received or not is a question. No one really knows whether these speeches had any effect upon the result.

Insofar as the average listener was concerned, it is judged, from personal investigation, that the political speeches "went cold," being received in an indifferent manner. Was this due to the presence of general apathy on the part of the public or to the speeches themselves? Both. That's fair.

The general public now listening-in to the very good air programs that have been in order in the East, particularly, cared not for the political bunkum, because these folks realized the politicians were using the air for advertising purposes.

Some of our big people in the radio industry haven't sensed the fact that the great American public will resent the use of the air for advertising purposes—political or otherwise.

Apart from this, it is best to warn the morons of political life that candidates incur danger from broadcasting their speeches. Political speeches, without any of the influences of the public meeting are bound to "go flat." Political speeches need—as supports—the distraction of judgment to cover weak arguments. Political speakers require unthinking enthusiasm from their audience. Political speeches need not stand on intrinsic merit. Radio speeches must stand upon intrinsic merit. The spoken speech, before a friendly group of fellow politicians, is one thing and putting the same sort of bunkum out in the air—to persons unseen and unheard—is quite another thing.

Obviously—to judge from the few facts discernible from the last election—air broadcasting is not a thing for the political folks. And so, let's thank someone for that—because it will help the art, and its commercial annex, wonderfully.

Double-Barreled Scheme to Popularize Radio

By H. Gernsback

Fundamentally there is nothing wrong with radio, but so far radio has struck only the big centers. Only in the immediate vicinity, within five or ten miles of a broadcasting station has radio shown any marked success. Seemingly, the point of saturation has been reached as far as these centers are concerned.

As soon as the distance from the broadcasting station is increased over 25 miles, the chances of having many receiving outfits becomes smaller and smaller. The reason is obvious: Within a radius of 25 miles a crystal set will do nicely. Only the man with money to spend can afford to get a vacuum tube outfit, and while, of course, vacuum tube outfits are superior to the crystal outfits, they cost a great deal more and are more complicated. The problem then becomes one of dollars and cents.

So we have the condition today that over one-half of the population of the United States is being deprived of radio entertainment for the reason that the farming and agricultural districts as a rule are out of range and are not in a position to invest in expensive vacuum tube outfits.

Suppose an up-to-date amateur, or business man for that matter, was told that with practically no outlay, he could make several thousand dollars a year out of radio broadcasting. Would he not jump at the chance?

We know that most of the large broadcasting stations at the present time are receiving Arlington time signals on a special aerial on a wave length of about 2,650 meters; a special receiving set is maintained for these time signals. These time signals are re-transmitted on a wave length of either 360 or 400 meters. The telephone of the receiving outfit is simply held against the microphone of the sending outfit at the broadcasting station and the signals are thus re-transmitted.

Why not do the same thing with broadcasting programs? Suppose we have a small town of 3,000 inhabitants 100 miles away from the nearest broadcasting station. Now then, suppose some wide-awake amateur should equip himself with a first-class vacuum tube receiving set. Then he would also install a low-power radio telephone sending outfit. This outfit would not have to be rated higher than 10 watts. Such an outfit would cost less than \$200 to assemble, including the receiver. Once the modulation problem was solved, it would be a very simple matter for the amateur to re-transmit from a wave length of 360 to 400 meters and re-broadcast the broadcast on a 200-meter wave length. He would have little trouble securing the necessary license for this purpose.

With a good 10-watt transmitter it should be possible to reach everybody within a radius of 10 miles, sufficient, in other words, to reach everybody in town.

The minute his station is completed, the amateur would take a simple crystal outfit and visit some of his friends. He would put up a temporary aerial and let his friends and acquaintances listen in to his evening programs.

He would not sell, or try to sell the crystal set to them—and here is suggested a new idea: HE WOULD RENT IT! A simple contract blank could be made out whereby the subscriber agrees that upon the installation of the outfit he will pay at the rate of \$2 per month.

It would not be necessary for the amateur to lay out a single dollar, for if he should be able to secure anywhere from 50 to 100 subscriptions, he could take these contracts to his bank and if the young man is at all in good standing in the community, he will have no trouble whatsoever in securing a loan from the bank with which to purchase the outfits, the bank holding the contracts as security.

The idea is sound economically as well as technically, and there is no reason why it should not be possible to put it into use immediately.

Air Monopoly Is Real Future Possibility

Enactment of Laws or Governmental Supervision Must Be Established So Broadcasting Can Help Radio Art and Industry

By HARRY M. KONWISER

Some of our leading radio business men appear not to believe that a monopoly of the air is likely to be developed by and for certain business interests.

There is no room for discussion in a matter of this sort. There is no second thought as to whether air space is to become the monopoly of any one person, or any group of persons.

It is possible to develop a monopoly today for air usage.

The Telephone Trust directly or through its various subsidiaries can cover the country by broadcasting stations if they have idealistic aims for entertaining the dear public.

All they need to do is to make proper application and presto—the thing is done and once having established their broadcasting stations; once having begun their daily concerts they will soon drive other firms, not so well equipped for service, out of the field.

This is a serious situation and must be remedied and when the matter of broadcasting is regulated by law or under governmental supervision, then and then only will radio broadcasting become the thing most of us see in the offing.

Talk all you like about broadcasting opera and real concerts—held in the larger cities of the land—but what avail to talk about these valuable adjuncts to further popularizing the radio art and industry? Before such talk can be developed there must be proper systematic supervision either for broadcasting arrangements or for broadcasting programs.

Some of the leading manufacturers in the field are interested in putting Metropolitan opera into the air—but they cannot make proper arrangements unless they are assured of means of proper support on the part of everyone.

If a person, today, made application for license for four hundred broadcasting stations and the stations were to be operated according to the requirements of the present law the Secretary of Commerce could not refuse to issue licenses to such person. That's no idle pen-made idea. Commissioner Carson, of the Bureau of

Navigation, is authority for the statement. How then—in view of this—can real efforts be made to develop real entertainment for the radio fans and the public at large?

Supposing some fanatical multimillionaire with a pallid penchant for political preferment aimed to establish a few hundred broadcasting stations?—why shouldn't he be granted licenses for these stations, just as they're granted to the Telephone Trust? What if the object of the one person is personal benefit, while the other aims to benefit the mass? The law cannot take cognizance of that little thing.

And suppose a group of newspapers, in various cities, collaborated in broadcasting service? Or an organization of department store owners? And later, suppose these persons have developed an air monopoly—what's to prevent that group from selling air advertising?

Supposing the Telephone Trust aimed to give its telephone patrons radio service? They'd make proper application for licenses and very properly would promptly receive permission to broadcast. Then they'd supplement their activities by broadcasting absolutely real programs—all the while. Result: The broadcasting stations would, by agreement, yield the

air to the Telephone Trust because of the general practice that the one to serve is the one who can best serve the most in proper manner. The Telephone Trust might do this as a sort of preliminary campaign to create air advertising. There's the danger, the real danger in extending unlimited permits to any person or persons.

Eventually the air will be *used* for advertising, of course—but radio will best be served by making it impossible for any one person or group of persons to establish monopolistic rights.

The time to stop the would-be air grabbers is now and the one way to aid in this is to urge your Congressman and Senator to develop early action for the White bill now before Congress.

This measure, agreed upon by a conference of various radio interests early in the current year, may require alteration before it can meet with the approval of everybody in radio—but getting it out into the limelight will help clarify the broadcasting situation a great deal and when the conditions that surround broadcasting are better understood, by statute or by governmental supervision, then there will be less complaint about broadcasting and the radio art and industry will be properly benefited and advanced.

Importing American Agents May Register Trade-Marks

By CHAUNCEY P. CARTER
Trade-Mark Specialist

Not long ago, a Federal court held that where a druggist purchased abroad, imported into and sold in the United States rice powder bearing the JAVA trade-mark and in the original packages put out by the owners of this mark in France, he did not infringe the rights of the exclusive agents in this country of the French producers of this trade-marked article because the public was not deceived, but was getting the genuine article. While

this decision was obviously in accordance with established principles of trade-mark law in this country, it worked a considerable hardship on importers of trade-marked products holding exclusive agencies for distribution in this country because under it their exclusive agencies become exclusive only to the extent of their being the only direct importers from the producers, others being permitted to

(Continued on page 89)

Efficiency from the Amplifier Tube

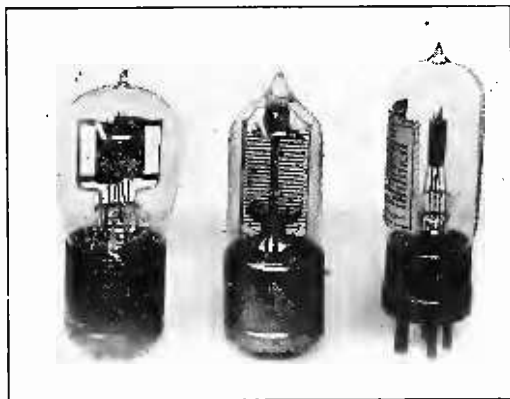
Theory of Operation and the Characteristics of the Usual Types of These Vacuum Tubes

By **STERLING G. SEARS**
Of Sterling Phonic Laboratories, New York

In the first paper of this series we discussed the detector tube with regard to its operating characteristics. It was mentioned that "hard" detectors or amplifiers were much more stable in operation when used as detectors than the "soft" type. This stability also holds good for "hard" tubes used as amplifiers, and since there is some relation between these two uses, we shall now take up the usual types of amplifier vacuum tubes.

The accompanying illustration shows the types of amplifier tubes now on the market, i.e., the Radiotron UV-201 (identical with Cunningham C-301), the Western Electric (Government) VT-1, and the new Westinghouse WD-11. These tubes all come under the classification of "hard" tubes, since they have a higher degree of evacuation than "soft" detectors and are therefore able to stand much higher plate voltage ("B" battery) without showing blue-haze or ionizing. The UV-201 is the hardest of this group and the average can be used up to about 120 volts with safety. Some, of course, may be used up to 150 volts, but around this point they become somewhat unstable and are liable to ionize unless care is taken in operating them.

The VT-1 comes next, standing up well on 100 volts. There are some



Types of Amplifier Tubes

VT-1 tubes that were made for detection only in existence (among them most of the "yellowtops"). These ionize around 40 volts and are therefore practically valueless as amplifiers, but the standard VT-1's are "hard" and stable. The WD-11 is somewhat softer than the VT-1, the average becoming unstable above 65 volts. These are being pumped a little better now for the Aeriola Sr. amplifier and make good amplifiers for weak signals if handled properly. They become, however, very "soft" if once ionized, and are then, if at all operative, good only for detection. Great care should therefore be exercised when adjusting the "B" battery or changing tubes.

In general, amplifiers are used with higher plate voltage than detectors, and likewise power tubes higher than either. This is because we are dealing with increased signal intensity as we go from detector to first stage of amplification, first to second, and so on to the last or power stage.

amplifier. If another gives its at low voltage and high amperage, it is a power amplifier. The former are technically known as "high impedance" tubes, and the latter as "low impedance" tubes.

Impedance means the same to an alternating current circuit as resistance does to a direct current circuit, and since we are dealing with voice frequency alternating current in ordinary amplifiers, we speak of the internal impedance of the tube. This can be made high, medium or low according to the size the plates are made, the capacity of the filament (to emit conducting particles or "electrons"), the size and fineness of the grid and the degree of evacuation ("hardness").

Of course, an endless series of combinations could be made and there are, no doubt, in existence several thousand different tubes, each suited to some particular use better than any other. For ordinary radio work, however, there are practically four different classes in general use—all those on the market coming under one of the following classifications:

1. High impedance, high vacuum. (Voltage amplifiers.)
2. Moderate impedance, high vacuum. (Voltage amplifiers.)
3. Low impedance, very high vacuum. (Power amplifiers.)
4. Moderate impedance, moderate vacuum. (Soft detectors.)

These classifications are naturally not sharply defined and we can list the commercial amplifier tubes that fall in classes 1 to 3 roughly as follows:

Tube	Approximate Impedance	Plate Volts Maximum	Watts Maximum
1. A-P (DeForest) amplifiers.....	50,000 ohms.	160	1¼
Westinghouse WR-21	40,000 "	120	1½
Mayers amplifiers (High Mu).....	35,000 "	100	1½
Westinghouse WD-11 (A)	35,000 "	65	¾
2. Western Electric VT-1 (Amp.)	20,000 "	120	2¼
Radiotron UV-201 (C-301)	15,000 "	120	2½
3. Radiotron UV-202 (C-302)	8,000 "	450	6
Western Electric VT-2	6,000 "	375	5½
Western Electric 216-A	4,000 "	160	3½

All vacuum tubes act, in a way, like transformers; that is, they will transform the input signal energy into practically any ratio of voltage and current. If a certain tube gives its output energy at high voltage and low amperage, it is considered a "voltage"

The A-P detectors and UV-200 come in class 4, but as we discussed them last issue, we shall spend no more time on them.

It will no doubt be noticed that the three tubes we have illustrated for
(Continued on page 84)

NATIONAL RADIO WEEK

Dec. 23-30

Offers Dealers All Over the Country a Real Opportunity to Cash in on Radio Demand and the Publicity This Week Will Receive

Special broadcasting programs—Special newspaper publicity and special concerts at every dealer's store and at the homes of prominent fans are among the plans of the committee.

Every dealer who intends aiding in this special publicity effort is invited to communicate with the committee.

Major J. Andrew White, Chairman, National Radio Week Committee, 326 Broadway, New York City.

Major-General Harbord New Head For Radio Corporation

Major-General John G. Harbord, who will become president of the Radio Corporation of America, is one of Uncle Sam's distinguished officers, ranking only below General Pershing as Deputy Chief of Staff.

The General is to retire from service on December 29th and the following week will take charge of his new duties with the Radio Corporation of America. Army and Navy circles are agreed the radio company has acquired a valuable man, well qualified to assume the position.

Equipped with a college education, General Harbord enlisted as a private in the Army at 23 years of age, and through sheer merit has been advanced to his present position. He is a former Rough Rider, a veteran of Cuba and Philippines, was chief of staff under Pershing in France and was in command of the fighting Marine Brigade of the Second Division at Belleau Wood, Bouresches and Chateau Thierry, when the German advance was stopped in June 1918.

He was made a Major-General and commanded the Second Division during the Soissons offensive. In 1918 he commanded the Service of Supply responsible for all the supplies of the A. E. F. Reappointed Chief of Staff in May, 1919, he served as such until sent by President Wilson to the Near East as Chief of the Military Mission to Armenia. He has been Deputy Chief of Staff since June, 1921. He will be 56 years old in March.

"Major General Harbord's experience as an organizer, administrator and executive will insure him success in the business world." That's the way General Pershing put it last week, and the General knows.

In connection with the appointment, the Radio Corporation made the following announcement:

"General Harbord succeeds Edward J. Nally, who has resigned as president of the Radio Corporation to become that corporation's managing director of International Relations, with headquarters in Paris.

"The creation of the office of managing director of International Relations for the Radio Corporation, the election of General Harbord as the new president took place at the regular meeting of the directors of the corporation in New York on November 17th. General Harbord takes over his new duties on January 1.

"The post to which General Harbord has been elected is regarded as of vital importance to the Government as well as to the public, since the Radio Corporation was formed at the suggestion of representatives of the United States Navy in order that that single, strong, world-wide wireless communication, free from foreign domination, might be built up under American ownership and control.

"General Harbord becomes head of a company whose activities include international wireless communication with all the principal countries of the world, the setting up, maintenance and operation of radio sets and apparatus on ships at sea, and the development and sale of broadcast receiving sets for the home.

"Mr. Nally has just returned from Europe after several months' visit there, during which he concluded arrangements with the great wireless concerns of England, France and Germany by which the radio interests of the four great nations will act together



Maj.-Gen. John G. Harbord

in creating and operating international wireless communication with all parts of the world, but especially with South America. The Radio Corporation of America has assumed the leadership of this consortium, which carries heavy responsibility to our own people and the world at large."

Miss Koewing in Charge of WOR Makes Good Programs

L. Bamberger & Co., Newark's famous department store, has gained an enviable reputation in the radio world through its broadcasting station, known as WOR, and a visit to WOR indicates that a great measure of credit is due to Miss Jessie E. Koewing, who is in charge. She has the happy faculty of knowing how to produce pleasing programs and the special nights, featured by WOR, are indeed wonderful.

The Bamberger broadcasting studio is located in the big Bamberger store and those who sit around the microphone in this studio are impressed with the artistic atmosphere developed. WOR is keen for radio enthusiasm and its programs are educational, as well as elevating.

One of the recent big nights featured the great Houdini who was interviewed by newspaper men on spiritualism. Houdini is a recognized critic of the spiritualistic cult and the questions and answers pleased the big listening public. Another feature on

the same bill was the broadcasting of the complete opera of Cavalleria Rusticana. A superb group of singers, with a large orchestra, rendered this favorite opera.

Broadcasting of good programs makes for increased interest in radio—both as an art and as a commercial trade. These are proper combinations. Art and industry, when properly combined, produce pleasing results for everyone.

There is one thing that comes to the mind of visitors to WOR—as well as to those familiar with this station—and that is that as long as L. Bamberger & Co. are broadcasting at least one real broadcasting station can be guaranteed to buyers of sets.

"The future will take care of itself," says Miss Koewing, "our aim today being the offering of entertainment of varied character. We feature friend McNear's "Man in the Moon" and music and beyond that offer what we believe will interest the average person."

Manufacturer Analyzes Trade Conditions

Tabulation of Inquiries Shows Business Activity and Indicates When Orders May Be Looked For

By "EXECUTIVE"

In order for a manufacturer to sell his products on a competitive basis and still operate at a profit it is necessary for him to closely forecast the demands for his line and govern his production accordingly. In most established industries charts of actual demand are at hand, showing variations from month to month and from year to year. In the radio industry, however, there are at present no records available to show the manufacturer how to gauge his demands and thus to determine his production.

If he is optimistic and operates his factories at the maximum capacity, he runs the risk of serious loss through over-production resulting in unsold stock and an overflowed market. On the other hand, if he is unduly pessimistic, he may be caught in the tidal wave of a demand which he is unable to satisfy and as a result he will suffer both from the loss of orders which it is impossible for him to accept and also from cancellations on orders accepted but not filled in time.

A New York radio manufacturer, a national advertiser, has adopted the expedient of keeping a close watch on the inquiries coming in from all sections of the country. In this way he can tell in what sections demands are likely to increase. By watching the totals he can tell, in a general way, whether the interest in radio is increasing or decreasing. In fact by careful analysis and study of these inquiries he can very accurately forecast his production requirements. A careful analysis is also made of all orders and these are checked up so that the relation between inquiries and orders may be determined.

Thus, if the inquiries from a certain territory show a sudden marked increase, there may be no immediate orders from jobbers, but the manufacturer knows that within a certain time limit the jobbers in that section will begin to wire rush orders. In this case the manufacturer uses his inquiry statistics as a barometer to warn him of approaching demands.

The accompanying chart shows the location by states and the number of inquiries received by the radio manufacturer mentioned above, between October 23 and November 18. States are arranged in the order of the total inquiries received during these four

weeks, these figures being shown in the left-hand column. In the columns at the right are shown the number of inquiries received each week from each state. A partial analysis of this chart is given below although a good many more facts may be deduced from a close study of the various factors.

tered in thirteen states, New York, Illinois, Pennsylvania, Iowa, Michigan, Ohio, Texas, Kansas, Wisconsin, Minnesota, Missouri, Indiana and New Jersey. In eleven states, Oklahoma, Nebraska, Massachusetts, Kentucky, California, South Dakota, Tennessee, Connecticut, Florida, North Carolina,

CHART OF INQUIRIES

Total Inquiries	State	Oct. 23-28	Oct. 30-Nov. 4	Nov. 6-11	Nov. 13-18
110	New York	32	26	24	28
88	Illinois	20	10	22	38
86	Pennsylvania	30	16	12	28
66	Iowa	16	30	14	6
58	Michigan	24	10	14	10
48	Ohio	20	8	10	10
48	Texas	10	20	6	12
42	Kansas	16	12	8	6
42	Wisconsin	22	6	8	6
40	Minnesota	4	6	10	20
34	Missouri	8	8	6	12
32	Indiana	2	8	8	14
32	New Jersey	18	4	10	2
30	Oklahoma	10	8	10	2
24	Nebraska	8	0	6	10
24	Massachusetts	6	4	2	12
22	Kentucky	14	4	2	2
22	California	4	6	10	2
22	South Dakota	6	8	6	2
22	Tennessee	8	4	4	6
20	Connecticut	6	6	4	4
20	Florida	8	4	2	6
20	North Carolina	8	4	2	6
20	Virginia	8	6	2	4
16	North Dakota	2	4	4	6
14	Colorado	2	2	6	4
14	Georgia	4	4	4	2
12	Montana	4	2	2	4
12	Idaho	0	2	6	4
10	Arkansas	4	0	2	4
10	District of Columbia	0	9	2	0
10	Maryland	4	2	2	2
10	New Hampshire	2	4	2	2
10	Washington	4	6	0	0
8	Louisiana	6	0	0	2
8	Alabama	2	2	2	2
8	Mississippi	2	2	4	0
8	West Virginia	2	2	4	0
6	Oregon	2	2	2	0
4	Wyoming	0	2	0	2
4	Vermont	2	0	2	0
4	Maine	0	2	0	2
2	Arizona	0	0	0	2
1,142	TOTALS	350	262	246	284

It will be noted in a general way that the largest number of inquiries have been received from the most thickly populated states. Judged from this standpoint, Iowa shows up extremely well, while Ohio with more than twice the population of Iowa makes a comparatively poor showing. From this chart it would appear that present highest radio activity is cen-

and Virginia there is a moderate amount of activity. Inquiries from each of these eleven states have been less than one-fourth the inquiries received from New York.

By referring to the chart, it can be seen that in the remaining states radio is still in an unsatisfactory condition, at least as far as this particular manu-
(Continued on page 91)

Retail Radio Salesmen and Raspberries

Technical Men Employed as Salesmen in Radio Stores Should Receive Merchandising Training

By EDWARD H. LERCHEN
President of Orange Research Laboratories

We all know what radio is; we think we know what a radio dealer is; but as for the raspberries?

What is a radio dealer and who is a radio dealer? Is a radio dealer a man who conducts a retail establishment for the display and sale of radio sets, parts, etc., exclusively, or can the local bicycle dealer, druggist and the hardware man, be called radio dealers? To the first question I will say "Yes," and to the last question I am going to say "No"—and for this reason:

The first class of dealers are devoting their entire time and energy to selling only radio supplies, while the second group is only in the business as a secondary consideration. The first class as a rule have made a study of radio and understand the science of radio and merchandising the supplies, while the other group as a rule knows less about the business than their customers.

But the peculiar thing is, that of the two classes of radio dealers mentioned above, the latter seem to have been the most successful in the radio game outside of a few exceptions, and now comes the reason why, and here is where the raspberry comes in.

As this article is written for the purpose of trying to give constructive criticism I believe I will be pardoned, even by the raspberries, for some of the following statements:

In the beginning of the radio rush, the regular radio dealers hired as salesmen highly trained technical radio men, whose knowledge of radio was above reproach, but when it came to salesmanship and dealing with the general public these men as a rule, having had no selling experience and no experience in meeting the general public, were sadly lacking in the qualifications which go to make up a salesman. They caused the loss of hundreds of sales. Due to the fact that a great many of these clerks were so far above the average radio novice in knowledge it has frequently happened that when one of the customers came into a radio store to buy the clerk couldn't come down to earth long enough to sell a crystal set, but insisted on talking about potentiometers, radio frequency,

Edward H. Lerchen, president of the Orange Research Laboratories of East Orange, N. J., has been in the electrical industry for ten years. He is a native of Illinois, but has been located in the East for the past seven years. Mr. Lerchen is an inventor and has taken out and worked out a number of important electrical patents. One of these is the Vac-Shield for vacuum tubes, a new addition to the radio appliances.

etc., until the uneducated novice either walked out of the store in disgust, probably resolved never to return to it.

Salesmen of this type knew nothing about human nature nor understood how to approach the general public, and I want to say here that of all the generals I know about, "Old General Public" is the hardest to handle when it comes to selling merchandise. The result of all this failure to employ clerks who were unfamiliar with selling methods was that many a novice wandered around hunting for the radio article he wanted and needed, until he finally wandered into a store where he was able to purchase just what he was after without being held up to

ridicule for his lack of knowledge of radio. The reason was that they knew just about as little in regard to the radio business as he did, so there were no arguments.

The only one to blame for this condition was the radio dealer himself, who should have taken his trained radio men and given them a talk on selling merchandise before putting them behind the counter to deal with the public, as no better combination of a radio salesman could be obtained than a highly trained technical radio man who possessed a knowledge of salesmanship.

My suggestion to all radio dealers is that you conduct a sales meeting once a week for your salesmen and clerks, and have one of your technically trained radio men talk to them and explain the relative merits of certain condensers, variometers and other instruments. Have him describe how to mount them in a set in the best manner and in doing this to keep away from technical terms and explanations, telling them or showing them the best manner in which to drill a bakelite panel or to connect or solder the wiring in the set. Forget about radio frequency, mutual inductance, hysteresis, natural wave length and other tech-

(Continued on page 86)

Twenty Receiving Sets Now in Use to One a Year Ago

By MARTIN P. RICE
General Electric Company

Radio telegraphy appeared more than twenty years ago. Its dramatic accomplishments in summoning aid to ships in distress established it in popular favor and earned for it an immediate field of inestimable importance. Amateurs took it up, but one could not participate in telegraphy without a knowledge of the code and that necessitated months of study and practice, and so it had a relatively small following. The radio telephone made "wireless" available to all the

110,000,000 people in the United States and to others in adjoining countries, and nearly all of them seem to be interested.

A year ago there were hardly fifty thousand radio receiving sets in the United States; there are now nearly a million and there are sending stations of sufficient power to cover the entire area under favorable conditions. The aggregate number of those who listen-in on the eve-

(Continued on page 87)

Stations Improving Their Radio Programs

Survey Shows them Offering Bills of More Variety, Greater Interest and Better Talent

By L. N. ALLEN

The steady improvement in broadcasting programs points to advancement for the industry. Broadcasting stations are giving more attention to the quality of their programs, the owners realizing the necessity for better programs to hold the public interest.

This is no longer the day when mediocre programs attract the listeners-in because of the mere novelty of the thing. The directors of the great stations are quick to realize this and it is with considerable pride in the advancement they have made that the head of one of the largest corporations managing broadcasting stations announced a week's program with over twenty nationally famous characters in the list of those to appear.

While radio's greatest boost has been in the broadcasting of sporting events, the heavyweight championship last year, the world's series, which held crowds all over the country in front of loud speakers, the foot ball games broadcast play by play, etc., the directors of the broadcasting stations and those high in the industry have begun to realize the danger of too much of any one thing, even of interesting sports, and more and more effort is being made for varied programs.

One of the most important uses to which radio programs have been put is the broadcasting of election returns. Never in the history of this country have the election results all over the country been so quickly learned and disseminated as during the November elections this year. Within half an hour after the first results were compiled at election booths, those in tune with broadcasting stations throughout the country saw the tendencies of the political battle and a continuous running recital of results enabled the whole country to see which way the political wind was blowing. Radio broadcasters took advantage of the dramatic interest in the election results.

Radio chapel services have received national publicity in newspapers and magazines, and more and more of the better class stations have added one or two special Sunday church services to their regular schedules.

Between the two extremes lies a vast middle ground of broadcasting

possibilities that only of recent months have been utilized.

The possibilities of carrying music to listeners-in who seldom have opportunities of hearing the truly great singers who more and more are broadcasting their efforts, appealed to publicity men managing the great musicians and, one by one the stars of the music world are being numbered

"This is no longer the day when mediocre programs attract the listeners-in because of the mere novelty of the thing. The directors of the great stations are quick to realize this and it is with considerable pride in the advancement they have made that the head of one of the largest corporations managing broadcasting stations announced a week's programme with over twenty nationally famous characters in the list of those to appear."

among those who have performed through the air.

Grand opera and local light opera companies in several cities have gladly consented to their numbers and even entire programs being transmitted, while it is expected that considerable progress will be made in handling events of this kind in the metropolitan territory in a short time. Symphony orchestras and other great musical organizations are also joining the programs. One eastern station has its own opera company.

Prominent men, national and even international figures, are beginning to take advantage of radio to reach thousands who are unable to attend the various meetings they address from time to time.

Showing the wide variety of programs now being given, we quote from the schedule of a central state station. News of the day, health talks, fashion talks furnished by one of the leading fashion magazines of the country, bedtime story followed by an address by a prominent banker in the city on the Federal Reserve system. A short se-

ries of dance numbers and two acts from a famous opera constituted the musical end of the program, while a well known comedian and a local impersonator of note gave a touch of comedy to the day's entertainment.

Surely broadcasting programs are becoming more and more varied, for in this way, and only in this way, will radio become of interest to the great mass of the public who are yet to be converted into fans.

In surveying the programs furnished by the active stations of the country it was pleasing to note that out of several hundred sample programs submitted nearly seventy per cent. carried sufficient variety to appeal to the vast number of "home people" who would refuse to listen to sporting events or phonograph music which once made up the large proportion of the programs of the day.

Some of the programs presented by the smaller broadcasting stations are not pretentious, but they are nevertheless interesting and varied. A small station in Texas, for instance, recently had this program to offer:

1—Violin Quartette, The Largo (Handel), Misses Minnie B. Justice, Edna Brooks, Nellie Howland and Libbie Feinberg.

2—Song (selected), Miss Lillian Richards.

3—Saxophone Solo, Miss Velma Pittman.

4—Reading, Miss Emily Baggarry.

5—Song, *Dissi D'Arte Dissi*, from *Tosca* (Puccini), Mrs. Charles Chinski.

6—Whistling Selection, Mr. Bob Tate.

7—Popular Musical Selections, Victor Novelty Orchestra.

8—Reading, Mrs. Charles J. Rupp.

9—Interpretations, Sung and played by Mr. Lawrence Humason.

A program does not have to come from a great station to be interesting.

The day of the "radio program" which consists largely of phonograph reproductions of jazz and xylophone selections, is past. The discovery has been made that rather than listen to these, the radio public prefers the reporting of actual events, such as football games or political speeches.

Radio is developing a distinctive program of its own, with advantages offered by no other mode of entertainment and with an educational value that cannot be over-emphasized.

White Bill Should Interest Congress

Provides the Secretary of Commerce With Adequate Authority to Remove Restrictions

The election returns as broadcasted on Election night from one of the most prominent stations in the East were badly interfered with by the efforts of an amateur musical organization, whose sweet notes were put in the air at the time when a large public was interested in learning the results of the battle at the polls. From other parts of the country complaints are being registered of frequent interferences in broadcasting programs and there is an increasing and urgent demand for a real regulation of radio activities.

The only expedient through which the evils of the present situation can be done away with at an early date are thought by those who are in the know to be through Congressional action. It is believed that if the radio industry will evince sufficient interest that the White Bill, which has rested in the care of the House Committee on the Merchant Marine and Fisheries since May 6 of last year, can be brought out of the committee and passed during the present short session of Congress. To accomplish this it is necessary that the radio industry and the radio fans impress upon Congress that they are in favor of immediate action on this measure.

Congressman Wallace H. White, Jr., who introduced this bill, said to a representative of THE RADIO DEALER: "I cannot be at all sure what Congress will do. It is my personal belief that if the various interests would get back of this bill, it could be passed at this short session. If, however, every interest seeks to have it changed in some way more favorable to it, I do not regard as favorable the prospects for legislation. I do not think anything else can be passed at this short session."

From this it will be seen that it is imperative that every person who is seriously in favor of this bill should get back of it and make their demand that prompt action be taken. This should be done by every person who is interested in radio—the manufacturer, the jobber, the dealer and every owner of a radio receiving set. They—each and every one of them—should write to their congressman and to their senator, telling them the necessity of getting the

The White Bill Should Be Passed

The White Bill which is aimed to give the Secretary of Commerce better control over radio should be brought out of the Committee and passed by Congress during this session. It is a good bill and deserves the support of everybody interested in radio. There is apparently no objection to it from any source. All that is needed is that pressure be brought on Congress. Tell the lawmakers that there is a popular demand that it be enacted into a law. You must do your part. Write today to your congressman and your senator and get others to do so. Tell them that you want the bill passed and that your friends who are also their constituents want it.

bill out of the committee and on the floor of the Congress.

Broadcasting stations can help too. If they will spread the news to their listeners-in that they will have less interference, they, too, can be induced to write letters. From the number of letters and postal cards that the listeners-in send to the broadcasting stations, there is no doubt but that many appeals to Congress would through this agency reach the lawmakers in Washington.

If sufficient pressure is brought to bear on Congress there seems but little doubt but that the law can be written into the statute books this session. However, the popular demand for it must be made. Everybody must put on some of this pressure—and that means you and everyone else who is interested in radio.

Commissioner D. B. Carson states to THE RADIO DEALER that the White Bill is "intended to carry out as far as practicable the recommendations of the Radio Conference Committee and proposes to give to the Secretary of Commerce adequate authority to remove some of the restrictions now existing, particularly the reservation of bands of wave lengths from

600 to 1,600 meters, which can now be used by government stations only, and several other important features which should be helpful in bringing about more satisfactory operating conditions." He further states that as far as he knows that there is very little opposition to the bill and he expresses the hope that it will receive consideration early in the present session of Congress.

The essential features of the bill are given in the following summary:

The purpose of the bill is to "regulate radio communication," "radio communication" being construed as "communication without the aid of wire or other conduction connection."

The bill provides, in a provision similar to present laws, that all apparatus for radio communication must be licensed by the Secretary of Commerce, and that all such licenses may be revocable for good and sufficient reasons. No license will be required by a person or company occupied in the transmission and exchange of radiograms or signals between points in the same state, so long as the effect of this transmission or exchange shall not extend beyond the state in question.

The licenses must specify the ownership and location of the licensed station, and other particulars of identification, must give the estimated range and purpose of the station, its wave or wave lengths, state the power authorized for use by the station, and hours during which the station is licensed to operate. Every license will contain the proviso that in case of war or public emergency the President shall have the power to close the station for radio communication and to remove the radio apparatus, or authorize its control, reimbursing the owners.

The bill prohibits the use of radio apparatus for the reception with intent to divulge or publish the contents or meaning of any radiogram from any foreign country, or, other than distress calls, from any foreign ships, except under license from the Secretary of Commerce. Violation of the above rulings is to be punished by a fine of \$500 with confiscation of the apparatus.

In order to "prevent or minimize interference with radio communication, to further communication of distress and safety signals," and to "promote the uses of radio communication," the bill provides that the Secretary of Commerce shall have the power to classify stations and operators, assign wave lengths, limit of power, fix rates, and establish any further regulations to carry out the purpose of the bill. The regulations are to have the force of law. To assist the Secretary of Commerce, the bill would establish an advisory committee for radio communication, composed of seven members, one each designated by the Secretary of War, Navy, the Postmaster-General, and Secretary of Commerce, one by the Secretary of Commerce from Government technical departments, and two other radio experts not employed by the Government. The committee will advise the Secretary of Commerce in the administration of the laws, and treaties relating to radio communication, study of scientific problems involved and relation of radio development to governmental departments.

No further stations may be established, the bill provides, within fifteen nautical miles of Arlington, Virginia; Key West, Florida; San Juan, Porto Rico; North Head and Tatoosh Island, Washington; San Diego, Cal.; and of those Government stations that may be established in Alaska and the Canal Zone.

A fine of not more than \$500 for the first offense is to be imposed on whomever maliciously interferes with radio communication that is duly licensed for private or Governmental work. Any person receiving and divulging a radiogram to a person for whom the message was not intended is to be punished by a fine of \$500 for the first offense. Transmitting or publishing of fraudulent radiograms is also provided for through a fine of \$2,000 or five years imprisonment or both. Trial for such offenses is to take place in the district where the offense occurred.

It is expected that if this bill become a law that many of the present annoyances will be done away with. The bill seems to have much merit and deserves the support of every person interested in radio. It is up to you to do your part to have it passed.

Write your congressman.

Write your senator.

Tell your customers to do so.

Tell your friends to do so.

If you broadcast, tell your listeners to write.

Do it today.

With twelve features of superiority, yet within the reach of every radio user.

JEWETT SUPER - TWELVE SELF CONTAINED VACUUM TUBE RADIO RECEIVER

Meets the demand for a complete receiver, combining good range, extreme sensitiveness and selectivity, with moderate price and economical operation.

The Jewett Super-Twelve has a double circuit tuner, constructed with new Jewett coupler of extreme selectivity, designed by Professor J. H. Morecroft of Columbia University. The adjustments are unusually simple and easy, requiring no special technical knowledge to insure success.

Two steps of amplification are furnished which give an increase of signal strength equal to that obtained from three or four steps employing ordinary transformers. The high quality of the incoming speech or music is sustained through uniformly high amplification over the entire musical scale.

TWELVE DEFINITE POINTS OF SUPERIORITY

1. High quality signal reproduction.
2. Simplicity of adjustment.
3. Compactness.
4. Minimum high frequency resistance for a given induction.
5. Maximum amplification with minimum distortion.
6. Maximum sensitiveness.
7. Maximum selectivity.
8. Minimum noise.
9. Minimum distortion.
10. High quality design, workmanship, material and finish.
11. Highest efficiency at moderate cost.
12. Economical operation.

PRICE, \$75.00

In Kodak, Mahogany or Walnut Cabinet

E WETT MANUFACTURING CORPORATION

Herbert F. L. Allen, *President*

NEWARK

NEW JERSEY

What the Manufacturers Are Doing

NEW FEDERAL SETS

Two new receivers are announced by the Federal Telephone & Telegraph Company, of Buffalo, N. Y. Receiver No. 57 has a carefully designed tuning system. Simple operation is also ob-



Federal No. 57 Receiver

tained through the use of radio frequency amplification and two stages of audio frequency amplification. Provision is made through a conveniently located switch for the adjustment to suit a wide variety of antennas. Crude adjustment is made by means of a large control knob, while minute adjustment is secured through the use of a very sensitive vernier condenser.

The DX No. 58 receiver is more selective than No. 57, due to the use of two-tuned circuits, provided with controls that permit of a greater variety of adjustments. This receiver can be used with a large variety of antennas and is especially adapted for the re-



Federal D. X. No. 58 Receiver

ception of signals. The entire unit is mounted on a polished panel which is assembled in a metal case, finished in dull black enamel. The receiver as a whole is a device of beauty of line and finish as well as one of effectiveness.

NEW AMRAD RECEIVER

The American Radio & Research Corporation, Medford Hillside, Mass., announce the 1923 model of their Amrad Crystal Receiver, which is enclosed in a solid mahogany cabinet with genuine insulating panels, front and rear. A simple knob is calculated to permit tuning of any wave length between 175 and 675 meters. With the addition of a loading coil the receptivity of the Amrad set can be increased to 3,000 meters, if desired, the makers say.

The new set permits of additions, unit by unit, to increase the efficiency of the reception, but in providing for this, the company has seen that the Amrad crystal receiver need not be discarded, remaining always as the vital part of any improved set.

NEW VALLEY CHARGER

A new type of radio and automobile battery charger which is similar in appearance to a watt-hourmeter, being enclosed in a moulded glass cover exposing all working parts to view, has



Valley Charger

been placed on the market by the Valley Electric Company, 3157 South Kingshighway Boulevard, St. Louis, Mo.

This appliance is attractive in appearance and is suitable for installation in a room in the home. It is known as the Valley type A and B charger and is designed to charge a 6-volt radio A battery or any make automobile battery at a 5-ampere rate without the use of lamps or complicated connections. It will also charge a 22½-volt and higher voltage B radio batteries.

This new model charger plugs in on the home lamp socket just like the or-

dinary electric light bulb. Connection to the battery is made by means of clamps which are furnished with the instrument, and produces a quick tapering charge at trifling cost.

MAMMOTH RADAK CABINET

Interest was shown by visitors at the Chicago and Boston radio shows in the giant model of the Clapp-Eastham R. Z. Radak receiving apparatus.



Mammoth Radak Cabinet

This will also be on display at the forthcoming New York show. This novel display has its utility feature, for a desk is provided for the use of the exhibitor, by means of a hinged back which lets down. The apparatus on the shelves in the illustration is nicely displayed by the gray broadcloth lining of the case and the concealed lights.

LONG DISTANCE PARTS

The McConnell Cable & Specialty Company, of Chicago, is featuring a list of long distance radio parts, which include variometers, variocouplers, dials and variable condensers. The company is also a specialist in magnet wire, carrying a full stock of plain enameled, single cotton enameled, single cotton and double cotton wire. The McConnell list includes almost every part requisite to the construction of a radio set.

MELCO ACHIEVEMENTS

The Mortimer Radio Corp., manufacturers of Melco radio apparatus and parts, while comparatively new in the radio field, are fast becoming a factor in the industry. Their Melco receiving sets are moderately priced, but of the highest quality.

Benjamin H. Price, president of the Mortimer Radio Corporation, due to his connection with the Save Electric Corporation, the large independent incandescent lamp manufacturers in this country, has in a comparatively short time succeeded in standardizing and putting into production the Melco products. The reception range of their set, which is non-regenerative, is very large, as is attested by owners of receiving sets, scattered throughout the country. With it Chicago hears Atlanta; Cleveland hears Schenectady; St. Louis hears New York, and Akron hears Davenport.

A large measure of publicity has been given the Melco radio receiving sets by the Cleveland *Plain Dealer* in its campaign for increased circulation. Full page advertisements are being run in a series of Ohio newspapers, with the result that the Melco sets are becoming very widely known throughout the Middle West.

WAVOLA UNITS

The Fairmount Electric & Manufacturing Company, of West Philadelphia, in their Bulletin No. 500, describe their Wavola sectional receiving units, built in twelve distinct types. These include a tuner unit; a detector; a radio amplifier, an audio amplifier, a detector and audio amplifier, a radio and detector unit, two stages of audio, two stages of radio, radio, detector and audio, detector and two stages of radio, two stages of radio and detector, and three stages of radio.

All of these units are constructed on the sectional book-case plan. The Fairmount Company also produces a complete line of accessories under the trade-name Maxum.

NIFTY EBY BLOTTER

The H. H. Eby Company, of Philadelphia, binding post experts and specialists, are distributing to dealers for further dissemination among radio enthusiasts, a neat little blotter in the shape of an Eby binding post. The design is original in conception and indicates the progressiveness of this firm. The Eby company have from the first shown great originality in their marketing plans. Another of their selling schemes is a mahogany stand delivered to dealers at cost which places the whole Eby line before the radio public.



Make it
the **GREATER Radio Christmas**

FOR our dealers' information, we reproduce herewith the forceful and attractive illustration which appears in all Magnavox Advertising (more than seven millions of circulation) during the busy and profitable Christmas season.

Sooner or later every radio user wants a Magnavox—and every Magnavox owner has full confidence in the dealer who recommended the "Reproducer Supreme".

- R-2 Magnavox Radio with 18-inch horn:** this instrument is intended for those who wish the utmost in amplifying power; for large audiences, dance halls, etc. . . \$85.00
- R-3 Magnavox Radio with 14-inch horn:** the ideal instrument for use in homes, offices, amateur stations, etc. \$45.00
- Model C Magnavox Power Amplifier** insures getting the largest possible power input for your Magnavox Radio.
 - 2 stage AC-2-C . . \$80.00
 - 3 stage AC-3-C . . 110.00

Our publication *THE MAGNAVOX* contains valuable information on building a profitable Radio Business. Ask for it.

The Magnavox Co., Oakland, California
New York: 370 Seventh Avenue

MAGNAVOX
Radio
The Reproducer Supreme



ECONOMICAL FINISHES

FOR

Radio Equipment

Zeller Lacquers and Enamels constitute the most economical finishes on the market today for radio equipment of all kinds. They are easily applied either by dipping, brushing or spraying and completely dry in normal room temperatures within 15 minutes.

Zellac is made in all colors and can be applied to all materials. Beside the standard natural wood finishes, our Hard Rubber Black has become popular among manufacturers for finishing instrument bases as well as cabinets while our White is used exclusively by many organizations for the graduations on dials and knobs, as well as for panel work. A thin coat of our material, which has a high dielectric strength, applied to coil windings, holds them permanently in place without causing the usual undesirable effects.

Distortion and metallic ring largely removed from loud speaking horns and phone diaphragms where our special material is applied. Write today for more information.

ZELLER LACQUER MFG. CO., Inc.

342 Madison Ave., New York

National Radio Week Post Card



The Postal Card Above, Beautifully Printed in Three Colors, Has Been Designed by H. Gernsbach of *Radio News* to Boost National Radio Week. These Cards May Be Obtained from the National Radio Week Committee or *Radio News* at Cost

R. T. A. to Meet

First Meeting to Be Held in New York December 26

The first meeting of the Radio Trade Association will be held at New York December 26th, the association having accepted the offer of the American Radio Exposition Company to meet in quarters that will be furnished by that association.

In addition to the organization meeting and hearing reports of committees, a number of prominent radio trade men will address the meeting, making short talks on subjects of general interest.

Plans of the association include a sweeping invitation to other organizations of the radio trade to attend this meeting and hear the speakers.

Full details of the programme will be published in *THE RADIO DEALER WEEKLY* at an early date.

Officers of the Radio Trade Association are: Henry M. Shaw, president; Hugh H. Eby, treasurer; L. A. Nixon, secretary; W. B. Curtis, first vice-president; R. P. Clarkson, third vice-president; Raymond F. Yates, fourth vice-president; Chauncey F. Carter, fifth vice-president; W. L. Sayer, sixth vice-president.

The Board of Directors consists of Bert B. Barsook, Powel Crosley, J. H. Smith, Oklahoma Radio Co., Bert B. Barsook, Powel Crosley, F. H. Pruden, F. Clifford Estey, F. D. Pitts, Harold M. Schwab, M. B. Sleeper, W. M. Kunkel, C. H. Love, A. H. Redden and Mortimer Salzman.

A WONDERFUL XMAS PRESENT



The Little Gem
(cut half size)

The dealer will at once appreciate the potential sales possibilities of this wonderfully efficient and beautiful little crystal receiving set. Has a large receiving radius. Test it yourself. You can then recommend it with the same confidence that we do. Stand and all other metal parts of solid brass and nickel plated.

PRICE, \$6.50 LIST

Manufactured by

United Specialties Co., Inc.

57-59 Spring St., Newark, N. J.

THIS IS A RADIO CHRISTMAS!

Panel Is Important

Necessity of Having It Built in a Scientific Way

"More thought should be given to the quality of the materials used in radio sets," was the statement made recently in an interview with George J. Levy, of Poster & Co. "When we speak of radio today the uppermost thought is of the type of instrument, its receptive powers and the hook-up," he explained. "But in addition, thought should be given to the quality of the materials used in making the



George J. Levy

set, for, regardless of the intent, it will not receive properly unless the parts are honestly made of worthy materials.

"This brings me to the consideration of the panel. Bakelite is the most universally used in its construction, due to the known qualities of dialectic strength, the fact that it will not warp under heat and will not be affected by acids or alkalis. Our company uses bakelite exclusively in panel construction.

"We have been specializing in the supply of bakelite for panels and parts, and are equipped to cut panels to any size, drill and engrave them according to specifications, sand the panels and complete them for mounting."

Mr. Levy also commented on the present outlook in the radio industry.

"Judging from the business we are doing at present," he said, "the radio business is progressing nicely and upon a sound basis, with more conservative ideas than were current last fall."

The SUPERTONE

RADIO LOUDSPEAKER

The Violin Maker's Science in a Radio Loudspeaker!

**It has the approval of the
new intelligent radio buyer!**

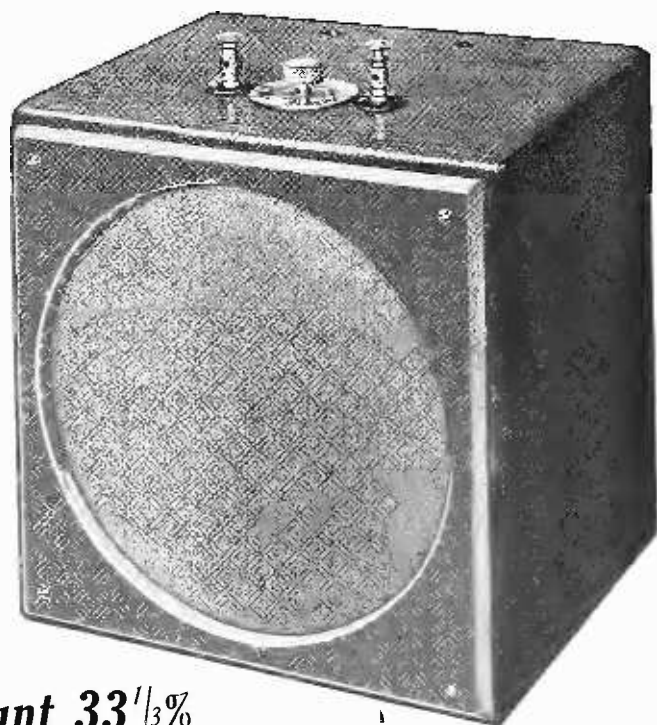
We have employed the science of that master craftsman, the violin maker, and designed a Radio Loudspeaker that for perfect reproduction of sound, cannot be excelled.

It renders the original tone always—whether it be the human voice or the music of an instrument. It completely eliminates all suggestion of harshness—all screeching, metallic and unnatural distortion that is so common among loudspeakers.

Supertone is the Amplifier the Radio World has been waiting for. It enables you to meet the demand of the customer who is neither able nor willing to buy an expensive "outfit"—yet demands an exact, dependable amplifying instrument.

It is the most practical loudspeaker to be had. And at the low retail price it is certain to bring you wide sales and rapid profits.

*Send us your
sample stock
order today*



Retail Price

\$15

Dealer's Discount 33¹/₃%

Further discount to quantity buyers

*The Supertone Loudspeaker operates directly from the set,
therefore no extra battery is required*

No Power — No Horn — Therefore no distortion!

TRIANGLE PHONO-PARTS CO.

18 W. 20th Street

New York



NATIONAL SEAMLESS TUBING

In Large Diameters

For Vario-couplers, Vario-meters, Tuning Coils and wherever you use large diameter fibre tubing, National Seamless Tubing is less expensive and infinitely superior.

National Seamless Tubing is a specially developed, laminated tubing that retains its form and will not warp, swell or shrink. Exact in both diameters and easily worked.

Can be furnished in dark gray fibre or black fibre. Any quantities, diameters from 3" to 4½" I. D. Any wall from 3/32 up.

Give us your specifications. We'll send samples and prices.

National Fibre for Panels

Hard Black Panel Stock of good dielectric strength. Gives satisfaction for condenser tops and bottoms, rheostat bases, washers bushings, etc. Let us quote on the stock itself, or on completed parts machined to order.

Peerless Insulation

The standard thin weight fibre insulation or "fish paper."

National Fibre & Insulation Co.

Box 455 Wilmington, Delaware
 New York, Chicago, Philadelphia, Detroit, San Francisco, Cleveland, Omaha, Pittsburgh, Boston, Rochester, Birmingham, St. Louis, Baltimore, London, England
 In Canada, National Fibre Co. of Canada, Ltd., Toronto

Book Reviews

By

BERNARD JEROME FARRELL

The Editors of the RADIO DEALER will be glad to review new publications in this field as they may be issued. Address them attention BOOK REVIEW EDITORS, THE RADIO DEALER, 1133 Broadway, New York City.

IDEAS FOR THE RADIO EXPERIMENTER'S LABORATORY. By M. B. Sleeper. Published by the Norman W. Henley Publishing Company, New York City.

In this little volume, Mr. Sleeper has compressed his experience of many years in showing the amateur how to build bigger and better sets.

The accomplished and experienced amateur as well as those of an experimental turn of mind, will find much information on experiments and tests which are of great value to them, while the novice will discover a wealth of information which will assist him in the designing, constructing and testing of his set. A special feature is a complete table of inductance capacity and frequency, corresponding to wave lengths of from 100 to 39,000 meters.

Comprehensive data is given on such necessary laboratory instruments as the oscillator, wavemeter, direction finder, radio compass, V. T. characteristic measuring set, and detailed advice is given on the winding of the various kinds of standard inductance coils.

Much valuable information is contained in the chapter on rules and regulations on fire protection, which meets the requirements of the National Board of Fire Underwriters.

ACCOMPLISHMENTS OF THE SOCIETY FOR ELECTRICAL DEVELOPMENT, Being a Report for the Year Ending May 9, 1922. Published by the Society.

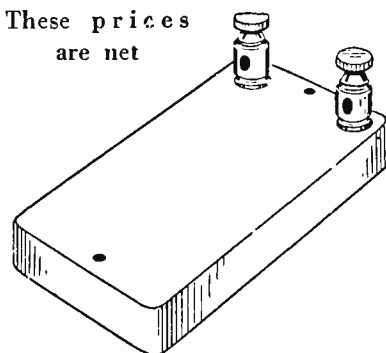
This is a comprehensive report of the work done by the Society for Electrical Development during the past year. Much headway in educating the public to "Do It Electrically" has been made; many points of contact, by means of which practically every group of present and prospective customers has been reached, have been established. Booklets, pictures, films and radio have been utilized to tell the story. The report is attractively made up and is enlivened by many illustrations which augment the text.

Attention Radio Mfg'r's and Jobbers

Serco Radio

Products

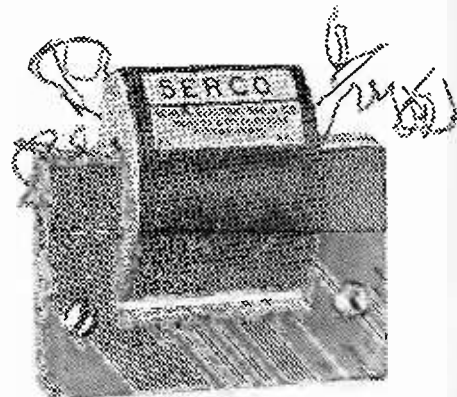
These prices are net



Serco Fixed Condensers, moulded, 42 cents

Serco Fixed Condensers, moulded, 54 cents

Serco Crystal Detector, 75 cents



Serco Amplifying Transformer, 10 to 1 ratio, \$1.75

We are Manufacturers of Serco Radio Products

Write for Trade Discounts

Scheib Elec. Radio Co.
 6243 Station Street
 Pittsburgh, Pa.

THIS IS A RADIO CHRISTMAS!

IMPROVED CONDENSERS

The New York Coil Company, 338 Pearl Street, New York City, are offering a variable condenser with several new features calculated to make this instrument among the most efficient and satisfactory of its kind.

Instead of using fibre or molded material for the outside frame with the possibility of such materials warping and throwing the plates out of alignment, they use heavy, nickered-steel plates with suitable insulation to support the rotating element. The plates are all made of very heavy aluminum, mounted on a $\frac{1}{4}$ -inch brass shaft and spaced with large diameter washers which are kept to uniform thickness, having a variation of less than .0001 of an inch.

A feature of importance is the adjustable pivot bearing employed, which insures the absence of shake or looseness in the bearings, at the same time introducing sufficient friction so that the instrument stays set in any position, dispensing entirely with counter weights or their equivalent, and also insures absolutely perfect electrical contact with the rotating element.

The New York variable condensers are made in three sizes, 11, 23 and 43 plates.

NEW RADIO MATERIAL

Fibroc, a product developed primarily for use in the electrical industry, is being used in the manufacture of insulated parts in radio. The Fibroc Insulation Company, Valparaiso, Ind., are adapting Fibroc to more and more radio uses.

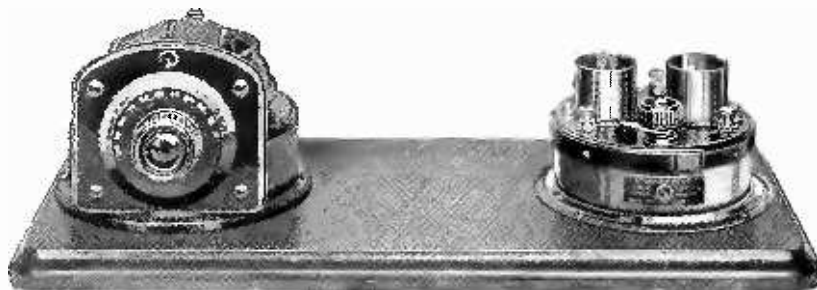
This material is not subject to climatic changes, is insoluble in solvents such as weak acids or alcohol, will withstand the action of ozone in high voltage apparatus, being superior to hard rubber in this respect and will withstand boiling water indefinitely. As the regular grades of Fibroc are all of organic materials, they will char, but not melt or support combustion. Fibroc is manufactured in the form of sheets, rods and tubing.

IT IS NON-INDUCTIVE

In the advertisement of Durham & Company, radio engineers of 1936 Market Street, Philadelphia, Pa., that appeared in our November issue it was stated through a typographical error that the Durham variable high resistance (adjustable grid leak) is "non-conductive" instead of non-inductive as was the intention. The ohm range of model No. 101 should also have read as from 100,000 to 5,000,000.

ATWATER KENT

RADIO RECEIVING SET



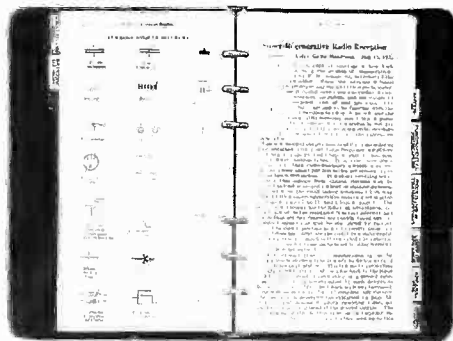
THE two instruments shown above comprise an excellent and complete receiving set. The Coupled Circuit Tuner and Detector Amplifier on the mahogany mounting board present a beautiful appearance. Complete outfit as above, unwired, \$32.00.



The Mounted Variometer carries through the standard quality of Atwater Kent products. For an open set it supplies a finished instrument unsurpassed in both appearance and performance.

Mounted Variometer, \$10.00

ATWATER KENT MANUFACTURING COMPANY
4941 STENTON AVE. Radio Dept. PHILADELPHIA, PA.



Lefax Radio Handbook

How to Sell Apparatus Quickest

Manufacturers, you can sell your apparatus, if it's first class, through Lefax Radio Handbook, the one book on Radio that never grows old. Here is the opportunity of giving your trade one of the best pieces of advertising co-operation. It is in loose leaf form and every buyer gets additional facts on Radio as soon as they are learned. These facts are printed and classified on Lefax pages ready to slip into the book. This service goes with the Lefax Radio Handbook.

Owners of this fine work ask all kinds of questions. They ask about apparatus—whether it's good, where to get it, how much it costs. We tell them with Apparatus Sheets to be made part of the Lefax Radio Handbook. Only good apparatus is listed. If yours is that kind, we recommend that you tell fans about it on our Apparatus Sheets.

Lefax Radio Handbook was written by Dr. J. H. Dellinger and L. E. Whittemore, Chief and Alternate Chief, U. S. Bureau of Standards, Radio Laboratory, Washington. Lefax Apparatus Sheets go direct to those interested in and users of apparatus. Mailings to 20,000 owners now available to you if you act quickly and your apparatus can qualify.

Within six months, 40,000 mailings will be available. Write today for full particulars and a Lefax Radio Handbook. If you want to create a demand for your apparatus, this is the time, this is the way. Lefax Radio Handbook is considered as first authority by every owner of it. Get the particulars. Write for them today.

LEFAX, Inc.
9th and Sansom Streets
PHILADELPHIA, PENNA.

JERSEY HEARD DENVER

Broadcasting taking place in Denver, Col., was heard in Ridgewood, N. J., recently when radio enthusiasts at the Ridgewood Talking Machine Company picked up radio waves which had traveled some 2,000 miles.

The instrument that picked up the travel-weary waves was a super-sensitive receiver, made by the Wireless Phone Corporation, of Paterson, N. J. In conjunction a three-stage amplifier and a Magnavox were used.

Several witnesses, including Robert Muns, radio engineer, of the Wireless Phone Corporation, can testify to the distinctness with which the Denver program was heard. They could not catch the call letters on account of local interference at the time the call was announced, but every one distinctly heard the name "Denver, Colorado." Previous to their signing off, two musical selections were heard loud enough on two stages to fill the room.

JOLLEY LOUD SPEAKER

Designed especially for amplified loud speaking for home, auditorium, aboard ship, or wherever loud speaking in conjunction with radio receiving is required, the Jolley loud speaker is now offered to the radio market by the Jolley Radio Co., of New York.

The horn is made of special alloy brass produced especially for the Jolley loud speaker. The joints are all silver soldered and appear seamless. It is finished in heavy nickel plate, highly polished.

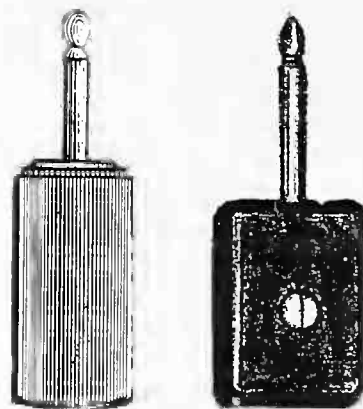
The speaker is of the self contained magnetic field construction, no external energy being required other than an increase in "B" battery voltage operating on 80 to 125 volts for ordinary circuits and up to 250 volts for Armstrong superregenerative circuits.

KING QUALITY STANDARDS

Years of experience in the making of small parts on a large production scale have been of great advantage to the King Sewing Machine Company, of Buffalo, N. Y., who are now in the radio field. Skill in design, quality of material and accuracy of construction are the dominant notes of this concern, which has a reputation in other fields to live up to.

The radio apparatus division of the King company is at present engaged in the manufacture of King Quality dials, made in black or white; switch levers, with a mirror finish; binding posts of genuine bakelite, and tube sockets of moulded bakelite and tube and terminal binding posts of brass.

Standard Phone Plugs



Price One Hundred or a thousand \$40.00 per hundred Net. Price One Hundred or a thousand \$22.00 per hundred Net.

Sample dozen postpaid \$5.00 Sample dozen postpaid \$3.00

The above plugs can be used with telephone cords having pin tips, spade tips or plain wire ends. NO SOLDERING NECESSARY.

ALL SAMPLES SENT C. O. D. NONE FREE.

S. S. NOVELTY CO.
255 Bowery, New York, N. Y.



XX Bakelite - Di-lecto Radio Panels

Manufacturers and dealers: immediate delivery—any quantity—cut to size.

Engraving and Drilling

Sharp white lettering, clean accurate work, quantity production at surprisingly low cost.

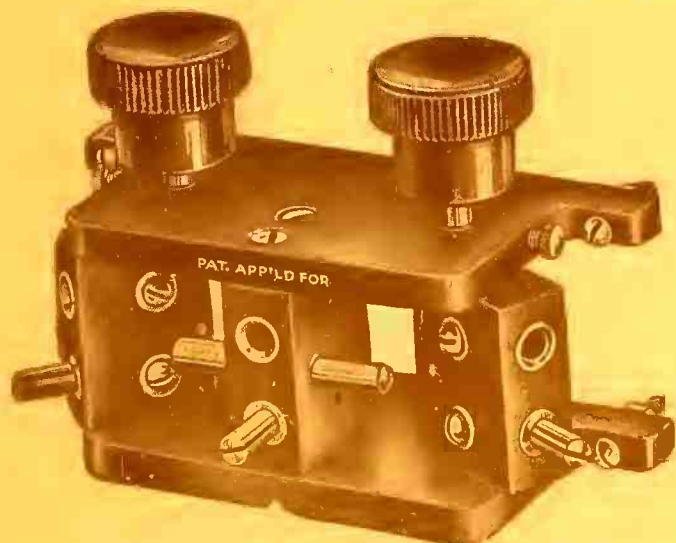
Write Today for Sample and Prices

POSTER & CO. INC.
552 SEVENTH AVE. NEW YORK
PHONE BRYANT 2-572

THIS IS A RADIO CHRISTMAS!

DISTANT STATIONS BROUGHT IN FOR LONG WAVE RECEPTION

USE AMCO ADJUSTABLE, 1, 2 AND 3 COIL MOUNTINGS



Licensed Under DeForest U. S. Patent, No. 1,365,170

Adjustable locking device, a patented feature, holds the coil firmly in place. Readily mounted on front of panel in any position. Constructed of the highest grade insulating material; polished and attractively finished. All metal parts heavily nickel plated.

NOT A MOULDED AFFAIR

ASTORLOID MFG. CO., INC.

Tel. Williamsburg 5104

416 MARCY AVE.

BROOKLYN, N. Y.

Triple Coil Mounting

List \$4.00

Two Coil Mounting

List \$3.00

Single Coil Mounting

List \$0.50

25,000 UNBREAKABLE DIALS

To close out below manufacturer's cost

These dials have a high polish and fine attractive finish. Fastened to large molded knob with brass bushing.

3" Dials \$0.20 net
3 1/2" Dials 0.25 "

SEND FOR SAMPLES



In Our New Factory

— ready for business —

The ACE DRY BATTERY is back. We had our fire which wiped out the factory but now we are in a better and larger factory—better equipped—better prepared to handle orders.

Send in your order for
ACE WIRELESS BATTERIES

There's a reason for their silent operation. For instance, the locknut terminals prevent vibration. The sealing compound will not bulge.

They are more powerful—longer lasting.



The Ace Radio Book

Give your customers an interesting and instructive book on radio. It cost them nothing. It costs you nothing. You are supplied with these books to give away with each Ace Wireless Battery.

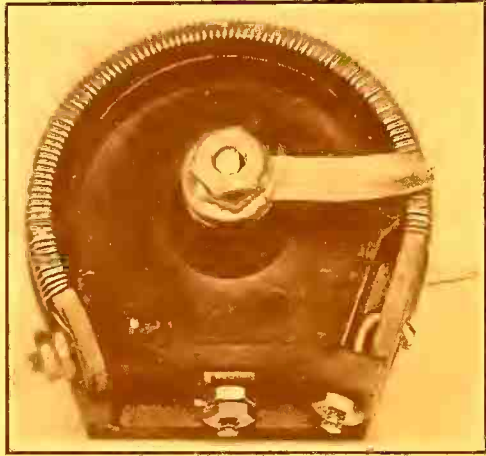
The contents aim to sell other radio equipment for you as well.

**ACE
WIRELESS
BATTERIES**

THE CARBON PRODUCTS CO., LANCASTER, OHIO

Another THRADIO Triumph

A Rheostat built upon lines that makes impossible loose resistance strip
ACCURATE—RUGGED—DEPENDABLE



Note the manner in which STRIP is secured and held taut against flange of BASE keeping each turn of RESISTANCE WIRE accurately spaced.

THRADIO

SOCKETS

CONDENSERS

HEAD SETS

THRESHER RADIO CORP.

476-484 EIGHTEENTH AVE.

NEWARK, N. J.

NATIONAL RADIO WEEK

has been set for the Christmas week

December 23 to 30

The National Radio Week idea is gaining favor and the week will be observed in every city of any importance. Every dealer is urged NOW to start planning stunts for this week to push RADIO more strongly into the public eye.

National Radio Week! National Radio Xmas! More Business for All!

NATIONAL RADIO WEEK COMMITTEE,

J. ANDREW WHITE, Chairman,
 326 Broadway, New York City.

This is a **RADIO** *Christmas!*

THIS IS A RADIO CHRISTMAS!

PARAGON GROUNDS

Satisfying the need of the average radio enthusiast for an effective ground, the National Electric Specialty Co., of Toledo, Ohio, have evolved the Paragon line of grounds.

The Paragon ground is made of one continuous piece of pure copper from base to point of connection with leading-in wire above the surface of the earth. Copper is used because it has high conductivity and resists earth corrosion. The Paragon ground insures protection from lightning and high tension crossed wires. The National Electric Specialty Co. also make a line of lightning arresters which may be adapted for use in radio.

INTRODUCES NEW PART

The Feri Radio Mfg. Co., 1167 Bedford Avenue, Brooklyn, N. Y., has introduced a new type of variometer for which many advantages are claimed.

The strong outer winding, which is extremely light in weight, rotates about a stationary ball thus dispensing with the necessity for supporting blocks and simplifying this type of instrument. Friction contacts are replaced by pig-tail and stop arrangement. Only two small holes in the panel are required for mounting the Feri variometer. Territory is still open for distributors in the marketing of this new product.

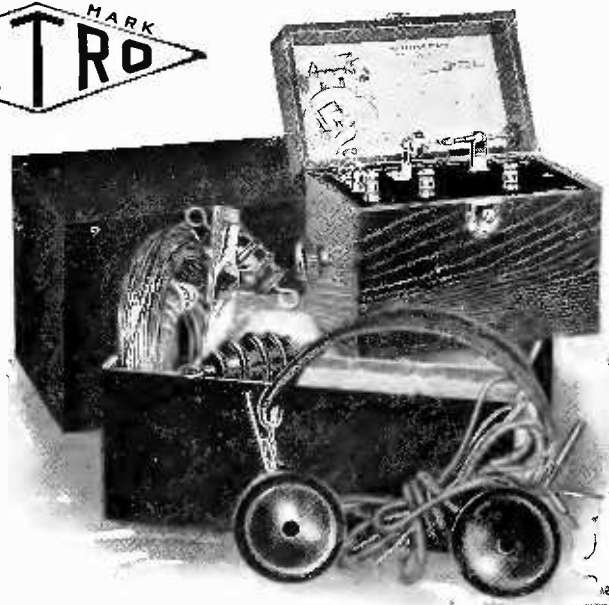
SIMPLE, BUT COMPLETE

The G-W detector made by Gelman & Weinert, 42 Walnut Street, Newark, N. J., is extremely simple, but complete to the last essential detail. Its principal features are the cone-shaped phosphor bronze contact spring and the friction ball and thrust device. The spring has a telescoping action which permits an increase or decrease of pressure without losing this adjustment. The friction device automatically takes up wear and holds the adjusting arm firmly in any position despite changes in temperatures or vibration.

GOOD SYNTHETIC CRYSTAL

Exceptionally desirable qualities are possessed by Rusonite, a synthetic multipoint detector crystal that has been developed by the Rusonite Products Corporation, 15 Park Row, New York, after extensive research. They express the opinion that this crystal surpasses natural crystals in sensitivity. On a sample recently tested by THE RADIO DEALER, the claim made by the manufacturer that Rusonite eliminates detector troubles and gives increased clearness and volume was borne out by a careful test.

The Outfit Everybody Wants!



The Little Giant Receiving Outfit

Greater Simplicity—More Efficiency—Popular Price

The Little Giant Receiving Outfit is surprising dealers everywhere with its extraordinary sales. People, who never showed any interest in radio, are buying this greatly improved, high grade receiving outfit. It overcomes all the objections of difficult operation, unsightliness, inconvenience and great expense common to most types. Dealers are increasing business with this rapid seller. Things are brighter after they give the Little Giant a chance to prove its appeal to everybody.

The entire set is contained in a highly polished American Walnut Cabinet that you can hold easily in one hand. The only adjustment necessary (once the detector is fixed) is the pulling out of a small rod on the side until the sound is clear and loud. Designed on entirely new principles. Combined with supersensitive Metro Headphones, the Little Giant Outfit is surprisingly simple and efficient. Everything needed to install the Little Giant is packed in the neat, black leatherette box.

Little Giant Outfit Complete

With Metro Headphones, Insulators, Ground Wire, Ground Clamp and Complete Aerial.

In Black
Leatherette
Box \$ **15**
List

Write for circular and interesting proposition. Get your share of the profits in Little Giant Receiving Outfits.

METROPOLITAN RADIO CORPORATION

70-74 Goble St., -:- Newark, N. J.



To the Trade

WE are authorized distributors for the following nationally advertised quality lines:

Brandes
Bradleystat
De Forest Tel. & Tel.
Dubilier
Everready
Four Way Radio Plug
Frost Fones
General Apparatus
Homcharger
Improved Radio Jacks
Klosner
Marko
Marle Transformers
Radiocraft Regenerative
Receivers
Radio Improvement
Company

We are able to make prompt shipments on the above lines. We suggest you place your orders at once to avoid delay in the Christmas rush. We welcome your inquiry for details regarding our dealer co-operative merchandising policies.

TRIANGLE RADIO
SUPPLY CO., INC.
 112 East 23rd Street
 New York, N. Y.

How One Firm Builds Lasting Trade

Gives Dealer Co-operation of Livest Sort

THE Radio Improvement Company, of New York, is giving dealers real co-operation in the merchandising of Improved radio jacks.

All inquiries received from national advertising are referred to the dealers in the territory in which they originate. Consumer prospects receive a very interesting letter explaining the advantages of the Improved radio products and giving the name of the nearest dealer handling Improved radio products.

All orders from consumers accompanied by money order or check are shipped to them direct and the Radio Improvement Company in turn forwards a check to the dealer, covering his discount in the transaction. This procedure makes it possible to place the product in the hands of the consumer at the earliest possible moment. The consumer is also advised that he or his friends may purchase Improved radio products in the future from... (Dealer's name and address).

The Radio Improvement Company is doing extensive national advertising and is co-operating in many other ways with the dealer.



A very attractive beveled glass counter display with gold lettering (illustrated above) sets off the Improved radio jacks and battery switches to great advantage. For new dealers entering the radio field, the Radio Improvement Company has prepared a complete assortment of Improved radio products, packed in one attractive package. This assures the dealer a full line, without stocking too great a number of any one item until he has learned which are in greatest demand in the territory he serves.



Dealers

WHO are interested in securing a greater volume of business should get in touch with our Dealer Service Dept.

We are distributors for the following nationally advertised products:

Adams Morgan
Nathaniel Baldwin
Brandes
Dubilier
Driver-Harris
Everready
Fada
Frost Fones
Improved Radio Jacks
Marle Transformers
National
Paragon
Radio Cieve
Radio Improvement Company



Improved double-circuit jack. Price \$1.00

Improved Anti-capacity Radio Jacks require no soldering. We are receiving daily shipments of Improved Radio Jacks, and will be pleased to receive your inquiry on this fast-moving item.

FEDERAL RADIO &
ELECTRIC CO.
 41 Park Avenue
 Paterson, N. J.

THIS IS A RADIO CHRISTMAS!

Radio Improvement Co. Makes New Radio Jack

Joseph W. Jones, Well-Known Inventor, Is Designer

A new anti-capacity radio jack called the Improved radio jack, has been designed and developed by Joseph W. Jones, inventor and patentee of the disc phonograph record, Jones speedometer, Jones taximeter, Jones Motrola, Jones drill, and other well known mechanical and electrical devices of world-wide reputation.

The Improved radio jacks embody the binding post feature, thereby eliminating the exasperating and unsatisfactory soldering of wires to tips, with its inevitable short-circuits from solder and acid. Being one-half the length and lighter than an ordinary telephone jack, they insure quick and secure installation. By eliminating long parallel leads, induction is reduced to a minimum.

The Radio Improvement Co., maker of the Improved radio jack, has also recently added to its line a double-circuit, filament-control jack and a single-pole, double-throw switch that is being used by some of the leading manufacturers as a loading coil switch to throw from long wave to short wave reception. These additions to the line are all built to embody ease in assembly, compactness in design and elimination of induction.

Mr. Joseph W. Jones is developing other improvements for the radio field that are as revolutionary in departure and in design as the Improved radio jacks and battery switches, compared with the ordinary types.

Improved radio jacks are manufactured in a factory that has produced high grade precision instrument work for 20 years. This plant is equipped with the most up-to-date machinery and employs engineers of national reputation.

The use of modern merchandising methods, backed by effective national advertising and embodying full dealer co-operation, has created a nation-wide market for Improved radio products.

Associated with the Radio Improvement Company are some of the best merchandising and advertising men in the country, who are continually working out new ideas to increase the sale of Improved radio products and to develop the radio business in general.



Open circuit
Price 70 cents



Closed circuit
Price 85 cents



Double circuit
Price \$1.00



Single filament
control
Price \$1.00



Double filament
control Price \$1.25



Single-throw A-
battery switch
Price \$1.00



Double-throw, single-
pole anti-capacity
switch Price \$1.25

IMPROVED *Anti-capacity* RADIO JACKS

The Highest Grade Wireless Equipment Made
Especially Designed for Radio

IMPROVED RADIO JACKS are distinctive in design and substantial in construction—radically different from all adaptations of the old telephone jack. They are universal—fit any plug, do away with soldering and resulting dangerous short circuits. Small and neatly finished, they save space and add to the appearance of any radio panel. Owing to the elimination of long parallel leads, induction is minimized.

You can save time, money and worry in assembling receiving sets by using Improved Radio Jacks—and, once installed, you can rely on them for consistent service and freedom from trouble.

DEALERS:

We are creating a nation-wide demand for Improved Radio Jacks. You can boost your sales by stocking them—NOW!

*Get in touch with your jobber,
or write us direct!*

Immediate Deliveries

RADIO IMPROVEMENT CO.
25 West 43rd Street NEW YORK CITY

See Our Exhibit at the Permanent Radio Fair



Mercury Radio Sets

A PROFITABLE line to handle, from the dealers' standpoint. A reasonably priced line to buy from the consumers' standpoint.

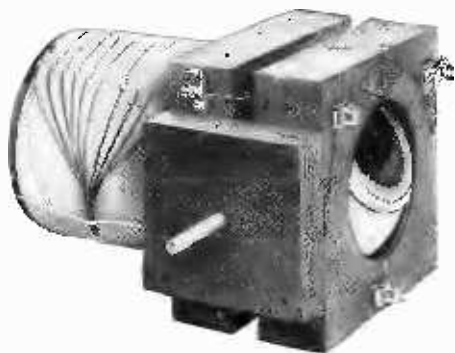
The low price is made possible by quantity manufacture in our large factory where every part is made, not merely assembled.

Write for details
and trade prices.

**MERCURY RADIO
PRODUCTS CO.**

LITTLE FALLS NEW JERSEY

FISCHER



Vario-Wave Tuner

(Flat and Bank Wound)

Affords a guaranteed range of
200 to 3500 meters

Functions the same as a combination of Variometer, Variocoupler and Loading Coil. All three can be eliminated by **Price \$8.50** its use.

Territory open for Dealers

Write for proposition and catalogue

G. H. FISCHER & CO.

317 Cypress Hills Road
GLENDALE, L. I., N. Y.

TWO NEW UNITS

Patents are pending on the new Volta variometer and Variomo-coupler recently introduced by the Volta Engineering Company, Inc., Brooklyn, N. Y. The Volta variometer is built on a new principle, resulting in a compact and effective piece of radio equipment. Friction is reduced to a minimum, so that howling and mushing are largely done away with. Perfectly balanced construction allows an adjustment that stays, while the appearance and design of the variometer permits its use both on panel and table work. Special binding posts allow the use of either straight or spade tip connections.

No lever and contact adjustments are required to make fine tuning on the Volta Variomo-coupler. Taps and contact levers are done away with. The makers assert that the Volta Variomo-coupler's simplicity makes for proper primary tuning.

PLAN TO INCREASE SALES

Estimating that 60 per cent. of radio buyers build their own sets, the Sleeper Radio Corporation, 88 Park Place, New York, has concentrated on construction sets with which the amateur can satisfy his innate desire for building and creative effort.

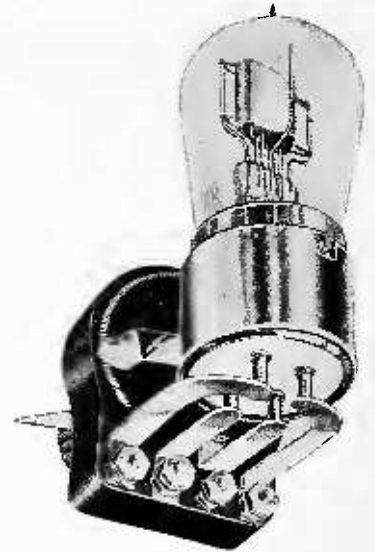
The fascination of making things himself, which the average person is said to cherish, is further fostered by the Sleeper Corporation through a monthly magazine, *Radio & Model Engineering* and three books, recently published, on the "Design of Modern Radio Receiving Sets," all by M. B. Sleeper, president of the corporation, and a well-known radio expert. The combination of unassembled sets and a continuous inspiration to build a better and better set, improving here and there, as the Sleeper publications suggest, seems to be a winning one for increasing radio sales.

CERTIFIED RADIO PARTS

Two parts upon which the engineering skill of the Pioneer Radiophone Corp., Galesburg, Illinois, have concentrated are their vario-coupler and variometer. Each instrument is moulded of bakelite in a special brown and black mottled finish with a permanent polish. The rotors and stators are wound with double green silk wire of a large size to reduce internal resistance to a minimum. Secondary connections are positive, being constructed with the riding spring contact which are very accurately finished. The two instruments have been awarded certificates of merit from various publications.

SOCKET-RHEOSTAT

Registered U. S. Patent Office



Type A-5 ohms, suitable for
detector bulb
Type B-2 ohms, suitable for **\$2.00**
power bulb
TWO IN ONE. A socket and rheostat
so combined as to form a single unit.
No more unnecessary leads between
socket and rheostat. Just connect your
leads to the four posts marked P F-F G
and you are hooked up as far as the
SOCKET-RHEOSTAT is concerned.

MANUFACTURED BY

Ajax Radio Corporation

Telephone: Bigelow 4097
538 SOUTH 10th STREET
NEWARK, N. J.

New Radio Inventions

Be sure to get the latest—



**Combined Variable
Grid Leak and
Micon-Condenser**

Price \$1.00

Unbroken range from zero to
5 megohms—all intermediate
points. Fixed capacity .00025
M. F. Will improve your set
wonderfully.

Clarifies Your Signals

Lowers Filament Current

Increases Battery Life

Eliminates Hissing

Write for Terms and Discounts

CHAS. FRESHMAN CO., Inc.
97 Beekman Street, New York

Home of Micon and Antenella

THIS IS A RADIO CHRISTMAS!

TUBE SET FOR NOVICE

With the idea of creating a vacuum tube set that would be satisfactory for the novice, to whom radio is an absolute mystery, the New York Coil Company, 338 Pearl Street, New York, have evolved their Entertain-A-Phone receiving set No. 2. The outfit, complete except for batteries, bulbs and telephone receivers, is contained in a hardwood case, 18 inches long by 6 inches high.

The knobs are large and molded, the vario-coupler is wound on bakelite tubing, the condenser is of the 23 plate type, the three tube sockets are black bakelite, and the two amplifying transformers are said to operate without noise or scratching.

Provision is made in front for connecting one, two or three phones. An extra bottom permits of the easy removal of the complete apparatus intact.

VERNIER VARIOMETER

The Fletcher Works recently placed on the market exclusively through their distributors, Durham & Company, a variometer which they claim has many advantages over the usual instrument. An unique feature about the winding was demonstrated at the recent radio show when one of the exhibitors removed the winding from the stator and stood upon it time and time again without being able to separate the wires or disintegrate the adhesive material used.

There are two rotating coils, one of sixty turns for the usual adjustment, and the other of eight turns for fine adjustment. The small coil is located concentrically within the larger coil and is so proportioned that a movement of thirty degrees on the small coil gives the effect of but one degree on the large coil. The wood used is mahogany, and the instrument is either furnished on a handsomely finished base, or with panel mounting.

SAVES VACUUM TUBES

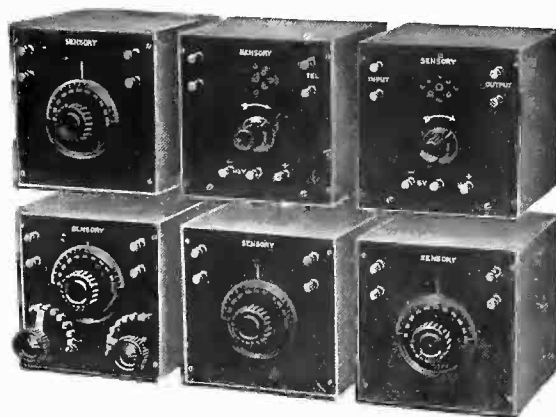
An automatic filament current adjuster has been introduced to the trade by the Radiall Company, 99 Warren Street, New York, under the name of Amperite.

Claiming that the Amperite makes the operation of vacuum tubes absolutely fool proof, the makers say that the Amperite eliminates the necessity of rheostats in the filament circuits as the action is automatic and keeps the filament at the proper temperature thereby prolonging the life of tubes from two to three times and preventing burning out. As a result the Amperite eliminates the need for measuring instruments.

ESTABLISHED 1888

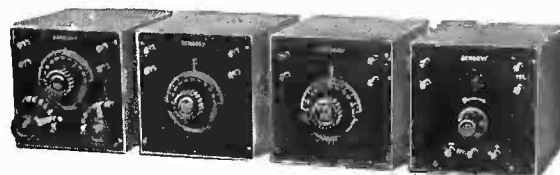


SENSORY CABINET UNITS



The most flexible method of adding to, or obtaining a variety of hook-ups, and giving an appearance equal to any single cabinet set. Each cabinet contains a "Sensory" element.

THE FULL LINE OF "SENSORY" ACCESSORIES
IS SHOWN IN OUR NEW BULLETIN NO. 12
WRITE FOR IT TODAY



HEINEMANN ELECTRIC COMPANY

Manufacturers

Radio Division

Philadelphia, Pa.



Reproducing the NATURAL TONE. No TINNY SOUND, NO DISTORTION, SWEET, MELLOW and DISTINCT. DIFFERENT from all LOUD SPEAKERS.



ANNOUNCING OUR LATEST ADDITION
THE HAMPSON RADIO FREQUENCY TRANSFORMER

Specially constructed core—highest amplification. Bring in stations within 1,000 miles radius. Can be used with any standard hook-up with any available tubes. **Retail Price \$4.00**

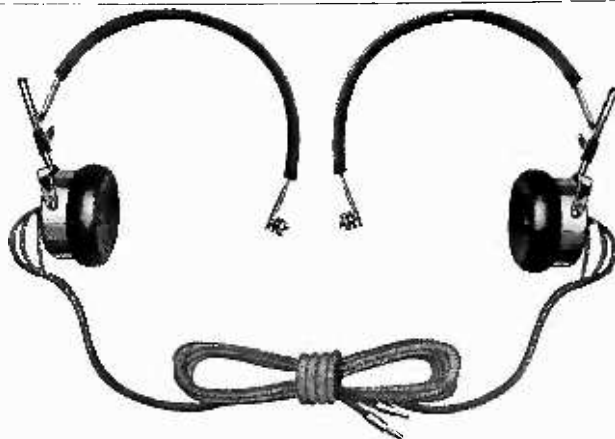
Ready for Delivery Dec. 5th, 1922

STATES ELECTRIC COMPANY

20 Clinton St.

SOLE AGENTS

NEWARK, N. J.



PATENTS

Premier Duplex

APLD. FOR

Premier Duplex Phones give real satisfaction. They increase the efficiency of receiving sets and add to the pleasure of listening in. The tone is clear, loud and pleasing. The caps feel good on your ears.

The best of materials, such as Tungsten Steel Magnets, Norway Iron Core, Commercially Pure Copper Wire Coils all carefully assembled and neatly finished make the Premier Duplex Phone one of the best.

The band splits into two parts, each having an overhead strip. It is very convenient for two persons to use. The adjustment is simple and effective. The cord permits of a five-foot separation between phones.

2000 Ohms \$6.50 Discount to Dealers 3000 Ohms \$8.00

PREMIER ACCESSORY & SPECIALTY CORP.

27 CONGRESS STREET

NEWARK, N. J.

Discount Sheet

Wholesale Radio Equipment Co.
Preferred Dealers List

Mortimer Salzman, who manages the Wholesale Radio Equipment Company of Newark, N. J., is sending out a letter to the trade, reading as follows:

"We are pleased to enclose herewith our Preferred Dealers' Discount Sheet, which we trust will serve to our mutual benefit.

"At the present time, due to the very chaotic conditions in the radio field, we have deemed it inadvisable to publish a catalogue, for it would soon be obsolete.

"In this discount sheet will be found items of standard manufacture, which are fully guaranteed. At the present writing there are additional items of interest being added to our lines which will enable us to take care of your entire requirements.

"We do an exclusively wholesale radio business, only catering to the radio dealer in the best possible way. We have no retail department nor any connection with one, thereby permitting the radio dealer to receive all the materials which we purchase.

"All merchandise is sold F. O. B. Newark, N. J., or points to which our trucks deliver.

"Our terms are 20 per cent, ten days, net thirty days, where satisfactory references are given."

The Preferred Dealers' Discount Sheet features these lines: Paragon, A. P., De Forest, Magnavox, Federal, Traco, Acme, Tuska, Murdock, Baldwin, Western Electric, Grewol, Kosner, Jefferson, Thordarsen and Bradleystat.

GENERAL RECEIVING SET

Dealers will find the radio supplies carried by the General Supply Company, Lincoln, Neb., composed of radio parts and sets made by reputable manufacturers with a nationwide reputation.

The General Supply Company, besides carrying the products of leading makers, feature their own General radio receivers, of which type GR-3 is their latest model. This is a three tube receiver consisting of one detector and two stages of audio frequency amplifications. The antenna condenser is equipped with vernier for fine adjustment, terminals are provided for a loud speaker, and battery connections are made at the rear. The whole set has been designed for convenience and approachability.

THIS IS A RADIO CHRISTMAS!

All Fans Not Boys

Average Radio Amateur Obeys Laws and Does Not Interfere

Interview with A. W. CHAMBERS

"All amateur radio operators are not small boys." That's the statement made to THE RADIO DEALER by A. W. Chambers, of the Birmingham Radio Company, Birmingham, Ala. Mr. Chambers is a dealer in radio equipment, has a Governmental license and is recognized by the air fans as "5 P. S."

The statement, above quoted, is made because of a criticism made anent amateur air operators in the last issue of THE RADIO DEALER. Mr. Chambers continues:

"In my opinion the criticism of the amateur operator must have been made by a writer with a grudge against the amateur operator. The amateur operator, according to this writer, is a small boy—whereas, in reality, the majority of amateur operators are men between the ages of 21 and 45 years old.

"The old, old question of amateur operators interfering with the broadcast listeners can usually be traced to the type of receiver which the listener is using, though of course the amateur is sometimes in fault.

"The writer of the article objected to indicates that amateur broadcasting stations are rapidly increasing, when in reality there is no such thing as an amateur broadcasting station, simply because our license does not permit it, though of course we can have radiophones but for direct communication only. As I have previously pointed out, the average amateur is above the boy age and is usually capable of handling the interference problem, if the receiver on the other end of the complaint has any selectivity whatever. The average radio amateur is usually law abiding.

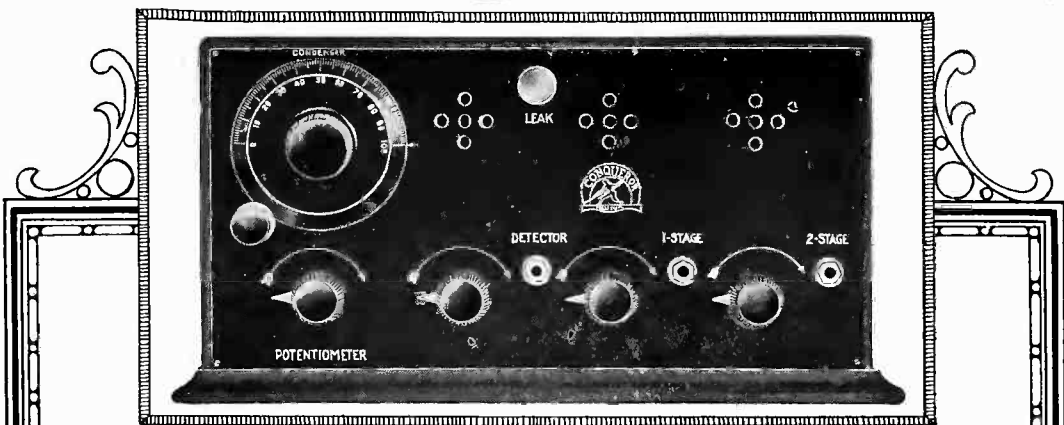
"The reason I take the trouble to correct this article is that if the dealers generally do not know the truth about the amateur operator they will make enemies of the amateurs and will suffer accordingly."

(Mr. Chambers' point is well taken. —Editor THE RADIO DEALER)

BEE RADIO SET

The Bee radio set has been placed on the market by F. W. Matthews, 167 Bloomfield avenue, Bloomfield, N. J. This set was developed by Mr. Matthews after a series of experiments made with the idea of designing a receiver that would sell at an extremely popular price and still afford simultaneous entertainment for more than one member of a family.

CONQUEROR



DO YOU BELIEVE
IN SANTA CLAUS?

Are you placing orders now in anticipation of the inevitable Christmas and winter boom in Radio Sales, or will you be obliged to say, "This is all we have?"

BUY NOW

CONQUEROR

Custom-Built, One-Knob Control
RECEIVING SETS

BECAUSE---

—They're the finest tuner, detector and 2 step amplifier sets made at any price—bar none.

—They're capable of an unprecedented degree of super-sharp tuning and render an undistorted tone as clear and voluminous as the finest talking machine made.

—They're so simple to operate and built of the finest units known to the science.

—They're the most beautiful looking sets you've ever seen—housed in a solid mahogany, piano finish case, sufficiently attractive to grace the most tastefully appointed home.

—There's an unconditional, bona-fide ONE YEAR GUARANTEE with every Conqueror Set we sell.

DEALERS AND JOBBERS

*Write right now, for specifications, price and discounts—
or demonstration.*

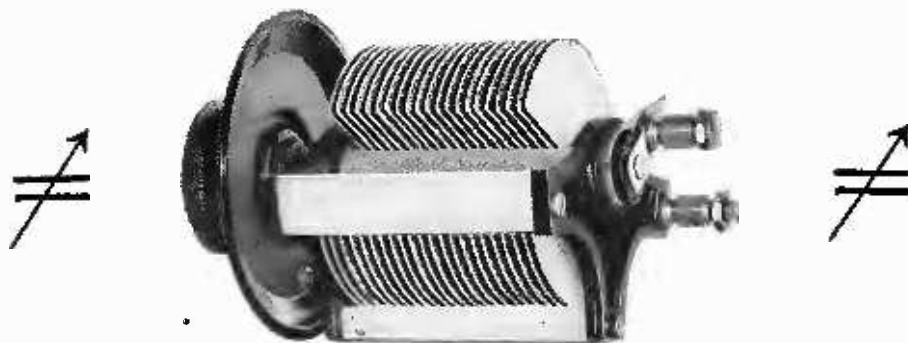
LEWIS & DE ROY RADIO CORP.

560 SEVENTH AVE
NEW YORK CITY

DESIGNERS AND
BUILDERS OF



CONQUEROR
RADIO SETS



Radio Finds a Better Condenser

Bayley's 23-0005 and 43 Plate 0011 Variable Condenser is what Radio has found.

Its plates spaced close give it the finest tuning qualities.

It is a die-cast product, the stationary plates are cast solid, accurately and permanently spaced, on three upright supports, while the movable plates are cast on the centre revolving spindle. It is impossible for plates to loosen in service.

Solid rubber end pieces finished like black morocco leather make it beautiful. It is of good design and high grade workmanship. In an official test measures up to 0011 M.F.D. capacity and is uniform, it does not vary.

Each condenser has our guarantee, backed with a manufacturing record of more than forty years.

A sample order will convince you of its value.

And Make You, Certainly, A BAYLEY CONDENSER BOOSTER

We want business from houses that appreciate real value. It will give satisfaction and stay sold

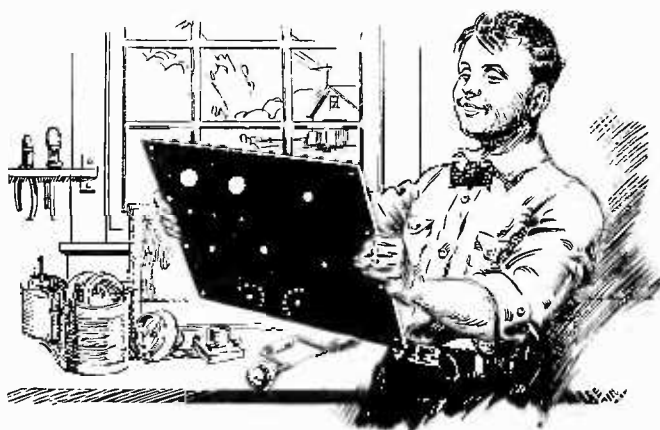
Price, 23 Plates \$3.25 each. 43 Plates \$3.75 each

TO JOBBERS AND DEALERS A SPLENDID PROPOSITION

BAYLEY CONDENSER CO.

105-109 Vanderveer Street

Brooklyn, New York



CONDENSITE CELORON

Sets a New Standard in Radio Panels and Parts

Cut your panels from Condensite Celoron. It is the ideal panel material because it machines readily, engraves with clean cut characters and takes a high, natural polish or a rich, dull mat finish.

Give your customers Quality and they will give you orders

Condensite Celoron—approved by the Navy Department, Bureau of Engineering—offers a sales opportunity unequalled to the live wire dealer who is keen on building his business on a quality basis. Write us today for our Special Dealer's Proposition.

Diamond State Fibre Company
Bridgeport (near Philadelphia), Pa.

Branch Factory and Warehouse, Chicago

Offices in Principal Cities

In Canada: Diamond State Fibre Co., of Canada, Ltd., Toronto

Should Ford Broadcast from 400 Stations

Monopoly of Air by One Man Must Be Prevented

By BERNARD FREEDMAN

Henry Ford, according to newspaper reports, is planning to reach the American people, in a personal and direct manner, by the establishment of 400 radio broadcasting stations throughout the United States.

Whether this is mere press agent stuff, or whether Mr. Ford has correctly sized up the advertising possibilities in radio broadcasting and is about to take advantage of an opportunity, is not known.

Ford, despite his vaunted idealism, is practical and it may be that the maker of low-priced motor cars and tractors senses the fact that air advertising may—in days to come soon—cost less than newspapers, billboards and even hired praise agents. Air advertising certainly has its value today and will have greater value in later days when every home in the land has its radio receiving set.

Whether Ford can acquire Governmental permission to establish and operate 400 broadcasting stations is doubtful. No one person; no group of persons, no matter how righteous their aims nor how self-important their attitude, should be given what amounts to a rare concession. And the operation of 400 broadcasting stations by one person or one group makes for a monopoly.

It may be that Ford has no monopolistic designs; that his ideas are of the laughable peace-ship type. It may be that Ford really only aims to broadcast anti-Semitic stuff faked by Russian Jew-baiters. Mayhap Ford really only aims to help the three K folks.

The Ford idea, if its truly reported, develops the thought that a practical business man sees the future of radio; sees its possibilities and visions the future of radio better than do some of the so-called "big radio men" now sitting in the high councils of concerns that have made millions in the radio field already and are in a position to make more millions. Ford should not be permitted to create an air monopoly no matter how beneficent his designs. Ford has political ambitions—of course, but that shouldn't permit him to acquire any air concessions that may become monopolistic.

It is to be expected that the broadcasting stations, as well as the radio trade generally will oppose any such wholesale licensing of Ford broadcasting stations, as is talked about. Ford is not entitled to any special favors

THIS IS A RADIO CHRISTMAS!

from any branch of the Government—his great wealth notwithstanding.

The air must be made a monopoly. Ford isn't entitled to any concessions, any more than are the present broadcasters who have developed the radio industry. Ford has had no part in the development of radio, in any manner, and his desire to operate a broadcasting station from his home town is perfectly proper—if the neighbors don't cavil—but when he steps out with a declaration to operate 400 stations his motives may very properly be questioned.

THE RADIO DEALER doesn't believe Ford aims to operate 400 broadcasting stations, but this is a good time and place to state that the radio industry will not favor the establishment of an air monopoly for Ford or for anyone else.

BRU NO. 3 RECEIVER

The Bru No. 3 vacuum tube receiving set which is made by the Bruno Radio Corp., 152 West 14th Street, New York, has been designed to give the radio enthusiast a good outfit at reasonable cost. In this set the WD-11 tubes are used which operate on one dry cell. The cost, inconvenience and maintenance of storage batteries is therefore eliminated.

Another feature of this set is its flexibility. Although complete in itself the circuit can be readily altered so that it will operate in several ways. If the antenna is over 75 feet long for long distance reception, one can insert a variable condenser in the antenna circuit. If one cares to receive broadcasting stations other than those sending on wave lengths of between 150 to 600 meters, a honeycomb coil or other inductance can be inserted in the antenna circuit. Two binding posts are provided in the secondary circuit so that one may load the secondary circuit also, as the loading of the primary or antenna circuit is not as efficient.

ARMSTRONG CIRCUIT UNIT

The non-inductive high resistance requirements of the new Armstrong super-regenerative circuit have been met by the new resistance unit prepared by the Allen-Bradley Company, of Milwaukee, Wis. It is made in the form of a special resistance coating applied to a non-metallic base. There is absolutely no inductive action because there is no wire or metal in the resistance circuit. It can be simply installed with two screws that act as the terminal connectors. The resistance of each unit is calculated at 12,000 ohms.

An Important Message for Every Man Dealing in Radio Equipment

One of the most disagreeable things about the radio business so far as dealers are concerned is the ever occurring complaints from customers who can't get desired results from the equipment purchased.

Every dealer, in the past, has had this experience time and time again. Is it possible to do anything to overcome this situation?

It is! And the one message that we of the American Hard Rubber Company would register with all you many dealers this month is to tell you how to eliminate the majority of these customer kicks.

The positive operation of a present day radio set is not nearly as complicated a matter as driving a Ford car. And there are thousands driving Fords.

The trouble heretofore has been that during the rush of big radio retail sales, dealers stocking radio equipment for the first time have purchased quantities of radio junk from get-rich-quick manufacturers—frequently newer in the game than many of the dealers who purchased and sold what proved to be trash.

It is primarily this inferior equipment which has been the true cause of the many complaints dealers have received. A completed set will operate perfectly when well made. A set put together by the individual mechanically inclined will operate perfectly if all parts from cabinet and panels to dials or knobs which you sell are manufactured with intelligence.

Thus your troubles will be largely minimized if you will stock products which are made by the recognized manufacturers in the radio industry—the stable concerns—the concerns which use brains backed by years of experience in the construction of the equipment which they may offer you.

AMERICAN HARD RUBBER CO.

11 Mercer Street, New York

Manufacturers and Moulders of

R A D I O N

Dials, Knobs, Panels and Other Parts needing no apology from the responsible concerns offering them to their customers



← THE SIGN OF GOOD SERVICE AND
GUARANTEED SATISFACTION

IMMEDIATE DELIVERIES ON:

CLAPP-EASTHAM	RADIO CORP. OF AMERICA
BALDWIN PHONES	MURDOCK APPARATUS
THORDARSON	DRAGON STORAGE BATTERIES
NOVO BATTERIES	FADA APPARATUS
GREBE and MAGNAVOX	CHELTON APPARATUS

And All Other Standard Lines

EXCEPTIONAL DEALER'S DISCOUNTS—WRITE AT ONCE

WILMINGTON ELECTRICAL SPECIALTY CO., Inc.
912 ORANGE STREET Dept. A-10 WILMINGTON, DEL.

This Letter Was Unsolicited

We are distributors for the complete "RADAK" line, made by Clapp-Eastham.

A. H. LAWFORD
292 Main St., Bar Harbor, Me.

VIRGINIA RADIO CORP.

Dear Sirs:

Our books show that your company was the first to deliver their order although your letter was mailed last of four different companies which I ordered my initial stock from and also you were the greater distance from this town. Therefore you may expect the full amount of my business from now on.

Respectfully yours,
AUTHOR H. LAWFORD.

LARGE STOCK



PROMPT SERVICE

VIRGINIA RADIO CORPORATION

Manufacturers—Jobbers
Charlottesville, Virginia

TUNING COILS

Double Ply—Dull and Bright Finish—9x3½, End Pieces Made of Composition Fibre.

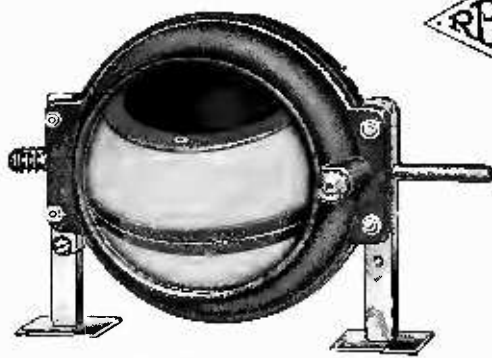
REGULAR \$3.50 - NOW \$1.30

BERSHAW RADIO & MFG. CO.
82 Barclay St. Newark, N. J.

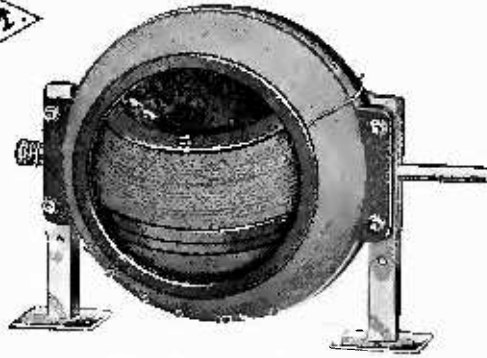
YOU SHOULD KNOW ABOUT OUR



THE MILLS RADIO & ELECTRIC CO.
INCORPORATED
1008 Springfield Ave. Irvington, N. J.



Variometer
Price, \$6.50



Variocoupler
Price, \$6.50

High Grade

RADIO APPARATUS

Twenty years in the electrical manufacturing field gives us the experience, organization and equipment to produce the highest grade of radio apparatus on the market.

Each unit is made complete in our own plant—from the moulding to the winding, assembling and final testing of the completed instrument.

The apparatus shown above is moulded from Redmanol, which is unaffected by water, oils, acids or other elements. It is a material which increases in resistance and strength with age. All joints and terminals are soldered, insuring perfect contact in all positions. These instruments are built to give unqualified service and satisfaction.

Write us for full information

Radio Products Mfg. Co.

667 W. Fourteenth St.
Chicago, Ill.

Radio Installment Plan

New York City Merchants Are Advertising to Sell on Deferred Payments

Radio sets on the installment plan have appeared in Eastern cities. In New York recently two different firms took quarter pages in prominent newspapers to inform the public that they were ready to sell radio sets on deferred payments. One of the advertisers offered a set for \$2.00 down and \$3.00 for the ensuing ten months. According to the advertisement, the specifications of this \$32 set are as follows:

One detector and tuner, complete; mahogany finished genuine bakelite engraved panel; calibrated dial from 0 to 180; 43 plate variable condenser bakelite spider-web coil, wound with high frequency Litzen wire. Cutler & Hammer rheostat; Dubilier front. 100 feet aerial wire; 2 insulators; 5 feet ground wire; 1 ground clamp; 20 feet lead-in wire; 1 variable 22½ volt "B" battery; 1-60 ampere an hour. "A" storage battery; 1 U. V. 200 radiotron; 1-3000 ohm double head set.

The company advertising this set claims that it will operate on wave lengths from 190 to 600 meters, over an approximate distance of 200 miles under normal conditions.

The second installment plan radio dealer advertised a set at \$69, for which "no storage battery is needed." The terms are \$39 down and six monthly payments of \$5 each. Another set is also offered at \$135, \$69 down and six monthly payments of \$11 each. These sets are said to include vacuum tubes.

REPLACES VARIOMETER

What is described as a receiving radiometer is being distributed by Ludwig Hommel & Co., national distributors of Pittsburgh, Pa. The device, for which patents are pending, is known as the Rogers receiving radiometer. It is said to have great tuning efficiency and sharpness because the dielectric material used in its construction is reduced to a minimum—no wood, parafine, shellac or varnish being employed.

The Rogers receiving radiometer takes up little space, much less than that required by the ordinary variometer, its dimensions being four inches in diameter by one inch in depth. The device can be used in any part of the circuit in which the ordinary ball type variometer is used.

THIS IS A RADIO CHRISTMAS!

RADIO APPARATUS TESTS

The New York Testing Laboratories, 80 Washington Street, New York City, of which L. R. Seidell is managing director, is giving special attention to the testing of all materials entering into the construction of radio apparatus and conducts investigations and development work on new apparatus.

THE RADIO DEALER is permitted to print through the courtesy of the New York Testing Laboratories the following report of a recent test that they made:

LEAKAGE TEST ON LIGHTNING ARRESTER

A 600-800 volt lightning arrester was submitted for tests required as follows:

1. Note the amount of leakage from a 600-volt line.
2. Give arrester five (5) flashovers of 5,000 volts and note the leakage from each flashover test.

RESULTS.

1. Actual voltage imposed was 610 volts, giving a leakage of .0039 amperes, or 3.9 milliamperes.
2. Five flashover tests at 5,000 volts and 60 cycles were made at intervals of five minutes with the following results:

Test No.	Leakage in Amperes
1	1.40
2	1.45
3	1.50
4	1.50
5	1.50

NOTE.

There was a small arc between graphite and carborundum in some sections of the resistor elements. This was not serious enough to cause disintegration of the graphite if the current was only applied momentarily.

DISCUSSION.

The first test shows the resistance to passage of current at 600 volts to be extremely good, as the milliamperage leak was very small.

The second series of tests also shows a great resistance to the flow of current at the higher voltage of 5,000.

The above tests show that this arrester can be connected from a 600-800-volt feeder direct to ground without danger of breakdown. Neither would there be arcing at this voltage which would cause disintegration of the carbon or carborundum.

VIRGINIA BULLETIN

The monthly bulletins of the Virginia Radio Corporation, Charlottesville, Va., are complete and interesting. The November, 1922, edition has been received and included everything that the complete distributor of radio can well be expected to handle.



The Profit Possibilities of BESTONE WIRELESS APPARATUS

Every Radio Dealer should investigate the unusual profit possibilities of BESTONE Wireless Apparatus for the following reasons:

- 1—BESTONE Receiving Sets embrace practically all popular types at prices ranging from \$22.50 to \$125.00.
- 2—BESTONE Receiving Sets are noted for attractive appearance, clarity of tone, volume and the elimination of distortion.
- 3—BESTONE Receiving Sets have demonstrated their long-range receiving capacity under practical conditions.
- 4—BESTONE Receiving Sets are backed by a leading manufacturing organization in the electrical field.

You are in time for Christmas Radio sales and profits.

Write for Illustrated Catalogue and Sales Proposition

HENRY HYMAN & CO., Inc.

Manufacturers

EXECUTIVE OFFICES
476 Broadway, New York

BRANCH OFFICE
212 W. Austin Ave., Chicago, Ill.

G-M

GUARANTEED RADIO APPARATUS



ACTUAL
SIZE

ROLLER
BEARING

A Profitable Special

Roller bearing contact prevents cutting of points. Fada Type Knob. Adjustable Arm. List Price 50c.

WRITE FOR PRICES ON

Antenna Plugs
Antenna Wire
Honeycomb Coils
Insulators
Insulite Panels
Jacks
Planet Loud Speakers
Plugs
R. F. Transformers
Sockets
Socket Rheostats
Variable Condensers
Variocouplers
Variometers

NATIONAL DISTRIBUTORS
OF
QUALITY PRODUCTS

GENERAL MERCHANDISE CO.

142 Market St., Newark, N. J.

Manufacturers and Distributors

KEEPING OUR AD COLUMNS CLEAN

THE RADIO DEALER is making every effort to keep its columns clean—to keep its columns free from the advertising of irresponsible dealers in radio equipment.

THE RADIO DEALER has already declined advertising contracts from a number of fakirs in the radio field.

THE RADIO DEALER will refuse to carry the advertising of mere stock-selling concerns, who are apparently radio manufacturers, but are obviously radio manufacturers as a side line to their stock-selling schemes. There are a number of such concerns.

TOM BROWN'S SET

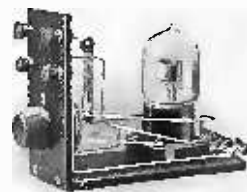
The Specialty Service Co., of Fourth Avenue and Pacific Street, Brooklyn, N. Y., are distributors for the Lawsam Electric Company's radio products, which include Tom Brown's set, an attractive vacuum tube outfit, unassembled, in an appealing box.

This set, and with Tom Brown's own book of instructions, can be set up by anyone. The set contains the following: Cabinet, engraved panel, variable condenser, inductance coil units, tube-socket, rheostat; 3-inch dial for condenser, eight binding posts, receiver, cord and headband, grid leak and condenser combined, all wires bent and numbered and cut to size, also eight flat-head machine screws for mounting the various units on the panel, and four wood screws for mounting the panel on the box.

BUILD IT YOURSELF

A vacuum tube detector set complete in every detail except assembly is being put on the market by F. Jos. Lamb Company, of Detroit, Mich. This "Build It Yourself," set, as it is called, is designed to meet the demand of those radio enthusiasts who wish to make their own set. Included in the unassembled parts are polished bakelite panel, 6 x 9 inches in size, condenser, coil, detector tube socket assembly, rheostat and dial, binding posts, buss wires, and nuts and screws. All are packed together in a wood cabinet with a black finish. Instructions for building with a blue print showing wiring diagram go with each set. An attractive package is provided for shelf stock. The shipping weight is six pounds.

ADD-A-STEP



DETECTORS AND AMPLIFIERS

See them at the RADIO FAIR

ARROW RADIO CO.

Manufacturers of Quality Plus
Instruments

HACKENSACK

NEW JERSEY

Radio PLAN-O-PHONE



Loud Speaker

\$3.50

The Plan-O-Phone is the most amazing value of any Radio Loud Speaker, on the market. Remarkable

A Big
Seller

acoustics. Used with any 2 stage amplified receiving set. Fits any receiver. Made of statuary bronze—handsome, durable. Dealers: Write for special proposition.

PLANET RADIO CORPORATION

1223 S. Wabash Ave., Dept. F2, Chicago, Ill.



Na-ald De Luxe V.T. Socket

Contact strips of laminated Phosphor bronze press firmly against contact pins, regardless of variation in length. No open current trouble possible. Socket moulded from genuine Condensite. Practically unbreakable. Special protected slot, with exterior reinforcement. Unaffected by heat of bulbs or soldering iron. All excess metal eliminated, aiding reception. May be used for 5 Watt power tube. Highest quality throughout. Price 75c.

Special proposition to dealers and jobbers

ALDEN-NAPIER CO.

52 Willow St. Dept. H Springfield, Mass.

PATENTS

To the Man with an Idea

I offer a comprehensive, experienced, efficient service for his prompt, legal protection, and the development of his proposition.

Send sketch or model and description, for advice as to cost, search through prior United States patents, etc. Preliminary advice gladly furnished without charge.

My experience and familiarity with various arts frequently enable me to accurately advise clients as to probable patentability before they go to any expense. Booklet of valuable information, and form for properly disclosing your idea, free on request. Write today.

RICHARD B. OWEN
Patent Lawyer

82 Owen Building, Washington, D. C.
2276-10 Woolworth Building, New York City

THIS IS A RADIO CHRISTMAS!

MOULDED EQUIPMENT

A moulded variometer has been put on the market by the Radio Instrument & Panel Co., of Chicago, Ill.

The stators are moulded in two halves with maximum diameter of 5 1/4 inches. The rotor is also moulded and highly polished, the maximum diameter being 4 inches. Large dimensions permit the use of low resistance wire. The rotor fits into the stator with minimum clearance. There is no possibility of shrinkage or warping in these moulded parts. All windings of green double silk wire. No shellac or paraffin is used in the wiring. Perfect contact is assured by a spring tension on the bearing. Base and panel mounting is provided for. The wave length is from 175 to 650 meters.

The Radio Instrument & Panel Co. also makes a full line of vario-couplers, condensers, variometers, and transformers.

CICO RADIO PLUG

Completely guaranteed, the Cico radio plug, type A, which is now being put on the market by the Consolidated Instrument Company of America, Inc., 41 East 42d Street, New York, offers an interesting example of the extreme simplicity to which radio parts may be reduced. An examination of this device reveals an extremely plain design, which augurs well for the strength and ease of performance of this instrument. The Cico plug fits all standard jacks, takes all types of tips, forked, straight or plain wire.

TUNING COMBINATION

Standardization in design of the F. R. S. universal combination has resulted in a set of tuning units which are interchangeable and thus may form three combinations outside of the usual uses of the three fundamental units, the variometer, the vario-coupler and a bank wound loading coil.

These units, which are of standardized construction, are more compact than most instruments and possess features of special merit. They are manufactured by the F. R. S. Radio Corporation, 407 East Fort Street, Detroit, Mich.

STERN CONNECTIONS

Stern & Company of Hartford, Conn., announce that they have recently renewed their selling agreement with the Colin B. Kennedy Company as exclusive sales agents in the New England states. They have also been appointed distributors in this territory for the Master Radio Corporation of Los Angeles, Cal.

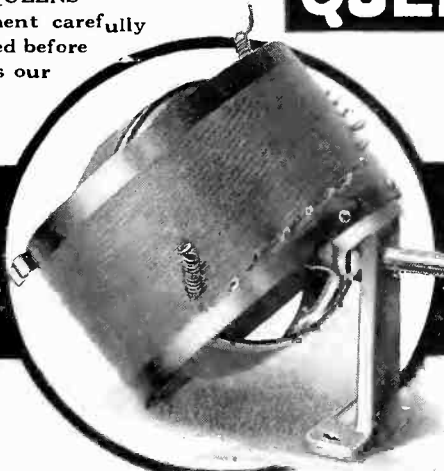
Every QUEENS instrument carefully inspected before it leaves our factory

QUEENS Vario Coupler

The BEST THERE IS!

Not because we say so, but facts prove that Queens Variocouplers are the best to be had regardless of price. They are designed and manufactured by men who have made radio their life work—beginning long before the days of broadcasting. This priceless experience, coupled with huge production have made such a low price possible. The real proof of the efficiency of Queens Variocouplers is comparison. Compare them with any other variocoupler on the market. Examine the fine workmanship and be convinced that what we say of the Queens' is so. None are so good at anywhere near the price of the Queens.

\$5



\$5

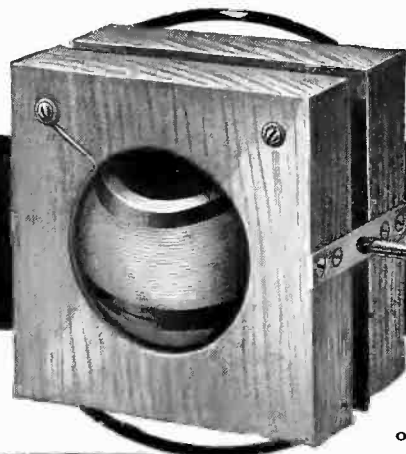
ITS COLLEAGUE,

the variometer, matches the coupler in quality as well as appearance and is an equally efficient instrument. When used together with the coupler, the utmost in clear and distinct reception of speech and code is obtained. Queens Variocouplers and Variometers are perfectly adapted for use in the Armstrong regenerative and super-regenerative circuits.

If you sell Queens instruments, you will retain pleased customers and enjoy good profits. Attractive discounts to dealers and jobbers. Backed by national advertising, these instruments are big sellers. Write today and let us tell you more about ourselves and our instruments. Cash in on big profits with real efficient apparatus. Order your stock of Queens Variocouplers and Variometers today.

QUEENS RADIO COMPANY, Inc.
12A Forest St. Winfield, L. I.

\$5



\$5

Look for our Green Tag of Perfection on every QUEENS instrument

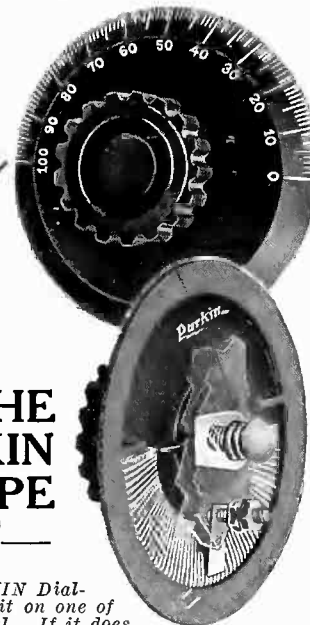
QUEENS Vario Meter

MANUFACTURERS —

Ugly sets don't sell—

The dials on most rheostats will not match the other dials on your panel—the rotation is too great. The dial on the **PARKIN Dial-Type Rheostat** (patented) will match the other dials on your panel—the scale is the same (100 divisions), the rotation is the same (180°), and this is but one of its many superior features. The resistance element is mounted in a recessed groove in the back of the dial *outside the cabinet*. This enables the tube socket to be mounted in the cabinet directly behind the **PARKIN Rheostat**, and gives a host of other important advantages that cannot be secured from any other rheostat. Retail price, \$1.50. See special manufacturers' offer below—

Mt. Tamalpais, California, in the shadow of whose lofty peak **PARKIN Parts** are made.



THE PARKIN DIAL-TYPE RHEOSTAT—

Send us 75 cents for one **PARKIN Dial-Type Rheostat** complete. Mount it on one of your sets and give it a thorough trial. If it does not improve both the appearance and operation of your set, return it to us and we will immediately refund the purchase price.

PARKIN MFG. CO., San Rafael, California



Stop that Snarling Symphony!

The screams and metallic screeches that so often ruin an evening's Radio enjoyment are not all due to "static." The trouble has finally been traced down to its source. And the remedy is simple, easy, almost instant!

A run-down or poorly functioning battery has been found out as the real cause behind "catfits." Unless your storage battery is working right, your Radio won't work right—*can't work right.*

Therefore, it has been proved necessary to make frequent and accurate battery hydrometer tests. This can be done best, most cheaply and satisfactorily with the *guaranteed*



This is the nationally advertised hydrometer, the one you've read about in "The Saturday Evening Post." It sells and sells and sells. It's a mighty satisfying item for Radio dealers to feature and push. Furthermore, the impetus of national advertising is making it sell and sell in larger quantities every day.

Ask about prices, the advertising campaign and window display material. It will interest you from a potential profit angle. Write us now—quickly.

HAFNER MANUFACTURING CO.
3130 Carroll Avenue Chicago, Illinois

75c
Worth Twice
Its Price

RADIO CONCERTS CORACO

America's Greatest Radio Receiver
No Inside or Outside Connections
Room 1805
220 West 42nd St. New York City

RADIO CATALOG No. 54

Now ready
Send for it today

The A. C. Gilbert Company,
Dept. C., New Haven, Conn.

"All-American" Transformers Put You in Tune With Your Trade

By recommending "All-American" Amplifying Transformers (Audio and Radio Frequency), the dealer establishes his reputation as a man who knows Radio and whose judgment is sound and will stimulate his sales on every other Radio product.

Great little business builders, these. Note the workmanlike manner in which we have shielded the new type Audio Frequency Transformer.

Follow the example of leading manufacturers of Radio sets who have adopted "All-American" Transformers as standard equipment and tie to "All-American."

LIST PRICES—SUBJECT TO DISCOUNT

- Type R-10—Radio Frequency—(150-550 Meter).....\$4.50
- Type R-12—Audio Frequency—(Ratio 3 to 1).....4.50
- Type R-13—Audio Frequency—(Ratio 10 to 1).....4.75
- Type R-21—Audio Frequency—(Ratio 5 to 1).....4.75

Liberal Discount. Send for Bulletin 22

RAULAND MFG. CO.
35 So. Dearborn St., Chicago, Ill.



Audio Frequency Transformer



Radio Frequency Transformer

Philadelphia Pointers

By W. B. WILKINSON, JR.

GERACO PARTS

The General Radio Company, of Philadelphia, has recently placed on the market as an addition to their already rather complete line of Geraco products, an audio-frequency transformer of worth. The odd shape of the instrument allows it to fit into a small space. The terminals are well spaced and allow ample room to attach the wires.

The primary and secondary windings are of enameled copper wire carefully insulated from each other so as to admit the use of high plate voltages. The laminations of the magnetic circuit are of highest grade silicon steel securely held by aluminum castings. The winding terminals are entirely concealed and soldered to binding posts of a convenient size, clearly labeled with engraved letters on a polished rubber terminal board.

Another recent addition to the Geraco line is an entirely closed and sealed variometer, made of a special hard rubber compound. A vario-coupler of the same design follows in its footsteps, and enjoys with it the Geraco distinction.

MONARCH VARIOMETERS

The Monarch Radio Company has recently placed in the field a line of variometers and vario-couplers. The variometers are composed of solid mahogany rotors and stators, thoroughly seasoned and kiln-dried, making them warp-proof as well as ornamental. These variometers are equipped with adjustable spring bearings making interrupted contact an absolute impossibility. Another feature of the instrument is the use of patented brass clips, as an innovation over the old binding posts.

Variable condensers and vario-couplers are also manufactured by this concern, and all bear an absolute guarantee of satisfaction by the makers.

MP RECEIVERS

The Motor Parts Company, of North Broad Street, one of the first concerns to enter the Philadelphia radio field, are producing many types of high class radio frequency sets, of box-cabinet, suitcase, and phonograph cabinet types.

The MP type V, or radio Grand model, contains all the necessary equipment, including batteries, indoor loop, and loud speaker, in a modern, artistically designed phonograph cabinet. All MP types are constructed for

THIS IS A RADIO CHRISTMAS!

use with a loop aerial. The concern created a great amount of interest at the Radio Show in October when two men carried a complete set through the crowd giving perfect reception at all times.

EXIDE "B" BATTERY

The Electric Storage Battery Company are marketing a radio "B" battery of worth which has several unusual characteristics. The battery is composed of twelve glass tubes, each filled with a jelly-like electrolyte. The positive and negative plates are immersed in this electrolyte, insulated from each other by a rubber separator, and may be inspected at any time through the glass tubes. These plates are necessarily small, but the grids are cast as carefully in this battery as they are in the larger and more rugged automobile batteries which have been the product of this concern for years.

The battery is packed fully charged, and the only attention it requires is refilling when exhausted, and the occasional addition of a few drops of distilled water to keep the electrolyte moist.

PRAMCO DETECTOR

The Premier Radio Manufacturing Company, of Berks street, are manufacturing a crystal detector with two crystal cups. The advantage of this detector is that it allows the testing of two different minerals under the identical conditions of reception, as the adjustment may be changed instantaneously from one to the other. The Premier Company has been specializing since 1919 in smaller parts for radio sets, including binding posts, switch knobs, switch levers, nickel-plated screws, and in short, every part needed for mounting a crystal set.

HARMONY SETS

The Harmony Mfg. Company, of 1423 Blum street, Cincinnati, Ohio, have standardized on radio frequency receiving sets, each consisting of radio frequency amplification, detector and two stages of audio frequency amplification.

Four distinct models are described in a circular recently issued. Model one is for use with both loop and outside aeriels, model 1-A for loop reception only. Model RV is a combination of Victrola and radio set, with many styles and finishes on the specially designed cabinets. Model VC can be built into a Victrola cabinet. All the models have cabinets made from American walnut and are polished with a wax or varnish finish.

ATTENTION! DEALERS



A Salesroom in
New York for a
Dollar a Day

Do Your Buying at

THE PERMANENT RADIO FAIR

HOTEL IMPERIAL - 32nd St. and Broadway

Buyers-Dealers-Radio Department Managers

Only Products of Representative Manufacturers are on display and demonstrations will be given of any of the exhibits.

Over 75 of the leading manufacturers now exhibited and space is being filled very rapidly—Call or Wire for Space.

M.P.M.
MILLION POINT MINERAL
The World's Greatest Radio Crystal

Nationally Advertised

A Supersensitive Crystal that greatly increases radius and improves audibility.

Concerts heard over six hundred miles with M. P. M. Crystal.

Write for Attractive Dealers' Proposition

M.P.M. SALES COMPANY

Dept. RD

247 So. Central

Los Angeles



DECEMBER SPECIALS

Standard Radio Jacks

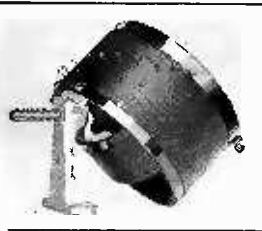
Single Open - - .17
 Single Closed - .26
 Double - - - - .28

Rheostats - Tapered Knob
 Perfect Contact

24c

*Hundred Lots—C. O. D.
 Write for complete list
 of Christmas Specials.*

Harold M. Schwab, Inc.
 419 West 42nd Street
 New York City



**Shamrock
 180°
 Vario
 Coupler**
 Retail Price
\$4.50

Both Tubes Are Made of
BAKELITE
 Distributors, Jobber and Dealers Write for
 ATTRACTIVE DISCOUNTS
SHAMROCK RADIO CO.
 152 Sussex Ave., Dept. T, Newark, N. J.

**Whirco Square
 Tinned Bus Wire**

In 2 Feet Lengths or in Hundred to Thousand Pound Lots Quoted.

Shipments F. O. B. Mill

WHITE RADIO CO.
 123 East 23rd Street
 New York City

**THE PARAMOUNT
 ENGRAVING MACHINE
 for Radio Panels**

Greatest Production—Lowest in Price
PARAMOUNT MACHINE CO.
 207 Market Street Newark, N. J.

BUNTING'S CONDENSER

The Bunting Stamp Company of Pittsburgh, Pa., announces the perfecting of a variable condenser known as Bunting's variable condenser, ranging from .00009 mfd. to .0025 mfd. It is designed to provide a means for tuning out stations not desired at a minimum cost.

The principle of the condenser is one fixed copper disc insulated by a thin disc of clear mica. The movable disc is controlled by a threaded stem and nut and requires three complete turns to move the plate or disc three-sixteenths of an inch. The movable plate is held rigid by springs to guide its motion perpendicularly and true.

AIRVIA RADIO

The Fischer Radio Company, of Philadelphia, are producing a line of radio products under the trade name of Airvia which have met with success. Among the many features of their line are the Fischer triple-O-five condensers, furnished either with dial attached or fully mounted in a shielded case.

The features of this condenser are a soldered pig-tail spring connection to the rotary plates, and the absolute straight line curve showing an even change of capacity throughout. Single and multi-tube sockets, rheostats, audio-frequency transformers, and a two-stage amplifier unit, are also included in the Airvia line.

LISTS RADIO SPECIALTIES

A catalogue listing many radio specialties of tried value has recently been issued by the Aldine Radio & Manufacturing Co., of Chicago, Ill. The last pages of the publication are full of plans showing various hook-ups with Aldine equipment.

Among the specialties listed in the Micr-O-Phone listener-in, a device which permits the use of six receiving head sets with one phone. It is made of aluminum, highly polished. Another specialty is a compact little crystal set with aluminum body. The Aldine company are agents for Dictograph radio products.

PENN HEADSET

The Penn Headset Company, of Philadelphia, have placed on the market a laboratory-built headset which is comparable to the best on the market. A feature of the instrument is that it is extremely light, weighing but twelve ounces, and the ear caps have been especially designed for comfort. The head-band is covered with genuine leather, and is self-adjusted. The company is aiming to produce quality rather than quantity.



**CRYSTAL RECTIFIER
 MULTIPOINT (Patent Pending)**

**A synthetic CRYSTAL DETECTOR
 sensitive over its entire surface**

Eliminates all detector troubles.
 50% increase in clearness and volume.
 Endorsed by Radio experts and press.
 Awarded certificates of excellency.
 Sets a new standard of efficiency.

List price mounted
 Every package sealed **50c**

Dealers and Distributors quoted
 Attractive Discounts

RUSONITE PRODUCTS CORP.

15 Park Row, N. Y. Room 2004

THORNTON

**AUDIO FREQUENCY
 AMPLIFYING TRANSFORMERS**

Supreme Test Transformer

These transformers are supplied in either mounted or unmounted types.
Special attention paid to the manufacturer of receiving sets.

**THORNTON
 TRANSFORMER CO., Inc.**

30 Church Street, New York City

Ask Our Service Bureau



Essex 150-600 meter
 180° vario-coupler with
 3" molded dial.
 Price \$1.25 each
 Essex square turned
 bus wire 2 foot lengths
 \$1.00 hundred feet
ESSEX MANUFACTURING CO.
 117 Mulberry St.,
 Newark, N. J.

PATENTS

**ELECTRICAL MECHANICAL
 RADIO**

**SEND SKETCH AND DESCRIPTION
 FOR OPINION**

EMIL ALEXANDER KERN
 328 SOUTH SEVENTH STREET
 NEWARK, N. J.

Buy Apparatus

From a Reliable Manufacturer

FREED-EISEMANN RADIO CORP.
 255 Fourth Ave., New York City

American

Radio & Electric Co.

1133 Broadway New York City

**WRITE FOR OUR CATALOG
 JUST OFF THE PRESS**

**M-R FLEXIBLE VARNISHED TUBING
 THE GENUINE**

“SPAGHETTI”
 TWO STYLES—BEST GRADES MADE—ALL
 SIZES—ALL COLORS

Varnishes, Waxes, Compounds, Papers, etc.
MITCHELL-RAND MFG. CO.
 14 VESEY STREET NEW YORK, N. Y.

THIS IS A RADIO CHRISTMAS!

Dealers Should Push Advertised Goods

(Continued from page 34)

his goods in some unavoidable way get into the hands of these professional cut-rate dealers, he should investigate how they came into their hands and should immediately refuse to sell to the guilty parties again. All his dealers should be compelled to maintain the price he sets on his apparatus, with the exception of an occasional sale, and in these cases the lower prices should not be very much, depending on the price of the article.

It is understood, of course, that in setting his price originally the manufacturer has carefully considered the quality of the article and its competition, together with liberal discounts to the dealer. In this way he himself will have started a concrete foundation to eliminate cut-prices, and at the same time protect his dealers.

The manufacturer should keep his dealers constantly informed of his advertising schedule, advising the dealer of the media used and, where possible, furnish reprints of the advertisements themselves before they appear for publication, so the dealer may give them display either in his store or on his windows.

The manufacturer should be most careful that his advertisements do not contain false statements about his products. He should not bluff in his copy, but always adhere to facts. In this way only can he truthfully expect the dealer to push his goods. The manufacturer additionally should not overlook to assist his dealer with other advertising material, such as window displays, store hangers, counter cards, pamphlets, etc.

Where possible, the manufacturer's salesman should assist the dealer in making his window display and lend a hand or a suggestion, and wherever the opportunity presents itself place a store hanger here or there or paste a reprint of an ad on the dealer's window. In short, the manufacturer's salesman should have his eye constantly ready to assist the dealer in every way possible, even stepping a little out of his way occasionally to make a sale for his dealer. He should bear in mind that every sale the dealer makes is money in his pocket also.

With proper co-operation of the manufacturer and the dealer the road of tough sales resistance will be greatly smoothed and the dealer and the manufacturer will be closer related and both will be happy and radio given a lift.

Milliken Radio Towers

These towers were the pioneers in the development of the wireless—and have kept pace with progress. Now used at principal stations under the most exacting service. Of galvanized steel, self-supporting, standard types and heights.

AGENTS WANTED

We have an attractive proposition for agents—full information upon request.

Send for Complete Catalog

**MILLIKEN BROTHERS
MFG. CO., INC.**
Woolworth Building
New York, N. Y.

STATION WVP

STATION WBZ

STATION 2XJ

It Pays to Sell "United" Radio Products

They are scientifically correct in proportion and design. They are made from the best materials in a careful, workmanlike way. And, like a famous cigarette,

"They Satisfy"

Buyers swear by them, not at them. Every user becomes a booster. And that means a lot in the freemasonry of radio.

United Variable Condensers with Vernier Scale Attachment, Made of Hard Aluminum with Bakelite ends. The only Vernier with a stop.

46 plate	\$6.50	} Complete like cut
26 plate	5.50	

United Variable Condensers (Plain)

43 plate	\$4.50	5 plate	\$2.75
23 plate	4.00	3 plate	2.25
11 plate	3.50	Without dial or knob	



"United" Transformers

Audio-frequency, amplifying, magnetically shielded. A beautiful piece of workmanship. Gives loud, clear signals without howl or distortion.

Best Value on the Market \$4.50

"United" Products

have been adopted as standard equipment by leaders in the radio industries. Their endorsement and continued patronage carry more weight than all the advertisements that were ever written.

Send for circular.

UNITED MFG. & DISTRIBUTING CO.

536 Lake Shore Drive

Chicago, Ill.



Pat. Appd. For

Vital Points in the Radio Business

(Continued from page 35)

ment, and a general technical knowledge of its operation. It is true that some results can be obtained with practically no knowledge, but take a comparison with the sports of fishing and also photography. Successful fishing requires considerable experience which anyone can obtain. To those who attain it, it is a constant source of enjoyment.

The use of radio equipment, especially for long distance work, can be very well compared to fishing in the air. One cannot see what is to be caught, but it is known that there is a good deal to catch, and the fascination of radio work with these conditions, is as great as fishing, if not more so, on account of the number of people who can enjoy the benefits of one equipment.

The benefits of radio to the electrical trade are more far-reaching than is usually considered. There is no art which can possibly give to the public a greater insight into science than the study of that unseen force, radio.

Hitherto public acquaintance with electricity has been solely that it accomplishes in their homes certain benefits and functions such as lighting and heating, in an improved manner. There has been nothing in these which brought about an inquisitive state of mind on the part of the public in regard to the electricity. Radio, however, cannot help but do so. With the better knowledge and keener minds that result the future of electricity will be immensely assisted.

AUTOVOIX AMPLIFIER

The Autovoix, an amplifier produced by the Autovoix Company of Baltimore, Md., is a new loud speaker of the metal horn type for which its manufacturers claim many advantages over similar types now on the market.

It is built on the new lever principle and carries a large magnetic field in which the armature is suspended. It does not require a storage battery in its operation, nor does it require adjustment or attention after being installed.

The Autovoix is a power-operated instrument and is said to require a minimum amount of current for a given amount of volume—the volume being in proportion to the input power. The range has been highly developed and it is said to render the lowest and highest notes in their true tones and to produce volume in its true value.

DIAMANT VARIABLE CONDENSERS AND CRYSTAL DETECTORS

Electrically and Mechanically Guaranteed
Diamant Tool & Mfg. Co., Inc.
93 Runyon Street Newark, N. J.

COTOCO

MYERS DUBILIER BALDWIN
RADIIUM LOOPS—HOWARD, ERLA, BRANDES
DEALERS: Write for discounts
Hudson-Ross, 123 W. Madison St., Chicago

VIKING RADIO COMPANY

WE MANUFACTURE:
VIKING VERNIER CONDENSER
VIKING VARIO-COUPLER (800 M.)
WE DISTRIBUTE:
CHAS. FRESHMAN CO. Products
ALDEN-NAPIER CO. Products
IDEAL VARIABLE CONDENSERS
26-D Cortlandt St. New York City

RADI-UN LOOP AERIALS

Dealers: Write for Discounts
HUDSON-ROSS
123 W. Madison St. Chicago

FOR SALE: Manufacturer operating to capacity on other lines, will sell high class tools, parts and complete condensers and detectors. Write UNITED SERVICE ADVERTISING, 222 Market St., Newark, N. J.

Gould

Radio "A" and "B" Batteries

Write for Dealer Plan
Gould Storage Battery Co.
30 East 42d St., New York City

Fine Cuts for Illustrating CENTRAL ELECTROTYPE FOUNDRY COMPANY

Electrotyping and Engravings
9 Campbell Street Newark, N. J.
Telephone: Mulberry 1698

MYERS TUBES

Dealers: Write for Discounts
HUDSON - ROSS
123 W. Madison St. Chicago

FREE Radio Catalog



Our big stock of standard makes of radio sets, parts and supplies, fully illustrated. Play safe—buy standard equipment from a reliable house. We ship from stock.

Send \$9.00 for sample high grade crystal detector outfit with variometer in large case. Sells for \$18.00.

JULIUS ANDRAE & SONS CO.
In Business Since 1860
114 Michigan St. Milwaukee, Wis.

Have Outlet For
SURPLUS STOCKS
Radio Supplies
Price and Goods Must Be Right
P. D. Jackson, 1441 So. State, Chicago

RADION HARD RUBBER PANELS
Cut to Any Size
DISCS, WASHERS, BUSHINGS, ETC.
Made to Order
New York Hard Rubber Turning Co.
212 Centre Street, N. Y. C.

RHEOSTATS
and Other
STANDARD PARTS
FOR TUBE and CRYSTAL SETS
Dealers: Write for Price List and Proposition.
The Radiola Wireless Corp.
208 W. 17th St. New York City

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your ideas. Protect your rights by U. S. and Foreign Patents and Trade-Marks. Moderate rates. CALL, WRITE or send us your invention.
May one of our representatives call on you?
FREE CONSULTATION
Phone: Vanderbilt 7212.
ASK MANUFACTURERS PATENT CO.
FOR 520 FIFTH AVE NEW YORK

KRAMER RADIO COMPANY
4713 Sheridan Road, CHICAGO, ILL.
MIDWEST DISTRIBUTORS
Of Quality Radio Products
Write Us for Catalog and Discounts

JOY-KELSEY CORPORATION
Manufacturers
RADIO EQUIPMENT
4021 West Kinzie St. Chicago Ill.

WHY BE SATISFIED
With Single Surface Crystals
CONTAINA SETTING
(Patent Pending)
Makes Maximum Sensitive Area Available
Awarded Evening Mail Certificate of Excellence
CURTIS G. CULIN
366 Broadway New York City

"EDGCO" RADIO PRODUCTS
Radio Highest grade Radio equipment and supplies at Bargains prices to astonish you. Leading advertised brands in every line.
Write for Price List Today
The EDW. J. GOETZ CO., 608 Race St., Cincinnati, O.

EVEREADY
RADIO "A" BATTERY
Immediate Delivery from Stock
- Manhattan
Storage Battery Co., Inc.
511 West 50th Street
New York City

THIS IS A RADIO CHRISTMAS!

Test Specifications for Radio Receivers

(Continued from page 36)

or copper tubing, supports being provided inside the tube for spacing of the conductors relative to themselves and to the shield tubing. The success with which the shielding of the system against extraneous voltage has been accomplished can quite easily be observed by the rotation of the receiver coupling coil to a position in which the signal is a minimum, and if proper care has been taken, a position can be found in which the signal completely disappears. If this is not the fact, examination of the shielding system must be made and further care taken in the proper shielding of the entire device until the position of "o" signal is possible.

The calibration of the coupling coils for mutual inductance against their position relative to one another must then be made and a determination of the resistance of the receiver coupling coils must be made at the several frequencies at which measurement is to be made. With this given data, it is then possible to calculate the voltage induced in the receiver coupling coil for any position of that coil relative to the generator coupling coil and for any current in the coupling coil, and with the resistance of the coupling coil known, it is then possible to insert sufficient resistance in the phantom antenna circuit to make the total resistance that of the standard novice antenna.

The measurements may be made with any convenient value of the voltage induced in the antenna circuit, and all measurements made with this same voltage would then be comparable; or if a greater precision is required, several voltages may be used corresponding to weak and loud signals and the change of the receiver characteristics noted with change in signal strength. The values which have been used at the Bureau of Standards will be made available very shortly and these can be used in these tests as will be desirable. On these tests the manipulation for measurement consists merely in putting the generator into operation in measuring the current in the generator coupling coil, and from this and the calibration of the coupling system calculated in the voltage induced in the receiver coupling coil. This then is our in-put voltage.

The receiver is then tuned as carefully as possible to resonance with the in-put voltage, this condition being noted by maximum signals in the telephones. The telephones are then

DELICATE SOLDERING

Both the manufacturers' and amateurs' problem on all fine work is readily solved by the instrument constructed for this particular purpose.

THE POST SOLDERING IRON

Platinum Heating Unit—Interchangeable Tip—Universal Current



One Half Actual Size

LISTS AT \$6.00

Dealers' and Jobbers' discounts on request

Awarded Certificate of Excellency, N. Y. Evening Mail Radio Institute

POST ELECTRIC COMPANY, (Office 505) 39 E. 42nd St., New York

Standard Special Crystals



The Crystal in the Little Red Box

Every Standard Special Crystal is packed in a red tin box which is stamped with the words "STANDARD SPECIAL CRYSTAL." This is your assurance that the crystal you buy has been actually tested on the Radio waves. Every Standard Special Crystal is specially treated and will therefore give better and longer service than the ordinary kind. Every one is absolutely guaranteed.

STANDARD CRYSTAL CO.

274-A Halsey St.

NEWARK, N. J.

Canadian Agents: Sterling Specialties
213 Somerset Building, Winnipeg, Man., Canada

Western Representative: Engineering Sales Company, 220 North State St., Chicago, Ill.



Retail Price—\$4.50

Approved by Santa Claus



KNOCK-DOWN RADIO RECEIVING SET

Contains all high grade parts of WINCO manufacture.

Neatly packed in an attractive hinged cover box. Makes a wonderful display. All parts firmly attached to box and will not loosen in shipping. Complete blue printed diagram for assembly included.

We are manufacturers of high grade Radio equipment and supplies, also metal stampings, tools and screw machine products.

Can make immediate delivery on double slide tuning coils which retail at \$3.00 each and complete receiving sets which retail at \$8.00 each.

Liberal Discounts to Distributors and Jobbers

(Established 1871)

CHARLES WINKLER, INC., 178-182 Emmett St., Newark, N.J.



Galena Crystal, Mounted.....35c
Galena Crystal, Unmounted.....25c
IMMEDIATE DELIVERY



Manufacturers, Jobbers, Dealers
write for quantity prices

GALENA CRYSTAL MFG. CO.
2893 Fulton St. Brooklyn, N. Y.

NEW SUPER SENSITIVE RECEIVER

See Page 863 November Issue
RADIO NEWS

We understand you are having a great many calls from customers for *SPIDER WEB COILS* for this set. This hook-up is a wonder and you can sell the necessary parts for same.

We are prepared to furnish the two *SPIDER WEB INDUCTANCES COMPLETE WITH MOUNTING* at \$3.75, list less 40%.

Orange Research Laboratories
41 N. 16th St., East Orange, N. J.

AGENTS

Our established quality rewards your effort with liberal commissions ever on large orders. "Triple-test" multimount crystals and "Triple-tone" special gold alloy cat-whiskers are today the best sellers to jobbers and retailers. High priced, but unequaled in quality and sales helps. Repeat orders insured. State territory you want.

FOOTE MINERAL CO., Inc.
107 N. 19th St., Philadelphia, Pa.
Established Forty-seven Years

IMMEDIATE DELIVERY

CABINETS—		PANELS—	
Imitation any or	Mahog-Flemish	Genuine	Formica,
Oak Finish		3/16" thick	
6 x 7 x 10		6 x 10 1/2	
6 x 7 x 13 1/2		6 x 14	
6 x 7 x 20 1/2		6 x 21	

Other Sizes to Order

COMPLETE RECEIVING SETS

Jobbers and Dealers
Get Our Discounts

THE MIHO COMPANY

8 East Third St. Cincinnati, Ohio

COMPOSITION

LIST PRICE

DIALS 50^c DIALS

Adjustable Switchlevers
Knobs

NEW YORK RADIO-DIAL CO.

316 Holden Bldg., Detroit, Mich.

alternately connected to the receiver and to the potentiometer, the voltage being applied by the potentiometer having varied until signals in either position of the switch are equal. The value of the telephone voltage under this condition is then noted. The ratio of this latter voltage to the in-pu-t voltage is then the sensibility of the receiver.

Selectivity Determination

It has been found advisable to define selectivity arbitrarily as follows: If the receiver is set up as described above and is excited by a voltage in the antenna circuit with a resultant signal in the telephones, and if then the generator is detuned from the receiver, or the receiver detuned from the generator, the magnitude of the voltage induced by the generator being maintained constant and the value of the telephone signal voltage on the resonant and non-resonant wave lengths or frequencies having been observed, the selectivity may be defined as

$$\sqrt{\frac{E_r + E_o}{E_r} \frac{\lambda^2 r + \lambda^2 o}{\lambda r}}$$

where E_r is the telephone voltage when the receiver and generator are of the same frequency or wave length; where E_o is the telephone voltage when the receiver and generator are not of the same wave length and frequency; where λr is the wave length at which both receiver and generator are resonant, and where λo is the wave length at which the receiver and generator are not resonant.

This arbitrary definition has been found advisable since it results in a value for selectivity having the dimensions of the reciprocal of the power factor, and therefore allows the formulation of the equivalent ideal single circuit receiver, such an ideal receiver being one in which the detector and indicator are loss-free and its power factor is the reciprocal of the selectivity of the receiver under test.

The manipulation in the selectivity determination is identical with that described above, with the exception that two measurements of telephone voltage are made, one at resonance between the receiver and the generator, and one out of resonance between the receiver and generator, the wave length of the generator or receiver being noted for these two conditions. The selectivity is then given by the substitution of these values of tele-



The Radio Set you were waiting for. Crystal Detector and two-stage amplifier with loud speaker, consisting of horn and Baldwin phone; list price, \$75.00. Long distance stations were received on this set. Everything in radio supplies. The U. S. Eagle crystals positively the best on the market.

Write for Prices

U. S. Radio Co. of Penna., Inc.
Pittsburgh, Pa.

The Comet Battery Co.

Manufacturers

Radio "B" Batteries

Cleveland, Ohio

Chaslyn "Sink or Swim" Ball Battery Testers Are Whirlwind Sellers

This clever little \$1.00 set catches the fancy and appeals to the good sense of everyone who hears about it.

Three balls of different colors and specific gravities tell the condition of the electrolyte instantly by the manner in which they sink or swim.

Depth Tester shows amount of acid over the plates.

Air-controlled filling stopper makes adding distilled water easy.

Special Offer. We will send TWO complete sets to any dealer writing on his stationery for \$1.00. This is below wholesale price. Only one sale of this kind to any dealer.

THE CHASLYN COMPANY
4323 Kenmore Ave., Chicago



We Specialize in

**Brass Rod and Tubing
Sheet Copper, Aerial Wire
and Binding Posts**

McKenna Brass and Mfg. Co.

First Ave. and Ross St., Pittsburgh, Pa.

'Phone, Court 637

RADIO MAILING LISTS

10,975 Radio Dealers, covering U. S. by States.	Per M.	\$7.50
1,320 Radio Manufacturers, covering U. S. by States.	Per list.	12.50
1,325 Radio Supply Jobbers, covering U. S. by States.	Per list.	12.50
260 Radio Stations.	Per list.	4.00
257 Mfrs. who make and assemble complete Radio Sets.	Per list.	4.00
25,000 Radio Amateurs and Managers of Radio Stations.	Per M.	7.50
20 Radio Manufacturers in Canada.	Per list	1.50
87 Radio Supply Jobbers in Canada.	Per list	2.50
131 Retail Radio Dealers in Canada.	Per list	3.00
125 Mfrs. and Jobbers and Retail Dealers.	England. Per list.	4.00

Ready to send on receipt of Remittance.
TRADE CIRCULAR ADDRESSING CO.
166 W. ADAMS STREET, CHICAGO, ILL.

THIS IS A RADIO CHRISTMAS!

phone voltage and wave length in the above expression.

Determination of Distortion

It was agreed that for the present we must content ourselves with the determination of the distortion which results from the use of audio frequency amplifiers since there is no method available for the quantitative determination of distortion which may take place in the radio frequency circuits of receiving equipment. It was suggested that the most feasible means for determining the degree in which distortion takes place is the determination of the voltage amplification of the amplifier over a wide range in the audio frequencies, the in-put and out-put impedances being maintained approximately those met with in practice.

The method suggested for this consists of the application of a known voltage of known frequency to the grid of the in-put tube of the amplifier and the determination of the resultant output voltage at the telephones, the potentiometer method described above being used for the determination of both these voltages. With the voltage amplification determined over the range of frequencies between 100 and 2000 cycles, a plot of voltage amplification against frequency is then made and a simple calculation from this plot gives the degree of distortion. Such plots will undoubtedly indicate peaks at which the amplification is a maximum or will at least show a reasonably wide variation of amplification with frequency, and it is felt that if the ratio of maximum amplification to the mean amplification throughout the range in which the measurements are made is a reasonable measure of the distortion which will result from the amplifier.

Heat Resistance and Vibration Tests

It was deemed necessary to provide a test for heat resistance for the purpose of revealing the use of low grade moulding compounds, and to prevent the sets used in warm climates from being injured by heat. It was decided that every set should be subjected to 150 degrees Fahrenheit for two hours.

It was further decided that every set should be subjected to a Navy type vibration table. The time when different parts of the set broke down should be noted.

PRICES OBTAINED

Retailers and jobbers who are interested in receiving prices from manufacturers are invited to address THE RADIO DEALER SERVICE BUREAU, 1133 Broadway, New York City, which makes no charge for its services.

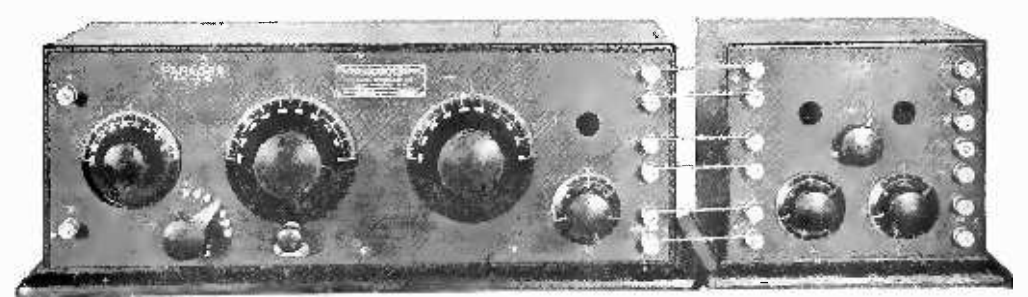
LATEST and MOST POPULAR

Radio Books

Radio Hook-Ups, by M. B. Sleeper.....	\$.75
An indispensable book to the radio amateur who designs or builds his own receiving apparatus.	
Radio Design Data, by M. B. Sleeper.....	.75
A book giving tables and data for designing receiving and transmitting apparatus.	
Construction of New Type Trans-Atlantic Receiving Set, by M. B. Sleeper.....	.75
Tells how to listen to the high-power telegraph stations of foreign countries.	
Construction of Radiophone and Telegraph Receivers for Beginners, by M. B. Sleeper75
Tells in detail the building of radio apparatus.	
How to Make Commercial Type Radio Apparatus, by M. B. Sleeper.....	.75
Describes in detail many commercial types of transmitting spark and vacuum tube sets, both telephone and telegraph and receiving equipment of all kinds.	
Wireless Telegraphy and Telephony Simply Explained, by A. P. Morgan.....	1.50
A book the Radio experimenter cannot afford to be without.	
Experimental Wireless Stations, by P. E. Edelman.....	3.00
A book describing all modern improvements.	
A B C of Vacuum Tubes Used in Radio Reception, by E. H. Lewis.....	1.00
A book explaining in detail all about vacuum tubes.	
Ideas for the Radio Experimenter's Laboratory, by M. B. Sleeper.....	.75
This is a book the wireless experimenter, amateur, or layman cannot afford to be without.	
Radio Experimenter's Hand Book, by M. B. Sleeper.....	1.00
It tells in clear concise language the principles underlying radio theory, and then goes into the operation of wireless sets, showing simple hook-ups and explaining the theory on which they work.	

FREE! Catalogue of Wireless, Automobile and Other Books Sent Free on Request

The Norman W. Henley Publishing Co.
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Liberal Discount to Supply Houses. Write for full particulars and dealer's proposition



R-D-5 Tuner \$75 PARAGON A-2 Two-step Amplifier \$50

Wave length 510 meters. Same circuit as in R-A-10-1000 meters with the same finish and workmanship. Very selective. Get your order in now. Best service and discounts.

E. M. WILSON & CO., 11 Lafayette St., NEWARK, N. J.

Ask Cur Service Bureau

For CORRECT RADIO MAILING LISTS Use THE POCKET LIST

Of Radio Manufacturers, Jobbers and Dealers in the United States and Canada. Issued quarterly—January, April, July and October. October, 1922, issue corrected to September 15th, 1922. Classified under three different headings—Manufacturers, Jobbers and Dealers—and alphabetically arranged by states, cities, towns and names of firms. Containing over 15,000 names and addresses.

We have been exceptionally careful to see to it that every manufacturer, jobber and dealer is listed and, under the PROPER CLASSIFICATION. Most mailing list concerns charge more than \$100 for a list of this kind, and, as a rule, those supplied are far from being correct. Compare this list with any other and you will find it to be the very best obtainable anywhere at any price.

October number ready for distribution September 25th. Price \$5.00 per copy or \$10.00 per year (four issues, including monthly supplements which keep the list absolutely correct and up to date at all times). October edition limited, send in your order with remittance today.

1021 Carrington Street **F. D. PICKENS** JANESVILLE, WISCONSIN

"COPPERWELD"
TRADE MARK REG. U.S. PAT. OFF.

ANTENNA WIRE
 50% stronger than either solid or stranded copper

ELIMINATES SAGGING
 Adopted by Largest Radio Manufacturers
 100, 150, 200 ft. per Carton

LEAD-IN and GROUND WIRE
 has the Underwriters' O. K.
 Rubber Insulated—Brown Braid
 25, 50, 100 ft. per Carton

BUY IT IN CARTONS
 with construction directions

COPPER CLAD STEEL COMPANY
 New York Chicago
 Braddock P. O., Rankin, Pa.

XMAS PRESENTS
 FOR BOYS AND GIRLS]

CRYSTAL SET
 "The Little Wonder" \$1.75
 Unassembled - Net

Catches distinctly everything broadcast within 30 miles. We also manufacture the "Little Wonder" assembled set to retail at \$4.00.

GUARANTEED TESTED CRYSTALS
 Galena 7½c Radiosite 8½c

SEND FOR FREE CATALOG
 It lists all our radio parts and supplies.

Holloway Elec. Supply Co., Inc.
 238 Third Ave. New York City

Radio Cabinets

Made to your specifications in any quantity, style, wood, or finish. Submit specifications for quotation.

Standard models, all common sizes, in Mahogany, Walnut, and Quarter-sawed Oak. Descriptive material and prices on application.

Better Cabinets
 for
 Manufacturers and the Trade at Large

MARVIN B. FALLGATTER
 Waupaca Wisconsin

Make It a Radio Christmas This Year

(Continued from page 38)

Each ribbon leading from the set was attached to its appropriate explanation on the card. The man who designed the window was careful to make his statements in the simplest language he could muster and avoided as far as he could any technical words. Thus the ribbon leading from the variable condenser said: "This makes the sound waves steady and of equal strength and is called a variable condenser." The last line on the card read: "Radio is fascinating and simple."

So many other window displays suggest themselves that one wonders why some men who call themselves radio dealers feel inclined to resort to a mere piling up of parts in their windows. This confuses the average buyer and a sale is lost. Other themes, such as "Your boy wants a radio set," "Can you start a radio club," "A concert every night in your home," "Radio radiates cheer," and "Do you know how simple radio is?" are suitable for exposition in your best window. You may even stir newspaper comment, and free publicity, by having your window express the spirit of the season. A radio display with idea of showing that "Peace hath her victories no less renowned than War" would be a tribute both to radio and quality of your window settings. It would be sure to get a notice in your town paper.

The day after Christmas is just as much a part of the season's business as the day before, and the active dealer should take part in the profits from those who have delayed buying gifts or have received a present in cash. The boy who is looking where to spend his cash present will step into your store if you have a window display arranged with the idea, "Now you can get that radio set."

The father who is in a mellow mood during the holiday period will translate that mellowness into action, when he learns how fine it would be for the family to have a radio set. Sales at any season arise from the use of imagination in merchandising. It is particularly effective when used during the period generally referred to as the Christmas season.

Of course it is realized that everywhere with the possible exception of the larger cities, the radio dealer will not fail to make use of daily and weekly newspaper advertising, for this is a method of attracting attention to the merchandise he has to sell

DEALERS!

If the Holiday Sales have depleted your stock—reorder now for mid-winter sales. Prompt deliveries are absolutely guaranteed—and our discounts are the most liberal.

We Are Jobbers For
 Grebe Receiving Sets
 Federal, Fada and
 Radio Shop Products
 Murdock Products
 Baldwin Phones

Write For Our Special Proposition "Z"

THE RADIO SHOP
 —OF NEWARK—
 76 SPRINGFIELD AVENUE
 NEWARK, N. J.



T-B-H PHONES
SPEAK FOR THEMSELVES
 Pure Natural Tones, Light Weight
 Ornamental Appearance

A Sturdy Reliable Head Set That Will Sell and Stay Sold

Let us send a sample set for your inspection
 List \$7.00
 Substantial Discounts to Jobbers and Dealers
 T. B. H. CORPORATION, Dansville, N. Y., U. S. A.

"SAMCO"
RADIO PRODUCTS
 of **QUALITY**

VARIABLE CONDENSERS

			List Price
11	Plate .00025	M. F. Capacity	\$2.25
23	" .0005	" " "	2.85
43	" .001	" " "	3.60
63	" .0015	" " "	5.50

RHEOSTATS 6 Ohms List \$1.00
POTENTIOMETERS, 300 Ohms 1.75
INDUCTANCE SWITCHES .50
VERNIER DIAL ATTACHMENTS .50

We Have a Special Proposition to DEALERS and DISTRIBUTORS
 Samples sent Postpaid upon receipt of price
STANDARD APPLIANCE MFG. CORP.
 428 East 71st St., New York City

THIS IS A RADIO CHRISTMAS!

and permits him to bring his message directly before those he cannot reach in any other manner. It gives the dealer the opportunity of driving home certain facts that must be impressed on the ordinary prospective buyer of radio equipment before he will make a purchase, such as the safety, simplicity and ease of installation and operation of a radio set. It also permits the dealer to explain that technical knowledge is not essential and that a set that will give much pleasure and enjoyment can be bought for a modest price. This publicity accompanied by the thought that "This is a radio Christmas" cannot help but make the season a profitable one for the dealer who makes a real effort to instil the spirit of radio and Christmas into the minds of his prospective customers.

How to Determine Manufacturing Costs

(Continued from page 39)

The other insists that depreciation is of two kinds, one caused by the friction of turning wheels when the article is being manufactured, and the other goes on all the time. The latter form of depreciation is caused by heat and cold, damp weather and dry; hit by accident from outside sources; neglect to keep in repair, or oiled; unintelligent labor; and because this is going on all the time, and because it is impossible to separate the degree of one from the other, the capital invested should suffer and not the manufacturing costs. Accountants are inclined to accept this view, and to consider depreciation as much a cost of financing the business as some other items that will be mentioned when that subject is taken up.

Then comes Commercial Expenses, which consist of the classes of expenses mentioned above. First, there are the expenses of receiving and shipping; as expressage to customers, parcel postage, packing materials, labor of shipping clerks, and cost of upkeep of horses, trucks and automobiles.

Selling Expenses consist of salesmen's salaries and traveling expenses, advertising, commissions paid to salesmen, etc.

Administrative Expenses consist of salaries of office clerks, typists and bookkeepers, stationery, postage, telephone and all expenses required to administer the business from the executive end.

Cost of Financing the Business consists of all expenses incurred to protect capital, or due to lack of sufficient capital.

QUALITY and RESULTS

Remember last winter when anything that looked like radio apparatus had a ready sale? Remember how much of it only "looked like" radio? Remember how many "comebacks" you had on this inferior material and apparatus? Remember how many good customers you lost through sale of unsatisfactory goods? Wouldn't you be interested in handling a line which will sell itself, and produce no "business worries?"

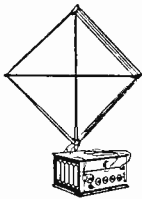


Audio Frequency
Price \$6.50



Radio Frequency
Price \$7.50

The quality, operation, and appearance of the J. T. Boone Mfg. Co.'s Radio and Audio Frequency Transformers is setting a new standard. The Radio Frequency type is a real "range producer," while the Audio type assures powerful, distortionless amplification which reproduces the broadcast programs in a thoroughly enjoyable manner.

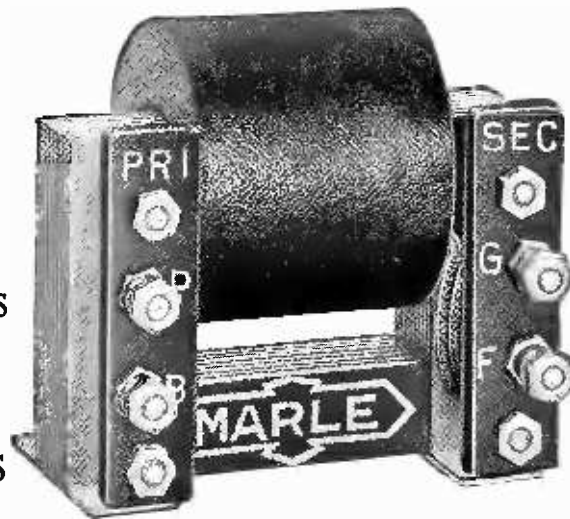


Boone Receiving Sets give unquestionable results. These sets are sold complete in every detail ready for immediate use. The backbone of all J. T. Boone Mfg. Co.'s products is Quality and Results.

J. T. BOONE MFG. COMPANY
3469 E. Jefferson Ave. Detroit, Michigan

A SUPERIOR AUDIO FREQUENCY TRANSFORMER

USED AND
RECOMMENDED
by
LEADING
REPUTABLE
MANUFACTURERS
of
RADIO
APPARATUS



LIST
3.75
MOUNTED

Write for
Information
and Discounts

Jobbing
Concessions
Restricted

Manufactured by

MARLE ENGINEERING CO., ORANGE, N. J.

Special Prices Quoted On Unmounted Type To Manufacturers

Free Will help **YOU** increase sales



This catalog will show you how to secure the names of your best prospective customers, those you want to reach most. Counts and prices are given on thousands of different Lists, covering business concerns, professions and individuals, such as Noodle Manufacturers, Druggists, Coal Mines, Farmers, etc. Personalized sales letters and descriptive literature mailed to live prospects will increase your sales by creating direct orders or inquiries.

99% Guaranteed Mailing Lists backed by our 5¢ refund

Insure your getting up-to-date information, for our Lists must be compiled from latest sources to avoid heavy losses through the guarantee.

Send for FREE Reference Book today
A postcard will bring this valuable sales help.
ROSS-GOULD CO., N.10th, St. Louis.

Ross-Gould
Mailing Lists St. Louis

RADIO CABINETS



We manufacture a complete line of radio cabinets, of mahogany, walnut, oak, and white wood, in all sizes, and in any finish. Best of construction. Dirt, dust and moisture proof. Quick deliveries—quantity production prices. Send us your specifications, or a sample of your cabinets, and get our prices. We also make indoor loop aerials.

Cabinet Work Since 1900

E. ESHOO CABINET WORKS
635 Herkimer St. Telephone
Brooklyn, N. Y. Lafayette 2324

DEALERS

REAL DISCOUNTS

Master Baldwins	Brandes
Coto Coil	Dubilier
Howard	Erla
Radi-un Loops	Signal
Atwater-Kent	Patent

MYERS TUBES
CUNNINGHAM'S RADIOTRONS
HUDSON-ROSS
123 W. Madison St. Chicago

Maclite Vario-Coupler

Price \$5.00

Is, in the opinion of experts, the most efficient on the market.

All Other Maclite Parts are equally efficient, including the Maclite Variometer, Double Slide Tuner, Variable Condensers and Crystal Detectors. The Maclite Single Tube set at \$25.00 is the best buy we have ever seen. Let us tell you more about this set, also all other Maclite parts.

Dealers and Jobbers Write for Discounts

MACLITE RADIO CO.
701 Maclite Bldg., Claredon St.
Boston, Mass.

The reader will notice the groups of expenses mentioned above are those representing the operating functions of the business and to classify the expenses in this way is to show properly the costs of each function. The importance of proper bookkeeping, followed by periodical audits, is also clearly seen, for to charge an expense to a group to which it does not belong is to make false operating costs, and since the executive is guided by a comparison of these figures from month to month, an incorrect entry becomes dangerous to the business.

Let me, in order to provide a concrete example, and illustrate the workings of what I have said above, assume that the costs of each of the above groups have been determined as follows for the period of one year:

Labor	\$125,000.00
Material	125,000.00
Manufacturing Overhead	10,000.00
Commercial Expenses:	
Selling	\$20,000.00
Receiving and Shipping	20,000.00
Administrative	20,000.00
Cost of Financing..	20,000.00
	80,000.00
Total Costs	\$340,000.00

First, let us assume that we have manufactured only one article, the material costing \$125,000, and the labor \$125,000, and in order to manufacture that item we incurred the above mentioned costs. Notice that the costs show up as follows:

Materials	\$125,000	50%
Labor	125,000	50%
Total materials and labor	\$250,000	100%
Manufact'g overhead..	10,000	4% of materials and labor
Total prime costs...	\$260,000	
Commercial expenses	80,000	30.77% of prime costs
Total costs of manufacturing	\$340,000	

Applying our findings for the past year to the calculation of the small article, we determine the cost of:

Material	\$.10
Labor10
Total Material and Labor.....	\$.20

Then, according to the scheme outlined above, we should next add 4% of the material and labor, or \$.008. Adding this to the 20% already arrived at, we get a prime cost of \$.208. Continuing, we then add 30.77% of \$.208, which amounts to \$.064, to \$.208, and get a total cost of \$.272 for the article.

In this manner we arrive at one very vital point: You now know that it costs you \$.272 to manufacture that article; now fix your selling price. You are the sole judge of how much to add to this sum for profit, but your good judgment must show you that you cannot sell for less without losing money.

GANAERITE

Detector Crystals

Twenty years of practical mineralogy gave us the material to produce the highest quality crystal.

We are now undertaking the largest single order for mounted crystals in the market.

We individually test and guarantee to replace or refund on any unsatisfactory Ganaerite crystal.

The Harris Laboratory
26 Cortlandt St., New York City

Do You Know

We are the recognized authorities on wireless securities. Our Information and Analytical Departments are unexcelled. Let us know what company you are interested in and we will furnish without obligation, detailed information and opinion respecting its merits

FRANK T. STANTON & CO.
Specialists in Wireless Securities Since 1915
35 Broad St. New York
Phone: Broad 1670-3641-5819

PATENTS

on radio inventions apply to

OTTO K. ZWINGENBERGER
38 Park Row, New York
Cortlandt 3207

Ask Our Service Bureau

PATENTS

PROTECT YOUR INVENTION TODAY

Write for 1922 illustrated book free Radio-Electrical, chemical and mechanical experts; over 20 years' experience.

A. M. WILSON, Inc. (Radio 3 ARH)
309-20 Victor Building, Washington, D. C.
(Successors to business established 1891 by A. M. Wilson)

THIS IS A RADIO CHRISTMAS!

VERNITROL CONDENSERS

The heart of the radio set, the variable condenser, has received intensive study at the Malone-Lemmon Laboratories, whose offices are located in the Canadian Pacific Building, 342 Madison Avenue, New York. As a result the Vernitrol has been developed.

The Vernitrol condenser is constructed with two groups of plates so arranged that they are perfectly counter-balanced. This is said to prohibit the slightest tendency to turn under vibration, and the makers claim that it maintains the condenser setting. In the Vernitrol the vernier plate comes under separate control, which permits even the novice to tune to the crest of each wave. A novel end-shield construction in the Vernitrol is designed to reduce losses to a minimum. The new condenser is made in two sizes, one for use with loop aerials and for all ordinary broadcasting. This has a capacity of .0005 mfd. The .001 mfd. size is for all other purposes.

STOCKING RADIO

At a meeting of electrical dealers, held under the auspices of the Commonwealth Edison Company of Chicago, discussion was had as to the amount of money to be invested in opening a new electrical store.

One portion of their report refers to radio and on this they conservatively report, as follows:

"In the case of radio, it is difficult to decide what shall be done in the way of stock. This end of the business, he feels, is hardly developed enough to be steady, but certainly requires some consideration. He sets aside \$550.00 for the purchase of parts and equipment, along with one good set and expects to do as much business as possible on a back-order basis. The money placed in radio, because of the public interest in the subject, is generally well spent from an advertising standpoint."

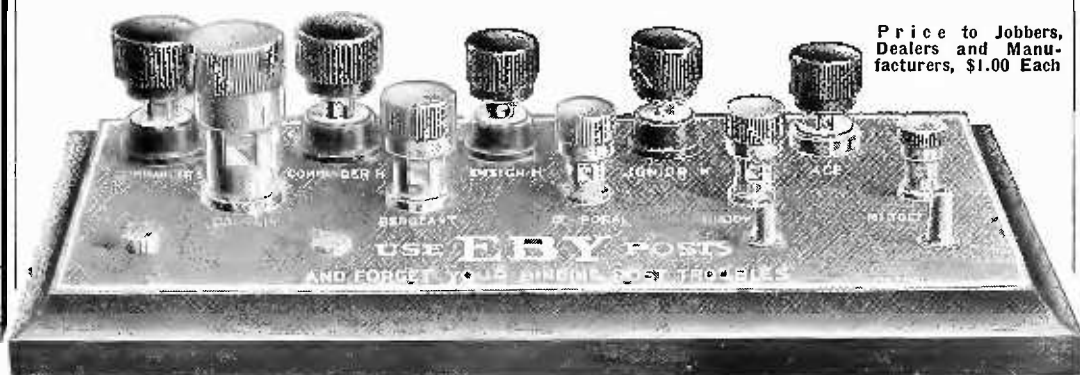
R.P.M. USES REDMANDOL

The R.P.M. units made by the Radio Products Manufacturing Company, 667 West 14th Street, New York, are all made in their own plant from the moulding of the Redmandol parts to the winding, assembling and final testing of their completed vario-meters and vario-couplers, the latter being provided with sixteen taps, giving great range of wave lengths.

Redmandol, a phenol condensation product is used for insulation because of its resistance to extreme heat, high dielectric qualities, mechanical strength, acid resistance, accuracy of dimensions and attractive finish.

LET'S MAKE THIS A REAL RADIO CHRISTMAS

The Holiday season is going to mean increased Radio sales. THE EBY SILENT SALESMAN (illustrated below) will assist you in making quicker sales, as the prospective customer can wait on himself.



Price to Jobbers, Dealers and Manufacturers, \$1.00 Each

Full information as to specifications and prices of posts printed on the back. Cut shows our complete line, and our large stock means immediate deliveries. Invest in two of these attractive boards. They will pay for themselves the first week. THE H. H. EBY MANUFACTURING CO., PHILADELPHIA, PA.



Amplify Your Radio Sales with Bradleystat



Retail Price
\$1.85

The Bradleystat is a guaranteed, graphite disc rheostat. Beware of carbon grain imitations. It is the result of 20 years' experience in designing graphite disc rheostats for precision control. Send for complete Bradleystat sales plan.

PERFECT FILAMENT CONTROL

Every radio set user, now depending upon a wire rheostat for detector control, is an immediate customer for the Bradleystat.

Thousands of dollars are being spent in advertising the Bradleystat in all leading radio publications. Dealers, everywhere, are profiting by the poor performance of wire rheostats and the good work of the Bradleystat.

Get the Bradleystat demonstrator, free, with your first order. It will amplify your radio sales beyond your expectations. The Bradleystat is a fast seller. Act, to-day.

Allen-Bradley Co.

Electric Controlling Apparatus
487 Clinton Street - Milwaukee, Wis.
Member of National Radio Chamber of Commerce

Clip this coupon—Mail it, to-day—Don't delay

ALLEN-BRADLEY CO., 487 Clinton St., Milwaukee, Wis.

Please send me your sales plan, giving prices and discounts, so that I may get my share of Bradleystat profits this year.

ROCCO PRODUCTS

SOCKETS

Base 1/4" solid sheet Celeron - Condensite, Brass tube, nickel plated and polished. Phosphor bronze contacts, nickel plated—all other parts brass nickel plated.

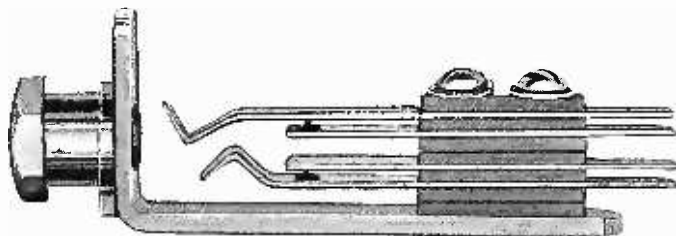
LIST PRICES

Single As	Double As	Triple As
Above \$1.00	Above 2.00	Above 3.00
Fibre Base	Fibre Base	Fibre Base
\$0.75	1.50	2.25



JACKS

Sterling silver contact points, nickel silver springs, Bakelite insulation, all other parts brass nickel plated.



LIST PRICES

Single open	\$0.55
Single Closed	\$0.65
Double	\$0.85

Exclusive Territory Open to Jobbers and Dealers
WRITE FOR DISCOUNT

GEO. ROCCO

500 Fifth Avenue

New York City

Telephone: Longacre 8328

Efficiency From the Amplifier Tube

(Continued from page 43)

this article are at the center of the list. Strictly speaking, they are not true voltage amplifiers, for they are low enough impedance to work as power amplifiers under certain circuit conditions. But they do make good voltage amplifiers and are much more stable and efficient when used as such, i.e., in the intermediate stages of the amplifier from detector to last or power stage.

A number of technical articles have been written on the theory of operation of vacuum tubes and as our space is limited we shall summarize the particular points we are now interested in, as follows:

All tubes are put in operation by lighting the filament and putting a relatively high voltage of D.C. on the plate circuit. Then by operating the grid with small values of alternating voltage, the plate circuit will operate correspondingly. The voltage component of this plate circuit alternating energy may then be applied to the grid of another tube by means of a transformer, choke coil (impedance), or resistance (according to whether the first tube is low, medium or high impedance). This second tube will likewise operate its plate circuit, except through a somewhat longer range than the first, and consequently act as an intensifier or amplifier.

It may now be appreciated that the higher the voltage applied to the grid of a tube the greater will be its plate circuit response. Since voltage, not amperage, is desired, and since the grid circuit is practically an open circuit, but an infinitesimal value of amperage is necessary. Accordingly, we must use tubes and supplementary apparatus which give us the highest possible voltage output when operated. Voltage amplifier (high impedance) tubes and transformers, choke coils or resistances, which have the same impedance as (or slightly higher than) the tube in whose plate circuit they are used will do this. We have seen from the above table that the voltage amplifiers are all relatively high impedance and therefore require for maximum efficiency, high impedance primary transformers, high impedance choke coils and high resistances for coupling devices.

The transformer is satisfactory up to about 30,000 ohms (impedance), which is about as high as it is possible to wind one efficiently. All the tubes listed below the WD-11 on our table may be used efficiently with transformers, provided they approximately

ASK OUR SERVICE BUREAU

"EURACO" MICA GRID CONDENSERS AND LEAKS

Price 60 cents
(Designed to fit Standard Grid Leak Base)

GRID LEAK VALUES:

.5—1.0—1.5
2.0—2.5—3.0
Megohms

Price, 60 Cents



COMPACT,
INTER-
CHANGEABLE,
HANDY,
MOST
EFFICIENT

"Euraco" Condensers are composed of Copper Sheet and Best Grade India Ruby Mica, and are entirely Hand Made.

Manufactured in following capacities:

.000025 Mfd	—Correct for Myers Radio-Audion RAC-3
.0001 "	—For Special or Experimental Circuits
.00025 "	—Correct for Super-Hetrodyne & UV 201
.0005 "	—Correct for Radiotron UV 200

Condenser—Leak Mountings

Bakelite Base with Single Mounting\$.40
Bakelite Base with Double Mounting60
Bakelite Base with Triple Mounting80

SHIP OWNERS RADIO SERVICE, Inc., DISTRIBUTORS

80 Washington St., New York

Interesting Proposition to Dealers

(Mfd. By EUROPEAN RADIO CO., 1342 East 22d St., Brooklyn, N. Y.)

THIS IS A RADIO CHRISTMAS!

match the tube's impedance. The D.C. resistance of transformer primaries is but a rough approximation to the impedance, which is usually about 8 to 10 times the D.C. resistance. (A laboratory A.C. bridge is necessary for accurate measurements and manufacturers ought to therefore state the impedance on the carton). If a transformer is wound with resistance wire it can have the required D.C. resistance and yet have very low impedance, being therefore practically worthless.

Resistance or impedance (choke coil) coupling can be made high or low and is therefore much more efficient for high impedance tubes to match, which transformers cannot be wound. Resistance coupling can be made to give distortionless amplification and while not as efficient (loud) as transformer coupling for tubes in the moderate impedance class, is very desirable for high quality reproduction. The VT-1 is high enough impedance to work well with either transformer, resistance or impedance coupling and was used very satisfactorily in each capacity in government equipment during the war.

The UV-201 is not well adapted to resistance or impedance coupling, but is very efficient with moderate impedance transformers, such as the UV-712. When we come to the WD-11 we find this listed slightly above the transformer range, so that it is about equally efficient with resistance or high impedance transformer coupling. And since the former gives higher quality it is to be preferred. For this tube a resistance (preferably non-inductive) of approximately 50,000 ohms is very satisfactory with a mica or good paper grid condenser of .02 mfd. capacity, and if more than one stage is used the condensers should increase in capacity with each succeeding stage (.02-.1-.5-1.0) a grid leak of 1 to 3 megohms should be used from grid to negative filament to stabilize the system. When resistance coupling is used the "B" battery may safely be increased about 50% with improved results.

The above discussion is given for the express purpose of educating the dealer so that he can give his customer reliable information and suggestions on what to buy. The sooner a dealer learns to talk intelligently to his client and obtain his confidence, the sooner the dealer will gain steady customers. Radio is progressive. It is sufficiently experimental to keep the average man interested to progress with it. Give your customer help, give him service, and get his confidence—he'll come back to you the next time.

RADIO DEALERS



We Are Manufacturers of

F. M. C.

**Audio Amplifying Transformers
Radio Frequency
Mica Condensers
Sensitive Crystals**

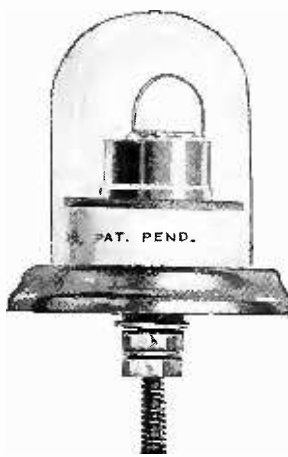
Dealers and Jobbers Write Us for Proposition

IMMEDIATE DELIVERY

Ford Mica Co., Inc.

14 Christopher St.

New York



(Actual Size)

GREWOL, the DETECTOR

With a National Reputation

\$2.00

ENTIRELY different—infin-
itely superior. Sells al-
most on sight. Makes
good and makes sales. Attract-
ively packed in individual car-
tons. Never stays long on any
shelf.

Lasting
Adjustment

Always Set
and Ready

Glass Enclosed

Write for Proposition TODAY!!

RANDEL WIRELESS CO.

Sole United States Distributors

9 CENTRAL AVE.

NEWARK, N. J.

RADIO PANELS

And other insulation for Wireless Work

BAKELITE-DILECTO

Grade XX Black was used by the Government during the war for this purpose. It is the

Standard of the World

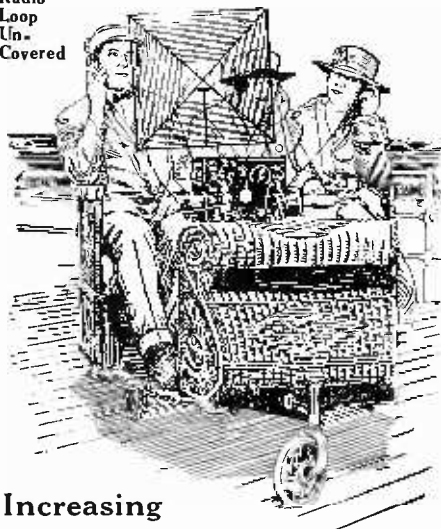
THE CONTINENTAL FIBRE COMPANY

NEWARK, DEL.

New York, 233 Broadway
Pittsburgh, 301 Fifth Ave.
Los Angeles, 411 S. Main St.
Seattle, Wash., 1927 First Ave., South

Chicago, 332 S. Michigan Ave.
San Francisco, 75 Fremont St.
Rochester, N. Y., 85 Plymouth Ave.,
South

Warren
Radio
Loop
Un-
Covered



Increasing Demand for the WARREN RADIO LOOP

How Many Are You Selling?

LOOPS are rapidly replacing the old outside aerial—especially for the more sensitive tube sets. Most of them are Warren Radio Loops. Extremely powerful, extra well made, exclusive advantages. They leave nothing to be desired. Their advantages are being told every month to thousands of radio fans through generous national advertising. Your customers read this advertising. You can sell quantities of Warren Loops. One or two will demonstrate their profitableness. Order TODAY.

- Type A-737 (300-700 meters), 6 inches square—non-directional \$10
- Type A-7236 (175-1000 meters), 6 inches square—non-directional..... 12
- Type B-2537 (300-700 meters), 18 inches square—directional..... 20
- Type BL-2520 (200-18,000 meters), with honeycomb coil, 18 inches square—directional 25

Send for Bulletin P-102

V-DE-CO RADIO MFG. CO.
ASBURY PARK, N. J.
Dept. D

Praco Panel Service

We offer to the amateur and dealer

REAL PANEL SERVICE.

Our panels are cut to your order. Only genuine Condensite and Formica used.

- 1/8" per square in. 2c
- 3/16" per square in. 2 1/2c
- 1/4" per square in. 3c

We also carry a complete line of radio essentials. Dealers will find it profitable to have our latest price list and discount sheet.

PITTSBURGH RADIO AND APPLIANCE CO., Inc.
"Pittsburgh's Radio Shop"
Desk D
112 Diamond St., Pittsburgh, Pa.

Retail Radio Salesmen and Raspberries.

(Continued from page 46)

nical questions, for they will only gum up the works and make it harder for the new flock of customers the following day. What the average novice wants is a set that will receive and he wants to know what to buy and how to put it together, but when it comes to the technical stuff, forget it. The public don't want it and if they do they will either buy a book on the subject or else take a night course in a radio school. When they do that you won't have to worry about it anyhow.

The idea of trying to make a great mystery out of the radio business is all wrong and won't sell merchandise, which is what we are all in business for.

My idle dream is to see a radio set come out on the market with only one dial, no wires, batteries or binding posts. When that is done, there will be room to sell twenty million sets without batting an eyelid and our troubles with the customer will be over, but in the mean time let's help the customer all we can and quit surrounding the radio business with such an air of mystery. It may work with the novice at first, but after the first few weeks of experimenting and he finds he has purchased a whole lot of merchandise which he knows nothing about, didn't want and doesn't know what to do with, all I have to say is that some of it will probably be put to use to repair his flivver, make an ice cream freezer or simply left for the junk man—and another embryo "radio bug" is lost.

MELCO TYPE 400 UNIT

The Melco type 400 tuning and detector unit is made by the Mortimer Radio Corporation and distributed through the Save Sales Company, of 261 Broadway, New York.

The face plate of this new unit is of Radion, while the rest of the cabinet has a satin mahogany finish. The Melco is designed to operate in conjunction with a 150-meter antenna, at wave lengths from 150 to 600 meters. A specially designed vario-coupler, with rotor or secondary wound with Litz wire, permits selectivity, which with the increasing number of broadcasting stations, is an important detail. This vario-coupler, the manufacturers state, will completely tune one station out and another in. The vario-coupler permits of acute adjustment.

"Vac-Shields" Sell Themselves

Trade
"VAC-SHIELD"
Mark



Patent Pend.
Price, \$1.00

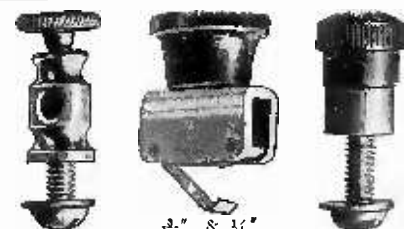
"VAC-SHIELDS" Make Reception Worth While

Your customers will want them. You can sell them. See our Ad in Radio News for December.

BE PREPARED

Trial Order One Dozen Vac-Shields By Mail \$8.00. Order today.

ORANGE RESEARCH LABORATORIES
41 North 16th St., East Orange, N. J.



CRYSTALS GALENA SILICON
CRYSTAL DETECTORS List \$2.00
CRYSTAL RECEIVERS List \$9.00
RADIO APPARATUS CO.
6600 Hamilton Ave. Pittsburgh, Pa.

THIS IS A RADIO CHRISTMAS!

Twenty Receiving Sets to One a Year Ago

(Continued from page 46)

ning programs of the broad-casting stations is undoubtedly several million, and the audience reached by a single station may be 20,000 or more. The manufacture and sale of receiving sets and accessories has grown to be a great industry.

We may well ask whether the radio phone is a plaything which has caught the public's passing fancy or a real utility which is destined to become a permanent factor in our daily life. The answer to this question seems naturally dependent upon what radio is capable of supplying. If it be limited to music and entertainment, its permanency will undoubtedly depend upon quality, and inventive genius will be called upon to perfect the product so that those who listen-in will invariably receive perfect renderings—whether it be a symphony, opera, concert, church choir, or dance music. But the radio phone has other possibilities which should guarantee its permanence quite aside from its role as an entertainer.

About one-third of the population of the United States lives in rural districts and depends on the telegraph, telephone and post office, for information. A large part of this population is interested in the daily news as it happens; in the shipments of farm products to the large centers and the price at which they are sold. The radio phone is a new publicity agent capable of rendering a public service by disseminating news and information instantly throughout wide areas. A quarter of the population of the United States is within the area reached by WGY, and under favorable conditions the broadcasting from this General Electric station at Schenectady, N. Y., might extend much farther.

If radio has everyone "by the ears," it may also be credited with a considerable list of beneficent contributions to the world's prosperity and happiness. It distributes music and entertainment to thousands of homes; it shortens the tedious hours of the sick and injured in hospitals; it supplies daily market and weather reports to the great farming population; and it furnishes communications from ship to ship and from ship to shore. It is already an established method for the transmission of messages and the broadcasting of information and entertainment.

Radio will undoubtedly exert a powerful influence on press, pulpit, schools and theaters, but it will not

TOM BROWN'S RADIO SET

Manufactured by Lawsam

A complete knock down tube set, cabinet drilled, wires cut and shaped, everything ready to put together, in a handsome "take-me-with-you-looking" box. **\$21.75**
LIST

Buy now for the holidays

Write or wire for discount on radio's "best seller"

Also a complete line of parts

SPECIALTY SERVICE COMPANY

Cor. 4th Ave. and Pacific St.

Brooklyn, N. Y.

TRESCO RADIO

Licensed under Armstrong U. S. Patent 1,113,149

The alert dealer is looking for a receiving set which will establish him as a leader in his community—a set that will stay sold and require practically no service.

Tresco Regenerative Universal Receiving Set has been on the market for seven years and has proved a success in thousands of

homes. Simple of operation—nothing to get out of order—unusual long distance receiving—it is no wonder that it was the sensation of the Chicago Radio Show.

Good reliable merchandise, backed by strong national advertising, makes Tresco an asset of no uncertain value to the dealer.

Write for discounts.



TRESCO RADIO
J. H. Hetheson Bell Sales Mgr.
Davenport, Iowa, U. S. A.



NOVO "B" Batteries



for Radio Outfits

NOISELESS—DEPENDABLE—GUARANTEED

All Sizes—Plain and Variable

22½, 45 and 105 Volts

Send for Catalogue and Discounts

NOVO MANUFACTURING CO.

424 W. 33rd St.
NEW YORK

531 So. Dearborn St.
CHICAGO



Radiphono Adapter - \$3.00

Add quality of tone and volume to your radio concerts

Designed for Edison, Victrola, Brunswick and other makes of phonographs. With this adapter you can eliminate distorted and metallic sounds and improve your receiving. This is a real adapter built along proper lines of a reproducing musical instrument. It gives better results than self-contained, expensive amplifying loud speakers.

Jobbers Communicate Dealers Ask Your Jobber

Manufactured by

Industrial Sales Engineering Co.
671 BROAD ST., NEWARK, N. J.

VOLTA
PRODUCTS

VARIOMO-COUPLER.....\$3.85 List
No taps, the only coupler with sharp primary tuning.

VARIOMETER.....\$3.25 List
Low distributed capacity, high range.

CRYSTAL SET.....\$8.50 List
Sharp tuning, triple range.

VACUUM TUBE SET.....\$29.00 List
Two circuit tuner, employing Vario-Coupler. Only one tuning adjustment.

Write for Trade Discounts

VOLTA ENGINEERING CO.
Tackawanna and Womrath Sts.
Frankford, Phila., Pa.

MANUFACTURERS OF

Receiving Sets Complete

Unites Mounted and Unmounted

Send for Description and Prices

RADIO OUTFITTING CORP.

Mfg. High Grade Radio Apparatus

410-412 East 34th St. New York, N. Y.

"MICROSTAT"

A Vernier Throughout its Range

\$1.50

LOUIS A. STAFF COMPANY

1755 Broadway New York

supplant them. It will make the best available to all, and public taste will become more critical. Higher standards will be demanded. There will be a beneficial evolution in which the inferior and mediocre will be eliminated. These results seem reasonable in what might be called the natural development of radio, but no one will place limitations on the ultimate possibilities, because radio has already proved that fact is far stranger than fiction.

The subject is admittedly one of international and world-wide importance. Wave lengths are being assigned for various classes of communication. There are wave lengths for market and weather reports, and for music and general broadcasting. Undoubtedly we will have additional assignments for local news, for advertising, for educational programs, church services, theatrical production and various additional kinds of broadcasting as they develop.

No great stretch of the imagination is required to suggest an international broadcasting station from which announcements of great international or universal importance might be made on a designated wave length. What effect this might have on the old dream of a general and mutual understanding of all peoples and the adoption of a universal language, is a fertile field for the mental speculator. While fancy plays with these alluring thoughts, it is hoped that the power to speak so that thousands, or even millions, may hear, will give rise to a desire to say something worth while and to say it well. Radio broadcasting carries with it responsibility.

Senator Guglielmo Marconi, who has contributed so much to the history of radio, when he last visited Schenectady spoke to the American people at the broadcasting station. His generous appreciation of the progress made in this country and his firm faith in the future of radio are expressed in the following quotation from his address:

"Today I have had the privilege of visiting the works of the General Electric Company and have been truly amazed at the progress made by this great organization since the time of my last visit to Schenectady during the war five years ago. Speaking to persons interested in radio, I can truly say that the practical application and study of all branches of this new method of communication is being vigorously investigated by the engineers and scientists of the company."



Why Ray-O-Vac "B" Batteries

Are Never Noisy

The active materials in each cell are moulded into a solid core under heavy pressure. Each cell is thoroughly insulated by a heavy, acid-proof, rubbery jacket and held absolutely rigid. Cells connected by flexible copper leads, hand soldered, insure perfect connections in spite of jars and bumps. Patent spring clip terminal makes perfect contact. Holds the smallest wire without cutting or shearing.

These features, found only in Ray-O-Vac Batteries, eliminate receiving noises due to batteries. "Real value for our money" is the shopping cry of radio fans; and it will pay you to stock Ray-O-Vac B Batteries, already the choice of thousands of experienced users. Bulletin 225 is worth having. Send for it.

French Battery & Carbon Co.

Madison, Wisconsin

Chicago Dallas Atlanta New York
Denver Minneapolis Kansas City

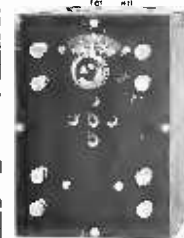


French "B" Batteries

Ask Our Service Bureau

LOUD SPEAKER FOR ANY CRYSTAL SET

By using the **STEINMETZ AMPLIFIER \$8.50 NO STORAGE BATTERY REQUIRED**



Amplifying unit uses a Westinghouse Tube which requires only a single dry cell in place of the storage battery. Tube and batteries for this unit \$7.95. For a two stage amplifier use two of these units. Amplifying unit sold knocked down for \$5.95. **SUPERIOR CRYSTAL SET, \$4.75.**

STEINMETZ PHONES are of exceptional merit.

2,000 Ohms \$5.00, 3,000 Ohms \$6.50, single phones \$1.75. Equal to any ten or twelve dollar phones made.

Catalogue 5c at your dealers or **STEINMETZ WIRELESS MFG. CO.,** 5706 Penn Ave., Pittsburgh, Pa.

Importing Agents May Register Trade-Marks

(Continued from page 42)

import the genuine product provided they are able to obtain it from other sources than the actual producer. Thus, where B in the United States has the exclusive agency here for the trade-marked products of A, located in France, there is nothing to prevent F, also in the United States, from purchasing and importing these products from E in Germany, who may have purchased them in turn from A or from D, a middleman in France, who purchased them from A.

To partially cure this situation, there has been inserted in the tariff act now in force a section which makes it unlawful to import foreign trade-marked merchandise where the trade-mark is owned and registered in the Patent Office here by an American citizen, firm or corporation, provided a record of such registration is on file in the Treasury Department, unless the consent of the registrant to the importation is obtained. Any merchandise imported in violation of this section becomes subject to seizure and forfeiture and persons dealing therein may be required to export or destroy the merchandise or remove or obliterate the trade-mark and be liable for triple damages and profits.

Those interested in the importation of foreign trade-marked merchandise or even in the handling of same should take steps to ascertain if the trade-mark is registered and if so to see that consent for importation is obtained. Exclusive agents for such merchandise would do well to acquire the rights to the trade-mark for this country, and to register the same in the Patent office and in the Treasury Department so as to protect such rights.

While this section will not materially help the exclusive agent who does not, as a part of his exclusive agency, acquire the right to the trade-mark in this country, it provides facilities for protecting exclusive importations not heretofore available.

RED SEAL CONTEST

The Manhattan Electrical Supply Co., Inc., 17 Park Place, New York, with branches in Chicago, St. Louis and San Francisco, has instituted a novel contest among radio enthusiasts and other users of batteries.

The contestants are required to give a second reason why the Red Seal dry battery, made by the Manhattan people, is best, the first reason being "because it is the all-purpose battery." Fifty-two prizes are offered.

STOP-LOOK-WRITE

DEALERS, JOBBERS AND MANUFACTURERS

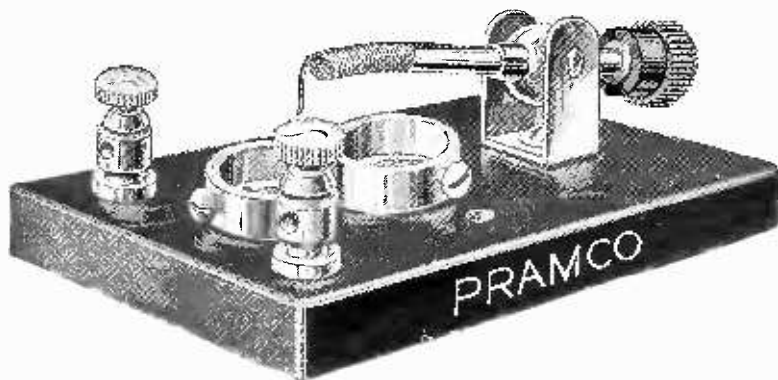
Before placing orders, write us first and get samples and our big discount sheet.

		List		List
Condensers	43-Plate.....	\$3.50	Turney Head Sets.....	\$6.50
"	23- "	2.75	Dials 3"75
"	11- "	2.25	Variometers	3.50
"	7- "	2.00	Variocouplers	3.50
"	3- "	1.50		

SPIRO BROTHERS, Manufacturers and Distributors
519 Real Estate Trust Building Philadelphia, Pa.

PRAMCO DUO - TECTOR

A Pramco Duo - Tector will outsell any \$1.00 Crystal Detector on the market.



The two-cup arrangement allows a quick change from one crystal to another with very little interruption. It offers an opportunity to determine the relative value of different minerals under the same conditions.

All Metal Parts Standard Pramco Hand Polished and Plated

List \$1.00 LIBERAL DEALER AND JOBBER DISCOUNT
PREMIER RADIO MFG. CO. 1900 No. 6th St., Phila., Pa.

Ask Our Service Bureau

Trade-Marks Secure Trade Registrations Secure Trade-Marks
I Secure Registrations

CHAUNCEY P. CARTER

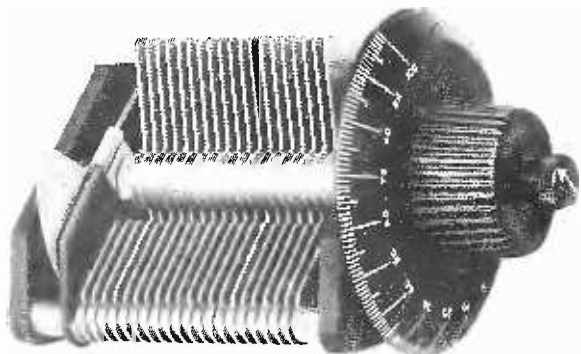
Radio Trade-Mark Specialist

4907 Potomac Avenue, N. W. Washington, D. C.

Correspondents in all countries

THE B-T VERNIER HAS NO EQUAL—CARRIED BY JOBBERS

FROM NEWFOUNDLAND TO SINGAPORE



.00025, 11 pl. \$4.50
 .0005, 21 pl. 5.00
 .001, 41 pl. 6.00
 With 3-Inch SOLID DIAL.

DEALERS: Write us for name of nearest jobber.

BREMER-TULLY RADIO CO.
 Canal and Harrison Sts., CHICAGO

Western Office: 171 Second Street, SAN FRANCISCO
 Hawaiian Representatives: HAWAIIAN ELECTRIC CO., HONOLULU

ELECTRICAL TESTING

Of all materials entering into Radio Construction. Meters and apparatus calibrated and repaired.

CHEMICAL ANALYSES
 STRENGTH TESTS

Investigation or Development of New Apparatus and Materials. Routine Tests at Special Rates.

NEW YORK TESTING LABORATORIES

80 Washington Street

Bowling Green 7016



Completely Assembled or Ready-To-Build.

Send for Circular of Capacities and Prices.

MARSHALL VARIABLE CONDENSERS

Order Now For Christmas Business

NEW HAVEN RADIO CO., Mfrs., Chapel & Hamilton Sts., New Haven, Conn.

A BIG HIT WITH THE RADIO TRADE



Pat. Applied for

The Durham Variable High Resistance (Adjustable Grid Leak)

JUST VARY THE PLUNGER TO VARY THE RESISTANCE

Type 100—1000 to 100,000 Ohms Range
 Type 101—100,000 to 5 Megohms "

Price \$.75 Base \$.40

DURHAM & COMPANY, Inc. Radio Engineers
 1936 Market Street, Philadelphia, Pa.

TIMMONS TALKER

A new loud speaker with adjustable amplification, and differing widely in design from any of the previously existing types on the market, has been offered the radio trade recently by J. S. Timmons, of Philadelphia.

The Timmons Talker, as it has been named, is a square cabinet with a screen covering its face. In the center of this screen is a knob which controls the volume of sound produced by the amplifier. The amplifier is attached to the instrument simply by a pair of phone cords, and can be installed and regulated by a child. The instrument is contained in a handsome solid mahogany case. No batteries are necessary.

IN BUSINESS TO PLEASE

J. H. Leech, who operates the Wickley Service Station at Henry, Ill., is in the radio business with the slogan, "Satisfaction." He stocks Amrad sets and parts and the Magnavox loud speakers.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

Of the Radio Dealer, published monthly at New York, N. Y., for October 1, 1922.

State of New York } ss.:
 County of New York }

Before me, a Notary Public in and for the State and County aforesaid, personally appeared Harry M. Konwiser, who, having been duly sworn according to law, deposes and says that he is the Publisher of the Radio Dealer, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations.

1. That the names and addresses of the publisher, editor, managing editor and business managers are:

Publisher, Harry M. Konwiser, 1133 Broadway, New York City. Editor, Bernard J. Farrell, 1133 Broadway, New York City. Managing Editor, none. Business manager, Laurence A. Nixon, 1133 Broadway, New York City.

2. That the owners are: Radio Dealer Co., 1133 Broadway, New York City; Harry M. Konwiser, 1133 Broadway, New York City; Laurence A. Nixon, 1133 Broadway, New York City.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent. or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown is: Not required.

HARRY M. KONWISER, Publisher.
 Sworn and subscribed before me this 25th day of September, 1922.
 (Seal) M. J. KLEIN.
 (My Commission expires March 30, 1924)

THIS IS A RADIO CHRISTMAS!

Manufacturer Analyzes Trade Conditions

(Continued from page 45)

Manufacturer is concerned. Such a condition of affairs is to be expected in sparsely populated territories such as Arizona, Wyoming and Idaho and also in sections where the broadcasting is inferior as in Arkansas and Louisiana.

However, the showing made by Georgia, with its high-powered broadcasting station at Atlanta, is rather discouraging. In fact none of the Southern states appear to be particularly enthusiastic about radio. It is possible that this may be due to poor business conditions and low purchasing power in that section of the country.

Judging from the New York state inquiries, it would appear that this state has passed through a period of decreasing interest during the last month but that it is once more on the up-grade with indications of extremely satisfactory radio business. Illinois also experienced a decline in interest during the same time but showed even a greater revival. In like manner Pennsylvania showed a slump with a rapid rise in interest in the last week. It should be noted that the slump in inquiries was followed by a falling off in orders from these sections, while renewal of heavy inquiries was accompanied by substantial orders.

Falling off of inquiries seem to indicate a declining interest in Iowa, Kansas, Wisconsin, New Jersey, Ken-

THE GENUINE AND GUARANTEED "ALL WAVE" COUPLER

TRADE-MARK
FLAT AND BANKWOUND

WAVE LENGTH—150 to 3000 Meters

ELIMINATES all Variometers, Variocouplers and Loading Coils
PREPARES for the higher wave lengths that have been and will be allotted. **BUILDS** a set that cannot become obsolete.

THOUSANDS of satisfied users.

BEWARE OF IMITATIONS—Look for the Trademark "All Wave" on the Rotor and the six efficient hookups in the box.

UNUSUAL RESULTS ATTAINED—Individual users of the "ALL WAVE" Coupler have written us that in Rhode Island it is nothing unusual to bring in stations as far south as Havana, Cuba, while in Mobile, Alabama, Newark, N. J., is brought in daily.

PRICE \$9.00

Guaranteed with an Absolute Money-Back Guarantee

Write for Literature and Display Signs



Patents granted and pending

CAPITOL PHONOLIER CORPORATION, 56 Lafayette St., N. Y.

JEWELL VARIO COUPLER



\$1.25 List

400 meters, 3" rotor, tested stator, 21 s. c. wire, 1/4" aluminum shaft, 14 taps, pigtails.

Sell More Popular Price Couplers

Positive Connections
Positive Results

ROTORS SET LOW IN STATORS

WE MAKE OTHER STYLES TO 3000 METERS

DEALERS—JOBBER—AGENTS
PLEASE WRITE FOR DISCOUNTS

MANUFACTURED BY



\$2.50 List

600 meters, 3 1/4" rotor, composition stator, 24 d. c. wire, 1/4" brass shaft, pigtails, 14 taps, brass uprights.

JEWELL RADIO SALES CO. 90 West St., New York

Ask Our Service Bureau



35c. each. 3 for \$1.00

Na-ald GENUINE CONDENSITE DIAL

The Dial that Runs True

Numerals engraved on bevel and knob so shaped that fingers do not hide them. Thin edge with clear graduation to make accurate reading easy. Concealed set screw in metal insert. Will not warp or chip. Finish and enamel permanent. Low price with this quality possible only through quantity production.

Special dealer and jobber proposition. An opportunity.

ALDEN-NAPIER CO.

52 Willow St. Dept. J Springfield, Mass.

MUSIO New Radio Discovery

\$12.50

Retail



Perfection

Clarity

Range

Beauty

Improved, Perfected Crystal Detector
Sensation of Radio World.

Includes complete antenna equipment
Immediate Deliveries

Microphones \$5.00. Every set guaranteed an \$8.00 value

DISTRIBUTORS

American Electro Phone Company, Inc.
NEW YORK

512 Fifth Avenue

Longacre 3552

We handle a complete line of first class radio sets and accessories

SURPLUS RADIO STOCKS

SLOW MOVING
CONVERTED INTO

QUICK—IMMEDIATE—CASH

Small lots just as desirable as large quantities. Radio Market conditions justify turning of overstocks into cash and thereby releasing tied up capital for new and profitable use. Don't wait until everybody else considers unloading at the same time. ACT NOW.

WRITE—WIRE—PHONE—OR CALL. State in detail, the items, quantity of each and lowest price acceptable.

THE R - C OUTLET

EXECUTIVE OFFICES

39 E. 23rd STREET NEW YORK CITY

Phones { Ashland 1109
Gramercy 1586-1587

MANUFACTURERS
OF RELIABLE RADIO
EQUIPMENT WHO DE-
SIRE HIGH-CLASS REP-
RESENTATION THRU-
OUT TEXAS AND THE
SOUTHWEST ARE IN-
VITED TO SUBMIT SAM-
PLES AND FULL PAR-
TICULARS IN FIRST
LETTER.

UNLESS YOU HAVE
CONFIDENCE IN YOUR
PRODUCT AND ARE
WILLING TO SUBMIT IT
FOR SEVERE LABORA-
TORY TESTS, DON'T
WASTE YOUR TIME
AND OURS.

**MONARCH RADIO
LABORATORIES**

1513½ Main St. Dallas, Texas



Dealers All Over the
Country Handle Our
**STANDARD
RADIO GOODS**

OUR TRADE PRICES
AFFORD GOOD MARGIN

Write for catalogue
and price list

**WIENER WIRELESS
SPECIALTY COMPANY**
21 ACADEMY ST.
NEWARK NEW JERSEY

tucky, Oklahoma, California and Dis-
trict of Columbia. In Iowa, Kansas,
Wisconsin and New Jersey it is prob-
able that the next few weeks will show
the same revival of interest which has
already been indicated in New York,
Illinois and Pennsylvania. The poor
results shown in California may be
due in this particular case to the pres-
ence of local competition and the dis-
tance of this manufacturer from the
market.

Minnesota shows extremely healthy
signs each week bringing in more and
more inquiries. However, orders
from this section have not as yet come
up to expectations and this would tend
to show that the manufacturer was
not being properly represented in this
territory by his jobbers. Indiana, Mis-
souri and Massachusetts show some
improvement.

From the total inquiries it can be
seen that the interest in radio through-
out the country has passed through a
period of slight decline between Octo-
ber 30 and November 11 followed in
the next week by a sudden upward
jump. It is most likely that there will
now be a steadily increasing interest
indicated not only by the inquiries but
by heavily increasing orders.

It should be remembered that the in-
quiries shown during the period of the
above chart have not been affected by
the Christmas demand. Hence when
this demand is added to the present
increasing normal demand there is
every reason to believe that a heavy
radio business will be in evidence.

This does not mean that a boom will
be experienced such as the radio in-
dustry passed through in the early
spring but that there will be a disap-
pearance of hand-to-mouth ordering
on the part of the jobbers and that the
radio industry will be placed on a
firmer basis with greater confidence
in the future on the part of the manu-
facturer, jobber and dealer.

**KEEPING
A DAY AHEAD**
of the headlines of tomorrow's
newspapers!
That's what radio enthusiasts
everywhere want to do! They're
not completely satisfied with the
regular broadcasted programs!
They want to get the most out
of radio!

Live Dealers are extending sales by stocking the
FINCH RADIO RELAY
which automatically receives any desired code
message and makes a permanent record of
it on a paper tape with unerring accuracy.
Write for Proposition RD12

FINCH RADIO MFG. CO.
303 FIFTH AVE., N.Y.CITY.

SUPERIOR PRODUCTS

The Rolls Royce of Radio

Startling Announcement in
January Radio Dealer

SUPERIOR PRODUCTS MFG. CORP.
1080 Springfield Ave., Newark, N. J.

Continental Elec. Co.

119 East 129 St., N. Y.

COMPLETE LINE OF PARTS

Write for Catalog

NULOID

Scientific Chemical Compound for
Radio Parts and Panels

NULOID CORPORATION

119 Chambers St. New York

"Better Than The Best"

AERIAL-A

The Radio
Tube Set



That
Made Good
in a Night

W.E. Supply & Service Corp. 18 Murray St., N.Y., U.S.A.

GREGG & COMPANY

ENGINEERS

Radio Department

165 Broadway New York

St. Louis, Mo.

Newark, N. J.

Washington, D. C.

Los Angeles, Cal.

Mexico City, Mexico

QUALITY-PLUS

INSTRUMENTS



Types 711; 711A

THE

**HOME
Radiophone Receiver**

Single Tube Set

Type 711, Wave length 150-2600 meters
\$35

Type 711A, Wave length 150-800 meters
\$28

Awarded Certificate of Excellence

Dealers! Jobbers! Distributors!
See Our Exhibit at the Radio Fair
Hotel Imperial, New York City

ARROW RADIO CO.

Manufacturers of Quality Plus
Instruments

Hackensack

New Jersey

THIS IS A RADIO CHRISTMAS!

MULTI-TERMINAL PLUG

A telephone plug that can accommodate six pairs of receivers is being featured by the Howard Radio Company, of Chicago. This new multi-terminal plug permits of nine connections by means of which any number of headsets up to six can be hooked up. The device is simple in appearance and operation. Operation is obtained by inserting the tips of the head phones in holes in the plug provided for the purpose.

Standard 2,000 and 3,000 ohm receivers are recommended for use with the Multi-Terminal telephone plug. The list price is \$2.00. The Howard Radio Company are also makers of rheostats, potentiometers, inductance switches, binding posts, grid condensers and leaks, and other products.

DARBY LEAVES MYDAR

The Mydar Radio Company has announced the resignation of W. Lee Darby as vice-president and manager of their mid-western sales department on November 15th. Mr. Darby has disposed of his entire interests in the Mydar company and is no longer connected with it.

"ETHEROLA"

**AERIAL
EQUALIZER TUBES
AND
GROUND
SEPARATOR TUBES**

Replaces Long Wire Aerials and Water Pipe or Other Grounds.

USED INDOOR OR OUTDOOR

TO DEALERS
JOBBER

Demonstrate a Set and Get the Biz. Selling Rapidly Wherever Shown.

Assist you greatly in sale of high grade Receiving Sets

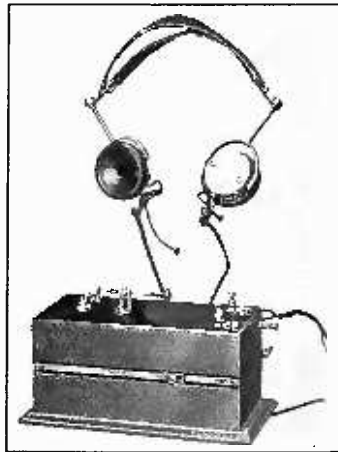
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In lots of 100,
\$3.50 each. In
smaller lots,
\$4.00 each.

Retail prices
optional, so that
special sales
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A superior receiving set with a vocal and musical range of from 38 to 45 miles—code range, 150 to 200 miles

MAHOGANY CASE, BAKELITE PANELS, NICKEL FIXTURES
8½" COIL AND TWO-SLIDE TUNER

STANDARD PRODUCTS CO.

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NEWARK, N. J.

Dealers who want strictly high class quality
Radio Sets and Equipment,
we can serve you.

Distributors: General Radio Corp., King Quality,
Dubilier Condenser and Radio Corporation,
De Witt - La France Co. All Guaranteed Lines.

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Phone: Dearborn 2638

Chicago, Ill.

Recommended for Reliability

RADIO STORES CORP.
VARIABLE CONDENSERS—
PLUGS—RESISTANCE UNITS, ETC.
222 West 34th Street, New York

Wang That's STATIC,
Take it Out with our
VERNIER CONDENSERS
Bang That's another Station
coming in. DITTO
ELECTRIC PRODUCTS CO.
11 Pemberton Sq. Boston, Mass.

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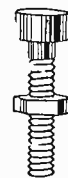
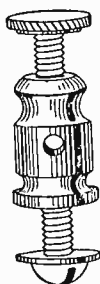
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CONDENSERS**

with patented adjustable tension

JOHN A. COZZONE & CO.

61 Arlington Street

Newark, N. J.



Publicity and Its Effect on Market for Radio Securities

By FRANK R. STANTON
Radio Stock Specialist

Never before has an industry been denied the opportunity to be financed by public participation as radio. With the overnight popularity of radio, chambers of commerce issued circulars, letters, etc., and in addressing communities, warned against placing money in radio concerns. Newspapers took up the cry and followed along. The statements made and articles issued had a bad effect on all attempted legitimate financing.

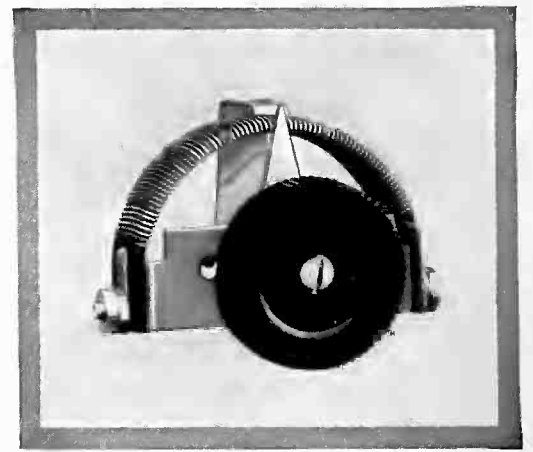
True, there were unscrupulous stock promoters offering stock, but the desire to protect investors, while a very commendable move, created considerable skepticism towards the industry. The result was that the legitimate promotion and the already established concerns, found themselves unable to raise capital, which was diverted into other channels.

During this stage, the radio boom reached its highest point. Many manufacturers were unable to participate because of those conditions. Additional funds were required to increase facilities and purchase materials then selling at high prices. Also in distributing the goods, they had to give the trade from 30 to 90 days credit, which involved enormous sums of money. Those who were fortunate

enough to have obtained sufficient capital, took advantage of conditions while the average small concern was compelled to assume a waiting attitude.

The same condition prevails today. There are many legitimate companies that require capital for expansion of facilities, but are unable to interest the public.

QUOTATIONS			
Stock	Bid.	Asked.	
All American Cables.....	\$118	\$120	
Amer. Tel. & Cable.....	61½	63½	
Amer. Marconi Stamped....	5c.	20c.	
Amer. Marconi Unstamped..	6	8	
Amer. Tel. & Tel.	123	124	
Baldwin Radio Corp.	5	8	
Canadian Marconi	2¼	3	
De Forest Radio	8	11	
English Marconi com.	11½	14½	
English Marconi pfd.	11	14	
Federal Tel. Co. (Calif.)...	6¾	7¼	
Federal Tel. & Tel. (N. Y.)	9	13	
General Electric	173	174	
Internat. Tel. & Tel.	57	63	
Mackay Co. com.	102½	103½	
Manhattan Elec. Supply....	52	53	
Marconi Int. Marine.....	7	9	
N. Y. Tel. 6½% pfd.	110	111	
Radio Corporation com.	4	4½	



A BETTER RHEOSTAT

A nicer looking, smoother working and better made rheostat than you have ever seen before.

Furnished with or without vernier this instrument will improve the operation of any radio equipment.

The many valuable features coupled with national advertising make this an instrument every dealer and jobber should stock—liberal discounts give ample margin of profit and low list means quick turnover. Order now.

List Prices
123A Plain..... 80c
Type 123B Vernier.....\$1.40

THE WILCOX LABORATORIES
LANSING MICHIGAN

Radio Corporation pfd.	3	3½
Reynolds Spring	12	15
Spanish Marconi	1½	3
Western Union	110	111
Westinghouse E. & M.	58	59

Detailed information on any of the above stocks will be furnished free upon request.

R-C CABINETS

R-C Line—Bass—Mahogany Finish—
Hinged Top

Panel Size	Net Trade Price
7 x 10.....	\$1.25
7 x 14.....	1.50
7 x 18.....	1.65
7 x 21.....	1.75

Radio Cabinets of every description, size and style.
Removable Base Cabinets. Also new feature cabinets not requiring drilling or screws for attaching panels.
Solid Mahogany, Hand Rubbed and Piano Finish

THE R-C MILLS, Not Inc.

Executive Offices:
30 E. 23 St., New York City

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SPECIAL VALUES OF

23 Plate Variable Condensers.
Radion top and bottom plates.

Wholesale prices.

In quantities of 100.....	\$1.25 each
200.....	1.15 "
500.....	1.10 "

Packed in handsome individual labelled boxes.

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Write for Our Proposition

SEABOARD RADIO CORPORATION
266 GRAND STREET, NEW YORK CITY
Phone Orchard 9156

"If a man can write a better book, preach a better sermon, or make a better mouse trap than his neighbor, though he build his house in the woods, the world will make a beaten path to his door."—EMERSON.

We have organized a better service to the retailer, "CSE" Service,—and the trade is making a path to our door. Why not join in and let us help you to larger radio business.

"CSE" Service is controlled by men of many years' experience in radio merchandising whose experience is at your service without additional cost.

To the trade in the Central States, we can offer the most comprehensive service—Engineering—Sales—Merchandising—of any organization. It will pay you to get in line with "CSE."

Central States Engineering Company

224 No. Halsted Street

Chicago, Illinois

THIS IS A RADIO CHRISTMAS!

LIST OF ADVERTISERS

(Advertisements Indexed by Products will be found on Pages 96 and 97 of this issue.)

<p>A</p> <p>Adams-Morgan Co..... 9</p> <p>Aerex Radiophone Corp..... 64</p> <p>Ajax Radio Corp..... 62</p> <p>Alden-Napier Co.....76, 91</p> <p>Allied Engineering Institute.. 23</p> <p>Allen-Bradley Co..... 83</p> <p>American Electro Phone Co.. 91</p> <p>American Hard Rubber Co.. 67</p> <p>American Radio Exposition Co. 3</p> <p>American Radio & Elec. Co. 74</p> <p>Andrae & Sons Co., Julius.... 76</p> <p>Arrow Radio Co.....70, 92</p> <p>Astorloid Mfg. Co., Inc..... 57</p> <p>Atlantic - Pacific Radio Supplies Co.....Inside Back Cover</p> <p>Atwater Kent Mfg. Co..... 55.</p> <p>Automatic Electrical Devices Co. 8</p> <p>B</p> <p>Bayley Condenser Co..... 66</p> <p>Bershaw Radio Mfg. Co..... 68</p> <p>Boone Mfg. Co., J. T..... 81</p> <p>Bremer-Tully Radio Co..... 90</p> <p>Briggs & Stratton Co..... 15</p> <p>Bristol Co., The..... 10</p> <p>C</p> <p>Capitol Phonolier Corp..... 91</p> <p>Caragol-Clarke Co., Inc..... 22</p> <p>Carbon Products Co., The.... 57</p> <p>Carter, Chauncey P..... 39</p> <p>Central Electrotpe Foundry. 76</p> <p>Central States Eng. Co..... 94</p> <p>Chaslyn Co..... 78</p> <p>Clapp-Eastham Co..... 86</p> <p>Comet Battery Co..... 78</p> <p>Continental Elec. Co..... 92</p> <p>Continental Fibre Co., The... 85</p> <p>Copper Clad Steel Co., The.. 80</p> <p>Corao Co., The..... 72</p> <p>Cozzone & Co., John A..... 93</p> <p>Crown Radio Mfg. Corp..... 12</p> <p>Culin, Curtis C..... 76</p> <p>D</p> <p>Diamant Tool & Mfg. Co., Inc. 76</p> <p>Diamond State Fibre Co..... 66</p> <p>Dictograph Products Corp.... 4</p> <p>Durham & Co..... 90</p> <p>E</p> <p>Eagle Radio Co..... 98</p> <p>Ebby Mfg. Co., The H. H..... 83</p> <p>E-D Mfg. Co., The..... 21</p> <p>Eisemann Magneto Corp..... 24</p> <p>Electric Produce Co..... 93</p> <p>Electric Service Supplies Co. 6</p> <p>Eshoo Cabinet Works, E..... 82</p> <p>Essex Mfg. Co..... 74</p> <p>Etherola Corp., The..... 93</p> <p>European Radio Co..... 84</p>	<p>F</p> <p>Fallgatter, Marvin B..... 80</p> <p>Federal Institute of Radio Telegraphy 55</p> <p>Federal Radio & Electric Co. 69</p> <p>Federal Telephone & Teleg. Co. 4</p> <p>Finch Radio Mfg. Co..... 92</p> <p>Fischer & Co., G. H..... 62</p> <p>Foote Mineral Co..... 78</p> <p>Ford Mica Co., Inc..... 85</p> <p>Freed-Eisemann Radio Corp.. 74</p> <p>French Battery & Carbon Co. 88</p> <p>Freshman Co., Inc., Chas.... 62</p> <p>Frost, Herbert H..... 10</p> <p>G</p> <p>Galena Crystal Mfg. Co..... 78</p> <p>General Merchandise Co..... 70</p> <p>Gilbert Co., The A. C..... 72</p> <p>Goetz Co., The Edw. J..... 76</p> <p>Gould Storage Battery Co.... 76</p> <p>Gregg & Co..... 92</p> <p>H</p> <p>Hafner Manufacturing Co.... 72</p> <p>Harris Laboratory, The..... 82</p> <p>Heinemann Electric Co..... 63</p> <p>Henley Publishing Co., The Norman W..... 78</p> <p>Holloway Elec. Supply Co., Inc. 80</p> <p>Hudson-Ross76, 82</p> <p>Hommell, Ludwig 29</p> <p>Hyman & Co., Inc., Henry.... 69</p> <p>I</p> <p>Inter-Ocean Radio Corp..... 17</p> <p>Invincible Products Co., Inc., The 93</p> <p>Industrial Sales Engineering Co. 88</p> <p>J</p> <p>Jackson, P. D..... 76</p> <p>Jewell Radio Sales Co..... 91</p> <p>Jewett Mfg. Corp..... 49</p> <p>Joy-Kelsey Corp..... 76</p> <p>K</p> <p>Kern, Emil Alexander..... 74</p> <p>King Sewing Machine Co.... 22</p> <p>Kramer Radio Co..... 76</p> <p>L</p> <p>Lafax, Inc..... 56</p> <p>Lewis & DeRoy Radio Corp.. 65</p> <p>M</p> <p>Maclite Radio Co..... 82</p> <p>Magna Instrument Co..... 7</p> <p>Magnovox Co..... 51</p> <p>Manhattan Storage Battery Co. 76</p> <p>Manufacturers Patent Co.... 76</p> <p>Marle Engineering Co..... 81</p> <p>Matthews, F. W..... 16</p>	<p>McKenna Brass & Mfg. Co... 78</p> <p>Mercury Radio Products Co. 62</p> <p>Metropolitan Radio Corp.... 59</p> <p>Mica Insulator Co..... 28</p> <p>Mibo Co., The..... 78</p> <p>Milliken Bros. Mfg. Co., Inc. 75</p> <p>Mills, R. C., The91, 94</p> <p>Mills Radio & Electric Co... 68</p> <p>Mitchell-Rand Mfg. Co..... 74</p> <p>Monach Radio Laboratories.. 92</p> <p>M. P. M. Sales Co..... 73</p> <p>Mu-Rad Laboratories, Inc.... 19</p> <p>Mydar Radio Corp., The..... 14</p> <p>N</p> <p>National Fibre & Insulation Co. 54</p> <p>New Haven Radio Co..... 90</p> <p>New York Coil Co..... 5</p> <p>New York Hard Rubber Turning Co..... 76</p> <p>New York Radio Dial Co.... 78</p> <p>New York Testing Laboratories 90</p> <p>Novo Manufacturing Co..... 87</p> <p>Nuloid Corporation 92</p> <p>O</p> <p>Orange Research Lab.....78, 86</p> <p>Oranola Radio Corp..... 13</p> <p>Owen, Richard B..... 70</p> <p>P</p> <p>Paramount Machine Co..... 74</p> <p>Parkin Mfg. Co..... 71</p> <p>Pathé Phonograph & Radio Corp. 8</p> <p>Permanent Radio Fair..... 73</p> <p>Pickens, F. D..... 79</p> <p>Pittsburgh Radio & Appliance Co., Inc..... 86</p> <p>Planet Radio Corp..... 70</p> <p>Post Electric Co..... 77</p> <p>Poster & Co..... 56</p> <p>Premier Accessory & Specialty Corp. 64</p> <p>Premier Radio Mfg. Co..... 89</p> <p>Pruden, Frederick H..... 26</p> <p>Q</p> <p>Queens Radio Co., Inc..... 71</p> <p>R</p> <p>Radio Apparatus Co..... 86</p> <p>Radio Distributing Co., Back Cover</p> <p>Radio Improvement Co..... 61</p> <p>Radio Instrument Co..... 16</p> <p>Radio Mica Products Co., Inside Front Cover</p> <p>Radio Outfitting Corporation. 88</p> <p>Radio Products Mfg. Co..... 68</p> <p>Radiola Wireless Corp..... 76</p> <p>Radio Shop of Newark, The. 80</p> <p>Radio Stores Corp..... 93</p> <p>Randel Wireless Co..... 85</p> <p>Rauland Mfg. Co..... 72</p> <p>R-C Mills, The..... 94</p> <p>R-C Outlet, The..... 91</p>	<p>Rocco, George 84</p> <p>Ross-Gould Co..... 82</p> <p>Royal Electric Laboratories.. 11</p> <p>Rusonite Products Corp..... 74</p> <p>S</p> <p>Save Sales Co..... 32</p> <p>Scheib Elec. Radio Co..... 54</p> <p>Schwab, Harold M., Inc..... 74</p> <p>Seaboard Radio Corporation.. 94</p> <p>Shamrock Radio Co..... 74</p> <p>Signal Radio & Elec. Corp.. 12</p> <p>Specialty Service Co..... 87</p> <p>Spiro Brothers 89</p> <p>S. S. Novelty Co..... 56</p> <p>Staff Co., Louis A..... 88</p> <p>Standard Appliance Mfg. Corp. 86</p> <p>Standard Crystal Co..... 77</p> <p>Standard Products Co..... 93</p> <p>Stanton Co., Frank T..... 82</p> <p>States Electric Co..... 64</p> <p>Steinmetz Wireless Mfg. Co.. 88</p> <p>Superior Products Mfg. Corp. 92</p> <p>T</p> <p>Tait-Knob-And Dial Co..... 28</p> <p>T. B. H. Corporation 80</p> <p>Thornton Transformer Co.... 74</p> <p>Thresher Radio Corp..... 58</p> <p>Trade Circular Addressing Co. 78</p> <p>Triangle Phono-Parts Co..... 53</p> <p>Tresco Radio 87</p> <p>Triangle Radio Supply Co.... 60</p> <p>Truc-Tone Radio Mfg. Co.... 98</p> <p>U</p> <p>United Mfg. & Distributing Co. 75</p> <p>U. S. Radio Co. of Penna., Inc. 73</p> <p>United Service Advertising... 76</p> <p>United Specialties Co., Inc... 52</p> <p>Universal Stamping & Mfg. Co. 98</p> <p>V</p> <p>V-De-Co Radio Mfg. Co..... 86</p> <p>Victor Radio Corp..... 30</p> <p>Viking Radio Co..... 76</p> <p>Virginia Radio Corp..... 68</p> <p>Volta Engineering Co..... 88</p> <p>W</p> <p>W. E. Supply and Service.. Corp. 92</p> <p>White Radio Co..... 74</p> <p>Wholesale Radio Equip. Co., Front Cover</p> <p>Wiener Wireless Specialty Co. 92</p> <p>Wilcox Laboratories 94</p> <p>Wilmington Electrical Specialty Co., Inc..... 67</p> <p>Wilson, Inc., A. M..... 82</p> <p>Wilson & Co., E. M..... 79</p> <p>Winkler, Inc., Chas..... 77</p> <p>Z</p> <p>Zeller Lacquer Mfg. Co., Inc.. 52</p> <p>Zwingenberger, Otto K..... 82</p>
---	---	---	--

Where to Buy

A Handy Guide For the Convenience of Our Readers

"A" BATTERIES		COMPLETE LINE		Kramer Radio Co.....	76
Manhattan Storage Battery Co., Inc.	76	American Radio & Electric Co.....	74	New York Coil Co.....	5
AERIAL EQUALIZER TUBES		Adams-Morgan Co.....	9	Pittsburgh Radio & Appliance Co..	86
The Etherola Corp.....	93	Clapp Eastham Co.....	86	Pruden, Frederick H., Inc.....	26
AGENTS WANTED		Freed-Eisemann Radio Corp.....	74	Radio Distributing Co.....	Back Cover
Foote Mineral Co.....	78	Henry Hyman Co.....	69	Radio Shop of Newark, The.....	80
AMPLIFIERS		Gilbert Co., A. C.....	72	Specialty Service Co.....	87
Arrow Radio Co.....	70	Victor Radio Corp.....	30	Schwab, Harold M.....	74
Magnavox Co.....	51	COMPOSITION		Triangle Radio Supply Co.....	60
Save Sales Co.....	32	Diamond State Fibre Co.....	66	Virginia Radio Corp.....	68
Steinmetz Wireless Mfg. Co.....	88	Nuloid Corp.....	92	Weiner Wireless Specialty Co.....	92
AMPLIFIER UNITS		CONDENSERS		Wilmington Electrical Specialty Co., Inc.	67
Atwater Kent Mfg. Co.....	55	Bayley Condenser Co.....	66	Wholesale Radio Equipment Co.....	Front Cover
ANTENNA WIRE		European Radio Co.....	84	ELECTRICAL TESTING	
Copper Clad Steel Co.....	80	New Haven Radio Co.....	90	New York Testing Laboratories.....	90
APPARATUS FOR SALE		Scheib Elec. Radio Co.....	54	ELECTROTYPERS	
United Service Advertising.....	76	Thresher Radio Corp.....	58	Central Electrotype Foundry Co.....	76
BATTERY CHARGERS		COUPLERS		ENGRAVING	
The Automatic Elec. Devices Co....	8	Capitol Phonolier Corp.....	91	Paramount Machine Co.....	74
"B" BATTERIES		CRYSTALS		EXPOSITIONS	
Gould Storage Battery Co.....	76	Galena Crystal Mfg. Co.....	78	American Radio Exposition Co.....	3
Novo Mfg. Co.....	87	Harris Laboratory.....	82	Permanent Radio Fair.....	73
BATTERIES		Radio Apparatus Co.....	86	FINISH	
Carbon Products Co.....	57	Rusonite Products Corp.....	74	Zeller Laquer Mfg. Co., Inc.....	52
Comet Battery Co.....	78	Standard Crystal Co.....	77	GRID LEAKS	
French Battery & Carbon Co.....	88	CRYSTAL DETECTORS		Durham & Co.....	90
BATTERY TESTERS		Continental Electric Co.....	92	Freshman Co., Inc., Chas.....	62
Chaslyn Co.....	78	Diamant Tool & Mfg. Co., Inc.....	76	HEAD SETS	
BESTONE PRODUCTS		M. P. M. Sales Co.....	73	Briggs & Stratton Co.....	15
Henry Hyman & Co., Inc.....	69	Premier Radio Mfg. Co.....	89	Dictograph Products Corp.....	4
BINDING POSTS		Randel Wireless Co.....	85	Mills Radio & Electric Co.....	68
The H. H. Eby Mfg. Co.....	83	CRYSTAL SETTING		Pruden, Fred. H.....	26
King Sewing Machine Co.....	22	Culin, Curtis C.....	76	Royal Electrical Laboratories.....	11
McKenna Brass & Mfg. Co.....	78	CRYSTAL SETS		Superior Products Mfg. Co.....	92
BOOKS		Diamant Tool & Mfg. Co., Inc., Co..	76	HYDROMETERS	
Allied Engineering Institute.....	23	DIALS		Hafner Mfg. Co.....	72
Norman W. Henley Pub. Co.....	79	Alden-Napier Co.....	91	INFORMATION	
Lafax, Inc.....	56	New York Radio Dial Co.....	78	Service Bureau	18
CABINETS		DISTRIBUTORS		JACKS	
E. Eshoo Cabinet Works.....	82	American Electro Phone Co., Inc....	91	Radio Improvement Co.....	61
Marvin B. Fallgatter.....	80	Andrac & Sons Co., Julius.....	76	KNOBS & DIALS	
Miho Co., The.....	78	Arrow Radio Co.....	70, 92	King Sewing Machine Co.....	22
R-C Mills, The.....	94	Central States Engineering Co.....	94	Tait Knob & Dial Co.....	28
CABINET SETS		Electric Service Supplies Co.....	6	LIGHTNING ARRESTERS	
Heinemann Electric Co.....	63	Federal Radio & Electric Co.....	60	Electric Service Supplies Co.....	6
Oranola Radio Corporation.....	13	Frost, Herbert H.....	10	LOOP AERIALS	
COIL MOUNTINGS		General Merchandise Co.....	70	Eagle Radio Co.....	98
Astorloid Mfg. Co.....	57	Goetz Co., The Edw. J.....	76	Hudson-Ross	76
Crown Radio Mfg. Corp.....	12	Hudson-Ross	67	V-De-Co.	86
		Hommell, Ludwig.....	29		
		Invincible Products Co.....	93		
		Jackson, P. D.....	76		

SEE ALPHABETICAL INDEX OF ADVERTISERS ON PAGE 95

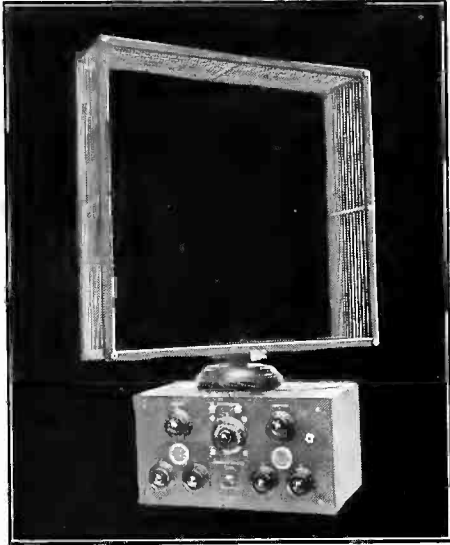
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Where to Buy

A Handy Guide for the Convenience of Our Readers

LOUD SPEAKERS		RECEIVING SETS		TESTING LABORATORIES	
Bristol Co., The.....	10	Atlantic-Pacific Radio Supplies Co. Inside Back Cover		Gregg & Co.....	92
Dictograph Products Corp.....	4	Arrow Radio Co.....	92	N. Y. Testing Laboratories.....	90
Inter-Ocean Radio Corp.....	17	Aerex Radiophone Co.....	64	TOWERS	
Magnavox Co., The.....	51	Caragol-Clarke Co., Inc.....	22	Milliken Bros. Mfg. Co., Inc.....	75
Pathé Phonograph & Radio Corp....	8	Coraco Co., The.....	72	TRADE MARKS	
Planet Radio Corp.....	70	Eagle Radio Co.....	98	Carter, Chauncey P.....	89
Triangle Phono-Parts Co.....	53	E-D Mfg. Co., The.....	21	TRANSFORMERS	
States Electric Co.....	64	Federal Tel. & Teleg. Co.....	4	Boone Mfg. Co., J. T.....	78
MAILING LISTS		Holloway Elec. Supply Co., Inc....	80	Fed'l Institute of Radio Telegraphy.	25
Pickens, F. D.....	79	Jewett Mfg. Co.....	49	Ford Mica Co.....	85
Ross-Gould Co.....	82	Joy-Kelsey Corp.....	76	Marle Engineering Co.....	81
Trade Circular Addressing Co.....	78	Lewis & DeRoy Radio Corp.....	65	Radio Instrument Co.....	16
MERCHANDISE WANTED		Matthews, F. W.....	16	Rauland Mfg. Co.....	72
R-C Outlet, The.....	91	Mercury Radio Products Co.....	62	Thornton Transformer Co.....	74
MICA		Metropolitan Radio Corp.....	59	United Mfg. & Distributing Co.....	75
Mica Insulator Co.....	28	Mu-Rad Laboratories, Inc.....	19	TUBES	
MICA DIAPHRAGMS		Oranola Radio Corp.....	13	Hudson-Ross	76
Radio Mica Products Co.....		Radio Outfitting Corp.....	88	TUNING COILS	
		Save-Sales Corp.....	32	Bershaw Radio & Mfg. Co.....	68
		Seaboard Radio Corp.....	94	UNIT TYPE SETS	
		Signal Radio & Elec. Corp.....	12	Magna Instrument Co.....	7
		Standard Products Co.....	93	V. T. SETS	
		Tresco Radio.....	87	Queens Radio Co., Inc.....	71
		United Specialties Co., Inc.....	52	VACUUM TUBE SOCKETS	
		U. S. Radio Co. of Penna., Inc.....	78	Alden-Napier Co.....	70
		Victor Radio Corp.....	30	VACUUM TUBE ADAPTER	
		W. E. Supply & Service Corp.....	92	The Mydar Radio Co., Inc.....	14
		Wilson & Co., E. M.....	79	VARIABLE CONDENSERS	
		Winkler, Inc., Chas.....	77	Bayley Condenser Co.....	66
PANELS		RHEOSTATS		Cozzone & Co., George A.....	93
American Hard Rubber Co.....	67	Allen-Bradley Co.....	83	Radio Stores Corporation.....	93
Continental Fibre Co., The.....	85	Parkin Mfg. Co.....	71	Spiro Bros.....	89
National Fibre & Insulation Co.....	54	Radiola Wireless Corp.....	76	Standard Appliance Mfg. Corp.....	80
New York Hard Rubber Turning Co.	76	Staff Co., Louis A.....	88	Universal Stamping & Mfg. Co.....	98
Pittsburgh Radio & Appliance Co...	86	Thresher Radio Corp.....	58	VARIO-COUPLERS	
Poster & Co.....	56	Wilcox Laboratories, The.....	94	Essex Mfg. Co.....	74
PATENTS		SHIELDS		Jewell Radio Sales Co.....	91
Kern, Emil Alexander.....	74	Orange Research Lab.....	86	Maclite Radio Co.....	82
Owen, Richard B.....	70	SOCKET RHEOSTAT		Queens Radio Co., Inc.....	71
Manufacturers Patent Co.....	76	Ajax Radio Corp.....	62	Shamrock Radio Co.....	74
Wilson, Inc., A. M.....	82	SOCKETS		Viking Radio Co.....	76
Zwingenberger, Otto K.....	82	Rocco, George.....	84	VARIO WAVE TUNER	
PHONES		SOLDERING IRON		Fischer & Co., G. H.....	62
Hudson-Ross	82	Post Electric Co.....	77	VARIOMETERS	
Mills Radio & Elec. Co.....	63	SPAGHETTI TUBING		Eisemann Magneto Corp.....	24
Premier Accessory & Specialty Corp.	64	Mica Insulator Co.....	28	Radio Products Mfg. Co.....	68
T-B-H Corporation.....	80	Mitchell-Rand Mfg. Co.....	74	Volta Engineering Co.....	88
True-Tone Radio Mfg. Co.....	98	SPIDER-WEB COILS		VERNIER CONDENSERS	
PLUGS		Orange Research Laboratories.....	75	Bremer-Tully Radio Co.....	90
S. S. Novelty Co.....	56	STOCK BROKERS		Electric Products Co.....	93
RADIPHONO ADAPTER		Stanton & Co., Frank T.....	82	WIRE	
Industrial Sales Engineering Co.....	88	TESTING LABORATORIES		White Radio Co.....	74
RADIO EQUIPMENT WANTED		TOWERS		TRADE MARKS	
Monarch Radio Laboratories.....	92	Milliken Bros. Mfg. Co., Inc.....	75	TRANSFORMERS	
RADIO RELAYS		TESTING LABORATORIES		Boone Mfg. Co., J. T.....	78
Finch Radio Mfg. Co.....	92	Gregg & Co.....	92	Fed'l Institute of Radio Telegraphy.	25
RADIO TOWERS		N. Y. Testing Laboratories.....	90	Ford Mica Co.....	85
Milliken Bros. Mfg. Co., Inc.....	75	TOWERS		Marle Engineering Co.....	81
RECEIVING SETS		Milliken Bros. Mfg. Co., Inc.....	75	Radio Instrument Co.....	16
Atlantic-Pacific Radio Supplies Co. Inside Back Cover		TRADE MARKS		Rauland Mfg. Co.....	72
Arrow Radio Co.....	92	Carter, Chauncey P.....	89	Thornton Transformer Co.....	74
Aerex Radiophone Co.....	64	TRANSFORMERS		United Mfg. & Distributing Co.....	75
Caragol-Clarke Co., Inc.....	22	Boone Mfg. Co., J. T.....	78	TUBES	
Coraco Co., The.....	72	Fed'l Institute of Radio Telegraphy.	25	Hudson-Ross	76
Eagle Radio Co.....	98	Ford Mica Co.....	85	TUNING COILS	
E-D Mfg. Co., The.....	21	Marle Engineering Co.....	81	Bershaw Radio & Mfg. Co.....	68
Federal Tel. & Teleg. Co.....	4	Radio Instrument Co.....	16	UNIT TYPE SETS	
Holloway Elec. Supply Co., Inc....	80	Rauland Mfg. Co.....	72	Magna Instrument Co.....	7
Jewett Mfg. Co.....	49	Thornton Transformer Co.....	74	V. T. SETS	
Joy-Kelsey Corp.....	76	United Mfg. & Distributing Co.....	75	Queens Radio Co., Inc.....	71
Lewis & DeRoy Radio Corp.....	65	TUBES		VACUUM TUBE SOCKETS	
Matthews, F. W.....	16	Hudson-Ross	76	Alden-Napier Co.....	70
Mercury Radio Products Co.....	62	TUNING COILS		VACUUM TUBE ADAPTER	
Metropolitan Radio Corp.....	59	Bershaw Radio & Mfg. Co.....	68	The Mydar Radio Co., Inc.....	14
Mu-Rad Laboratories, Inc.....	19	UNIT TYPE SETS		VARIABLE CONDENSERS	
Oranola Radio Corp.....	13	Magna Instrument Co.....	7	Bayley Condenser Co.....	66
Radio Outfitting Corp.....	88	V. T. SETS		Cozzone & Co., George A.....	93
Save-Sales Corp.....	32	Queens Radio Co., Inc.....	71	Radio Stores Corporation.....	93
Seaboard Radio Corp.....	94	VACUUM TUBE SOCKETS		Spiro Bros.....	89
Signal Radio & Elec. Corp.....	12	Alden-Napier Co.....	70	Standard Appliance Mfg. Corp.....	80
Standard Products Co.....	93	VACUUM TUBE ADAPTER		Universal Stamping & Mfg. Co.....	98
Tresco Radio.....	87	The Mydar Radio Co., Inc.....	14	VARIO-COUPLERS	
United Specialties Co., Inc.....	52	VARIABLE CONDENSERS		Essex Mfg. Co.....	74
U. S. Radio Co. of Penna., Inc.....	78	Bayley Condenser Co.....	66	Jewell Radio Sales Co.....	91
Victor Radio Corp.....	30	Cozzone & Co., George A.....	93	Maclite Radio Co.....	82
W. E. Supply & Service Corp.....	92	Radio Stores Corporation.....	93	Queens Radio Co., Inc.....	71
Wilson & Co., E. M.....	79	Spiro Bros.....	89	Shamrock Radio Co.....	74
Winkler, Inc., Chas.....	77	Standard Appliance Mfg. Corp.....	80	Viking Radio Co.....	76
PANELS		Universal Stamping & Mfg. Co.....	98	VARIO WAVE TUNER	
American Hard Rubber Co.....	67	VARIO-COUPLERS		Fischer & Co., G. H.....	62
Continental Fibre Co., The.....	85	Essex Mfg. Co.....	74	VARIOMETERS	
National Fibre & Insulation Co.....	54	Jewell Radio Sales Co.....	91	Eisemann Magneto Corp.....	24
New York Hard Rubber Turning Co.	76	Maclite Radio Co.....	82	Radio Products Mfg. Co.....	68
Pittsburgh Radio & Appliance Co...	86	Queens Radio Co., Inc.....	71	Volta Engineering Co.....	88
Poster & Co.....	56	Shamrock Radio Co.....	74	VERNIER CONDENSERS	
PATENTS		Viking Radio Co.....	76	Bremer-Tully Radio Co.....	90
Kern, Emil Alexander.....	74	VARIO WAVE TUNER		Electric Products Co.....	93
Owen, Richard B.....	70	Fischer & Co., G. H.....	62	WIRE	
Manufacturers Patent Co.....	76	VARIOMETERS		White Radio Co.....	74
Wilson, Inc., A. M.....	82	Eisemann Magneto Corp.....	24	TESTING LABORATORIES	
Zwingenberger, Otto K.....	82	Radio Products Mfg. Co.....	68	Gregg & Co.....	92
PHONES		Volta Engineering Co.....	88	N. Y. Testing Laboratories.....	90
Hudson-Ross	82	VERNIER CONDENSERS		TOWERS	
Mills Radio & Elec. Co.....	63	Bremer-Tully Radio Co.....	90	Milliken Bros. Mfg. Co., Inc.....	75
Premier Accessory & Specialty Corp.	64	Electric Products Co.....	93	TRADE MARKS	
T-B-H Corporation.....	80	WIRE		Carter, Chauncey P.....	89
True-Tone Radio Mfg. Co.....	98	White Radio Co.....	74	TRANSFORMERS	
PLUGS		TESTING LABORATORIES		Boone Mfg. Co., J. T.....	78
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Finch Radio Mfg. Co.....	92	TRANSFORMERS		United Mfg. & Distributing Co.....	75
RADIO TOWERS		Boone Mfg. Co., J. T.....	78	TUBES	
Milliken Bros. Mfg. Co., Inc.....	75	Fed'l Institute of Radio Telegraphy.	25	Hudson-Ross	76
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Zwingenberger, Otto K.....	82	White Radio Co.....	74	TRANSFORMERS	

SEE ALPHABETICAL INDEX OF ADVERTISERS ON PAGE 95



The PORTABLOOP RECEIVER

With a Baldwin Phone and a horn, loud enough volume is received for the home. No other amplifier is necessary

Mr. Dealer

WHY bother with outdoor aerials when the Portabloop Receiver can be demonstrated in the home without any loss of time?

Write for Discounts

We can make rush shipments.



210 Central Avenue

Quick, Profitable Turn-Over

TRUE-TONE PHONES

“True-Tone”
SUPERSENSITIVE
3000 Ohms

Embody every factor of scientific Design. Perfection in Performance and Appearance.

\$ 5.00
LIST
3000
Ohms

Worth More, Yet, Cost Less. Backed By a Real Guarantee of Quality. Maximum Wire Turns. Super-strength Tungsten Magnets. Noiseless Tinsel Cords. Mercerized finish. Web covered Comfort Head Band. Cups and Caps of lustrous Black Composition.

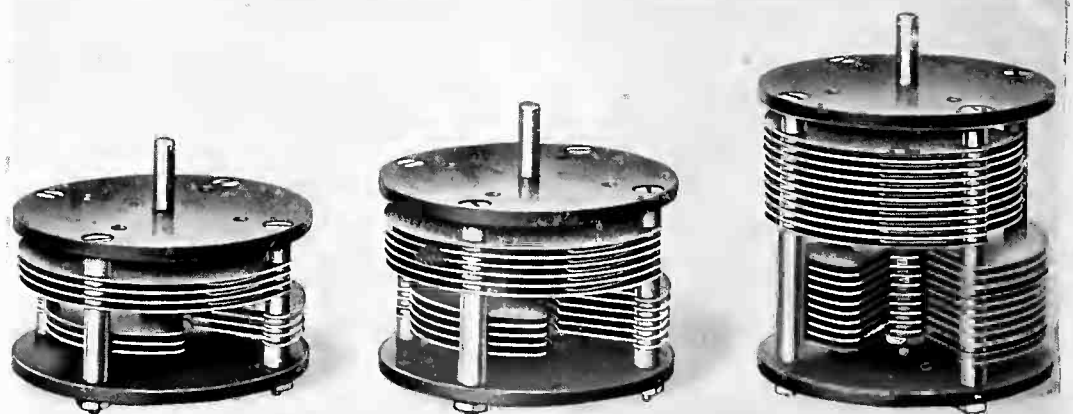
“True Tone”
National Advertising
is behind You

Clear and Loud

JOBBER [Write or wire—NOW—for “True-Tone” Discounts They are liberal] DEALER

TRUE TONE RADIO MFG. CO.
186 North La Salle Ave., CHICAGO, ILL.

Ask Our Service Bureau



“Universal” Balanced Variable Condenser

All important mechanical and electrical features are embodied in the construction of the “Universal” Balanced Variable Condenser. The instrument is readily mounted on the back of panels and balanced. The “Universal” Balanced Variable Condenser is made in three sizes, as follows:

14 plates	—	.0003 M.F.	List Price, \$3.00
22 “	—	.0005 M.F.	“ “ 4.00
42 “	—	.001 M.F.	“ “ 5.00

Special discounts, according to quantity.

All condensers are guaranteed as to workmanship and material and tested before leaving factory.

Universal Stamping & Mfg. Co.
1925 South Western Ave., Chicago, Ill.

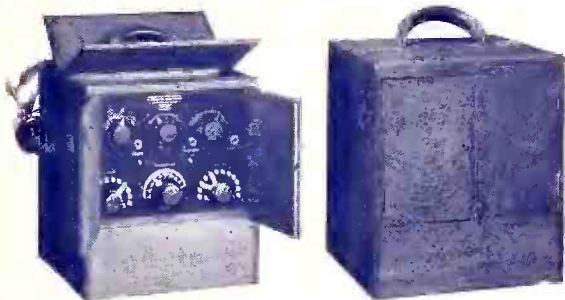
THIS IS A RADIO CHRISTMAS!

— for cottage or skyscraper —

This will be A RADIO CHRISTMAS

Christmas shoppers are going to buy radio apparatus this year, heaps of it, because A-P advertising has heralded the passing of barriers that have stood between radio and the masses. They know that from the *A-P quality line* they can now select sets so supremely simple anyone can operate them, so compact they are adapted for use in any location from the tiniest cottage to the tallest skyscraper, so efficient that broadcasted programs may be received from stations both far and near with perfect ease and clearness. For instance—

The Oard Phantom Receptor



An A-P set so simple, compact, and complete within itself it can be used successfully in *any location* by *any person* who desires to receive radio programs or communications. *It requires neither aerial nor ground connection.* Efficient over both short and long distances. Highly selective.

Type AR-2 Receiver Detector and two-stage Amplifier



A beautiful regenerative set complete in a single cabinet. Combines ease of operation with marked sensitiveness and selectivity in action. Wave length, 175 to 2,000 meters.

If you want your share of this profitable Christmas business, don't wait to write, but wire Department "D" now for full particulars.



Atlantic-Pacific Radio Supplies Co.
646 Mission St. — San Francisco, Cal.

Radio reaches up!

The Oard PHANTOM Receptor makes the use of radio practicable for locations in large hotels, apartment houses, banks, office buildings, etc. because it is so easy to install and so simple to operate. It requires neither aerial nor ground connection.

*“When You Think of Radio—
Think of Radisco”*

∴ ∴ ∴

Radisco means Service

Radisco has served thousands of radio dealers all over the country for several years.

∴ ∴ ∴

Special facilities enable Radisco to give good service and prices to radio dealers.

∴ ∴ ∴

This will be a radio Christmas for you if you are farsighted enough to order and get your stocks now.

∴ ∴ ∴

Remember—Radisco's ample stocks of Acme, Murdock, Radio Corporation, Clapp-Eastham, Brandes and many others are yet at your disposal.

∴ ∴ ∴

Get your stocks now—and cash
in on the Holiday business.

Radio Distributing Company

8 West Park St., Newark, N. J.

A. H. CORWIN, General Manager

RADISCO