

The RADIO DEALER

Vol. 2 No. 4 **JANUARY, 1923** One Dollar The Year

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Start the
New Year Right!

with

Standard Nationally Advertised Radio Merchandise

PROFIT by last year's experience. Make nationally advertised merchandise the keynote of your new merchandising policies. Branded goods need no pushing. The public demands them. They know their value—they are willing to pay for them. Branded goods involve no risk. They are certain sellers—they mean rapid turnover. The Wholesale Radio Equipment Company offer the latest lines of branded goods—it offers the best of service and absolute protection. Let us tell you more about our services. Drop us a card.



**Become an Authorized DeForest Dealer. Write for Contract.
Limited Number in Each Territory.**

A New Profit-Winner Burke Socket Adapter

The only adapter permitting the use of the 1½-volt W-D-11 tube in any standard open base socket without raising the tube or changing connections. As easy to insert in the socket as is the tube itself. Change from 6-volt to 1½-volt tube, or vice-versa, in a moment. Made of the finest materials and fully guaranteed.

Packed Individually;
100 to a Case.

LIST PRICE, \$1.00
Write for Discounts.

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
Bradleystat
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.

*List Price of
Red Seal Radio Sparkers*

No. 221-R 2 cell—\$1.00
No. 262-R 6 cell— 3.10
No. 282-R 8 cell— 4.00



It's New!

The Red Seal Radio Sparker

*A special Radio Dry
Battery for operating
the small WD-11
Vacuum Tubes*

THE makers of Red Seal Dry Batteries announce a special battery to operate the 1½ volt radio vacuum tubes.

At a nominal cost for adapters, 6 volt tube sets can be quickly and easily changed over to use dry battery tubes.

Radio Sparkers operating receiving sets equipped with these tubes are a great advancement in convenience and saving over the earlier type operated by a storage battery.

Radio Sparkers are light in weight and easy to handle. They are dry and clean with no injurious acid to spill. They will not scratch nor mar the finest table top.

Red Seal Radio Sparkers require no care or servicing—a great advantage to those living on farms or at points distant from battery charging stations.

The cost per hour of service rendered by a Red Seal Radio Sparker is much less than the cost per hour of service rendered by a storage battery, taking into consideration initial and recharging costs.

The individual special radio cells in Radio Sparkers are connected in parallel, and the actual operating life of the cells is increased from 2¼ to 2½ times the operating life of a single dry cell.

Red Seal Radio Sparkers are made in three different sizes to operate sets using from 1 to 4 WD-11 Vacuum Tubes. Complete wiring diagrams with instructions appear on the labels of each battery.

Everyone wants the convenience of this new method of operating tube receiving sets; therefore, Red Seal Radio Sparkers will be amongst the fastest selling merchandise in your radio stock.

Sparkers have to be renewed. This adds to the sales volume and the quick turnover increases your profit.

The radio season is at its height. Phone, wire, or write your jobber *today* for an assortment of Radio Sparkers. Every day's delay means lost sales.

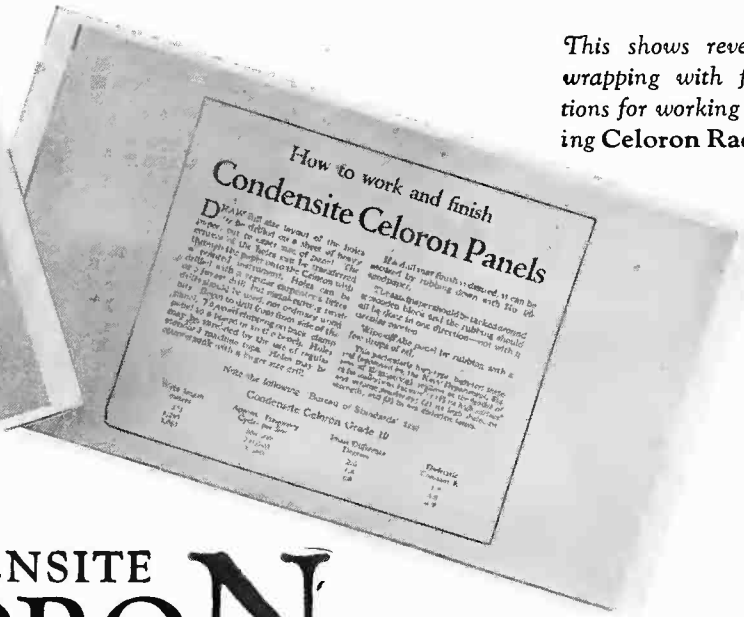
MANHATTAN ELECTRICAL SUPPLY CO., INC.

Makers of the famous Red Seal Dry Batteries and Manhattan Radio Telephone Sets
New York Chicago St. Louis San Francisco

This shows how Celoron Radio Panels are wrapped, marked and numbered.



This shows reverse side of wrapping with full instructions for working and finishing Celoron Radio Panels



CONDENSITE CELORON

STANDARD SIZE RADIO PANELS

Panel No.	Size	Net Weight per Panel	List Price per Panel	Panel No.	Size	Net Weight per Panel	List Price per Panel
1	6 x 7 x 1-8	.2625 lbs.	\$.71	5	9 x 14 x 3-16	1.18 lbs.	\$2.71
2	7 x 9 x 1-8	.394 lbs.	1.00	6	7 x 21 x 3-16	1.38 lbs.	3.31
3	7 x 12 x 1-8	.525 lbs.	1.26	7	12 x 14 x 3-16	1.575 lbs.	3.39
4	7 x 18 x 3-16	1.18 lbs.	2.83	*8	7 x 46 x 3-16	3. lbs.	7.20

* This strip for cutting special sizes. Not wrapped in Glassine.

* These prices are the list price to the Retail Trade and not the price to the consumer.

SUGGESTED STOCK ORDERS FOR RETAILERS

For your convenience we have made up two assortments of these panels after a very careful study of Dealer requirements, and can ship them immediately on receipt of your order.

ASSORTMENT No. 1

Quantity	Panel No.	Size	List Price	Total
20	1	6 x 7 x 1-8	\$.71	\$14.20
12	2	7 x 9 x 1-8	1.00	12.00
30	3	7 x 12 x 1-8	1.26	37.80
8	4	7 x 18 x 3-16	2.83	22.64
5	5	9 x 14 x 3-16	2.71	13.55
4	6	7 x 21 x 3-16	3.31	13.24
3	7	12 x 14 x 3-16	3.39	10.17
				\$123.60

ASSORTMENT No. 2

Quantity	Panel No.	Size	List Price	Total
10	1	6 x 7 x 1-8	\$.71	\$ 7.10
6	2	7 x 9 x 1-8	1.00	6.00
15	3	7 x 12 x 1-8	1.26	18.90
4	4	7 x 18 x 3-16	2.83	11.32
3	5	9 x 14 x 3-16	2.71	8.13
2	6	7 x 21 x 3-16	3.31	6.62
2	7	12 x 14 x 3-16	3.39	6.78
				\$64.85

These Prices subject to your regular Dealers Discount if billed thru your Jobber

Condensite Celoron is a particularly high type, high test material (approved by the Navy Dept. Bureau of Engineering and the U. S. Signal Corp) qualifies as the leader of radio insulations because of [1] its high surface and volume resistivity; [2] its high dielectric strength; and [3] its low dielectric losses.

We are now making it possible for you to sell Radio panels without the usual delay and extra cost of having panels cut to the order of your customers. These Radio panels are trimmed and wrapped in glassine to protect the surface, and are all ready to work and finish. The envelope is plainly marked to show number and size and has full instructions for working and finishing on the back.

Start your customer with a panel. Show him how to make his template and drill his board, and then sell him all the other parts to make a complete Radio set.



Diamond State Fibre Company

BRIDGEPORT (near Philadelphia) PENNSYLVANIA

BRANCH FACTORIES AND WAREHOUSES

BOSTON CHICAGO SAN FRANCISCO

Offices in Principal Cities

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

KING QUALITY
ALL THE NAME IMPLIES
RADIO APPARATUS

QUALITY—so outstanding in appearance, in design, in workmanship, in serviceability—that none dare deny its superiority.

Such a line as KING QUALITY any dealer may be proud to display and offer his customers as the Best on the market.

Increased sales and profits are the result of tying up with the KING QUALITY line. Write today to

RADIO APPARATUS DIVISION
King Sewing Machine Co., Buffalo, N. Y.
We maintain our own Bakelite Plant

KING QUALITY "Universal" Adapter. R-10 designed to fit all tubes and valves.

KING QUALITY Rheostat. R-630 Resistance valve 6.5 ohms. Special Brass Panel Bushing insures smooth operation. Genuine Bakelite Base and Knob.

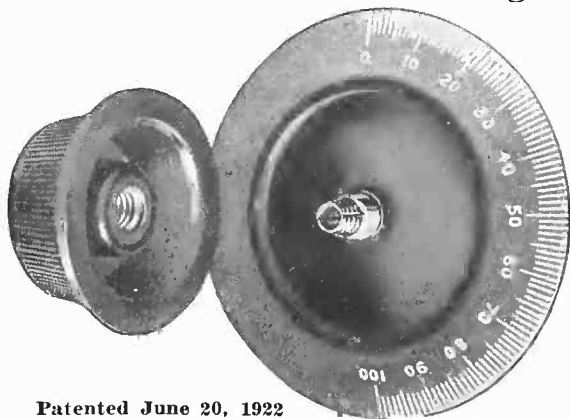
KING QUALITY Vernier Rheostat. R-631 provides micrometer adjustment resistance. Superior construction assures perfect control.

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

659 BERGEN AVENUE

NEW YORK

DON'T WASTE MONEY, TIME AND PATIENCE ON CHEAP IMPROPERLY DESIGNED RADIO PARTS.

Insist on getting NEW YORK COIL COMPANY'S Products, which insures entire satisfaction. Honestly priced, scientifically constructed and engineered to deliver the maximum results.

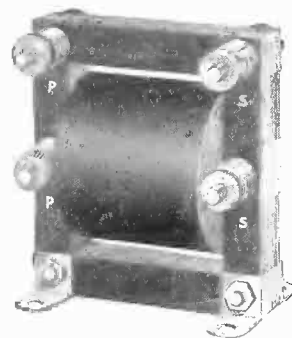
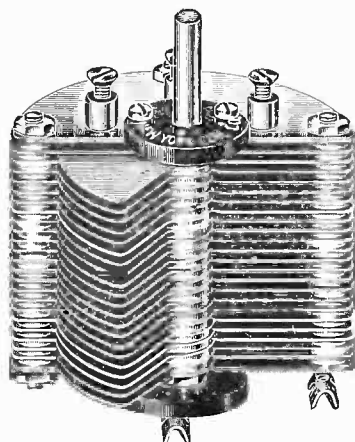
Each of the following articles are "thoroughbreds."

- 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.

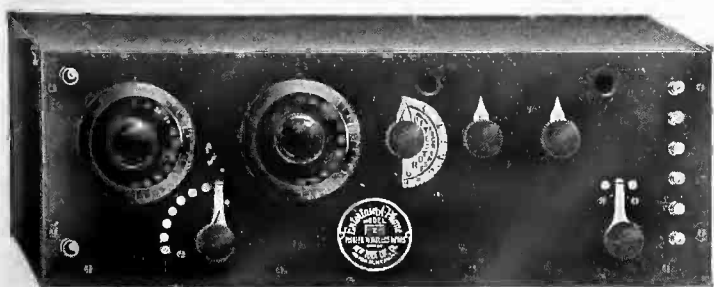
Our 180 degree Variocoupler contains 50 turns No. 20 wire on primary, and 40 turns No. 22 wire on secondary, Bakelite tubing and pigtail connections. The best made and most efficient Coupler in existence\$4.50



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.

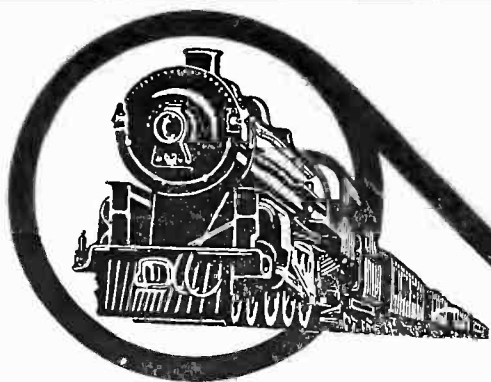


NEW YORK ENTERTAIN-A-PHONE RECEIVING SET No. 2—Complete with detector and two stages of amplification, all in one cabinet. Contains a non-regenerative two circuit hook-up with two stages audio amplification. Results are simply a revelation. It must be operated and heard to be appreciated. Workmanship 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.



The Set That Grows

makes good on the

BROADWAY LIMITED

The unequalled success of the recent tryout of a stock E-D set on the world famous Broadway Limited has startled the radio world. Everyone is talking about it and wants such a set. This set, with its loop antenna confined in a steel car traveling at high speed, astonished and delighted its audience with its uniform clarity of tone and broadness of range, even under feedwires of 11,000 volts A. C.

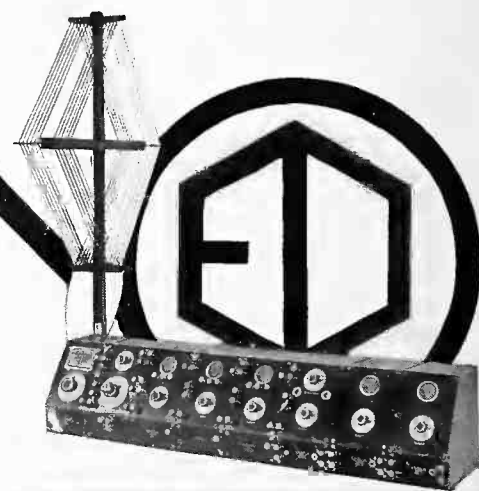
This set is built in unit-panels so as to obtain uniform flexibility and efficiency. Each unit is individually shielded and is uniform in appearance. The amateur, by purchasing basic E-D panels is able to start with the same high-grade equipment used in the completed set, and because of this, from the very beginning can obtain more selectivity in tuning and broadness of range than found in other low priced sets.

Naturally, this has created a broad public demand for E-D equipment. It is fast becoming both a history and profit making line for dealers. The set is built by practical engineers in a plant that has a 25-year-old reputation.

We cordially invite you to write for all the intimate details of this uniquely successful set.

The E. D. Manufacturing Company

3303 Arch Street
PHILADELPHIA



Cozzone Vernier Condenser



The following features are embodied in the
COZZONE CONDENSERS

1. Patented adjustable brake band, which by a slight turn of the screw gives the required tension desired.
2. Backs made of best genuine insulating material, which are guaranteed not to warp or get out of shape, thus giving a long life to the condenser.
3. Furnished with both binding posts and connector which allows for a soldered or plain connection in the post.
4. Soldered pig-tail connection to rotary plates, thereby eliminating any possibilities of dust accumulating at connecting points.
5. All parts made of brass and highly nickel plated, making an ideal finished product.
6. Steel template for locating rotary shaft, and three tightening screw holes on instrument.

Sold on a money back guarantee

JOHN A. COZZONE & CO.
61 Arlington St. Newark, N. J.

Retail price furnished complete with 2 dials

43 Plate \$7.50
23 Plate 6.50



—if you can afford to pay more—you will still prefer CROSLEY efficiency

From the most humble home to the elaborate drawing room, Crosley Instruments are preferred. Regardless of the many higher priced instruments on the market, the man who knows—even if he can afford to pay more—will choose Crosley.

There is no secret in this. Crosley Instruments are the acme of efficiency and simplicity and their construction is based on sound, fundamental principles. Numerous tests by disinterested parties all over the country will bear us out in this statement.

If you are a prospective purchaser demand that your dealer demonstrate Crosley Apparatus.

He should be able to furnish you with Crosley Apparatus. If not, send us his name and order direct.

If you are a Jobber or Dealer and do not already handle Crosley Instruments, you will be wise to satisfy the demand that our national advertising has created.

CROSLEY
BETTER-COST LESS
RADIO

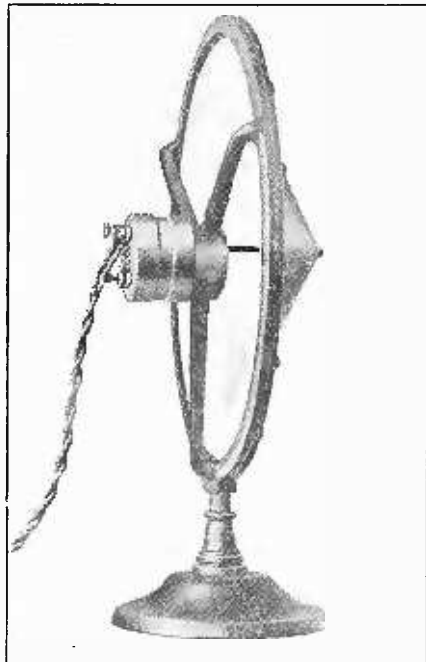
Complete sets from \$25 up, all kinds of parts and experimental units

Write for Catalog

Crosley Manufacturing Company
132 Alfred St., Cincinnati, Ohio

CROSLEY RECEIVER MODEL X, a four tube outfit, the same as shown in the above scene. It consists of tuner, one stage of Tuned Radio Frequency Amplification (the feature that has made this set so popular), Detector and two stages of Audio Frequency Amplification in a beautiful mahogany cabinet. It will bring in distant stations loud and clear. With this set, listeners in Florida have heard Winnipeg, San Francisco and Honolulu. Price, without phones, batteries or tubes \$55.00

THE PATHÉ LOUD SPEAKER



THE PATHÉ LOUD SPEAKER REPRODUCES EXACTLY THE SOUNDS SENT OUT BY THE BROADCASTING STATIONS. IT IS THE ONLY LOUD SPEAKER THAT CAN DO THIS.

List Price

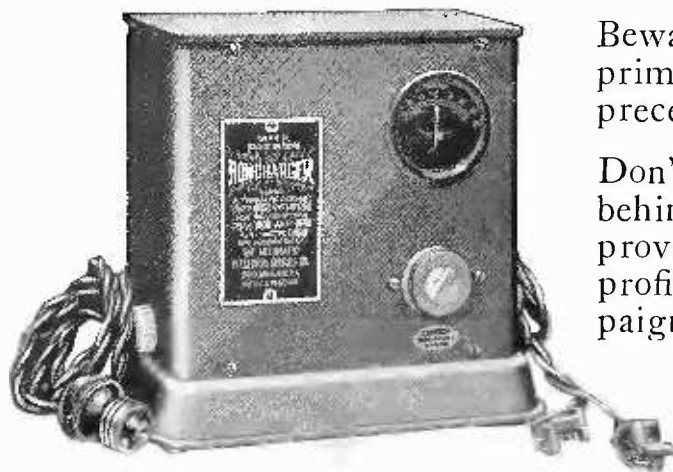
\$24.00 Nickel Finish

\$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 PATHÉ PHONOGRAPH AND RADIO CORPORATION
10-34 GRAND AVENUE, :: :: BROOKLYN, N. Y.

There Is Only ONE Homcharger



Beware of low priced, inefficient, imitations, designed primarily to "cash in" on the HOMCHARGER'S unprecedented popularity.

Don't be misled by long discounts, and low prices. Get behind a battery charger of established prestige and proven performance—one that will net you a generous profit—one that is backed by a REAL advertising campaign and dealer co-operation "to the limit."

THE
HOMCHARGER

is such a product—over 60,000 now in use—the most attractive merchandising proposition in the entire radio field. The only rectifier on the market embodying these NECESSARY features:

1—SELF-POLARIZING 2—HIGH CHARGING RATE 3—APPROVED BY UNDERWRITERS

Retail price \$18.50—complete with Ammeter, etc. See your jobber or write us direct for our proposition in detail.

DEALERS: Increase your profits and completely satisfy your customer by selling a HOMCHARGER with every Radio Set

The Automatic Electrical Devices Company

144 West Third Street

Cincinnati, Ohio

LARGEST MANUFACTURERS OF VIBRATING RECTIFIERS IN THE WORLD



From
Ben Franklin's Kite
to **Modern Radio**

IN the time of Franklin, the greatest minds of the day were groping toward some slight knowledge of electrical forces—to-day a child can operate the most intricate and marvellous electrical discovery of the age; namely, the radio receiver and amplifier.

Tell the Story, Dealers!

Radio brings music and knowledge of world events into the homes of the owners; entertainment and education, a means of keeping the family together in the home; ever new, Radio never stales and appeals equally to music lover, sports fan, children, adults, everybody.

Tell your customers these things for these are the reasons why they should buy Radio. Price?—there is a set for every purpose. Sell Radio.

Wire Collect Trial Order. Write for our new Illustrated Catalogue No. 222-D

LUDWIG HOMMEL & CO

530-534 FERNANDO ST.



PITTSBURGH, PENN'A

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

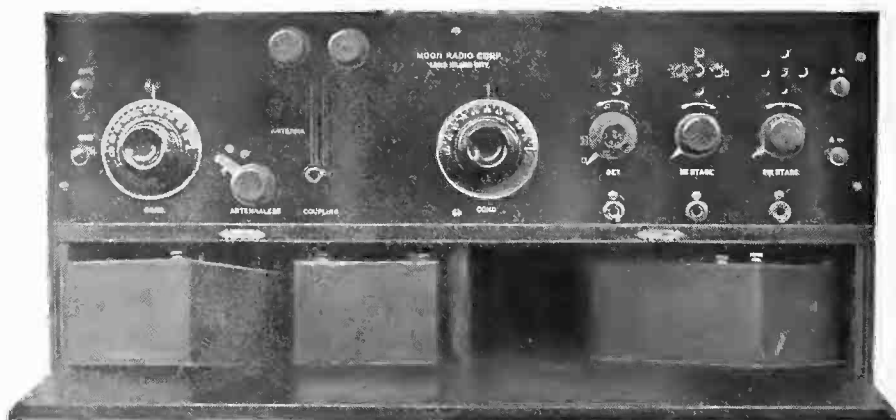


ONE STAGE POWER AMPLIFIER
Price \$25.00

ANNOUNCING

The New Moon Receiving Set "Satterlee Antennaless" Model C-1

This new set, Model C-1, invented by Dr. Francis Le Roy Satterlee, has made some remarkable records receiving on a loud speaker. Stations as far as Pittsburg, Chicago, Schenectady, etc., have been received on Long Island without any aerial whatsoever. A switch, mounted on the panel, allows an aerial to be used where one desires the reception of more distant stations.



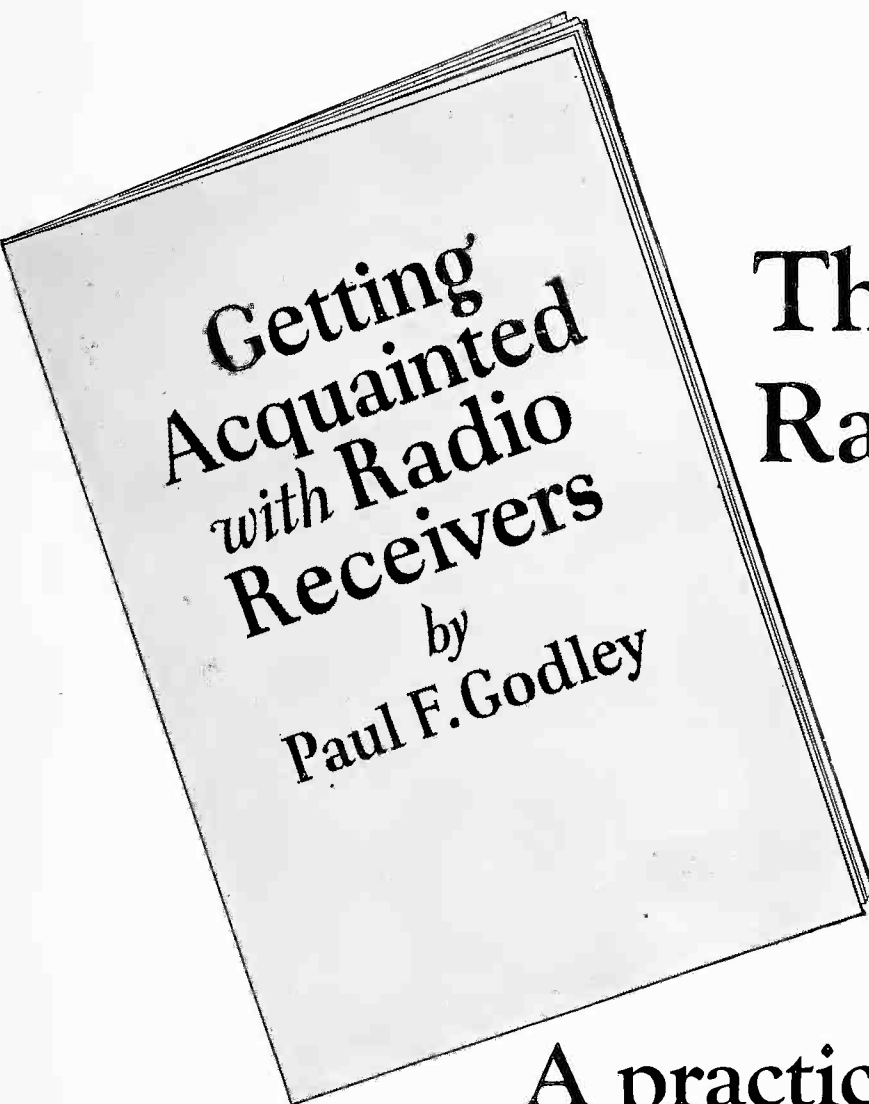
SHOWING MODEL C-1 WITH COMPARTMENT FOR
"B" BATTERIES. PRICE \$127.50

Two variable condensers are used for very sharp and selective tuning and a vernier rheostat on the detector tube. Model C-1 consists of a detector and two stages of audio frequency amplification, mounted in a highly polished solid mahogany cabinet with compartments for "B" batteries, eliminating a lot of unsightly wiring, as all "B" battery connections are made in the cabinet. Nothing but the highest grade material and workmanship are used in the manufacturing of these sets. **Dealers and Jobbers write for discounts.**

THE MOON RADIO CORP.

Manufacturers of
Ultra-fine Receiving Sets

12 Diagonal Street, Long Island City, N. Y.



Getting
Acquainted
with Radio
Receivers
by
Paul F. Godley

This Booklet on Radio Receivers Free to Dealers

A practical help in giving
the service that means more sales

PAUL F. GODLEY has written a booklet on radio receivers that every dealer who wants to give good service should send for at once. In simple, non-technical language it describes radio receivers, their functions, installation, operation and maintenance.

Everything is clearly explained with illustrations, circuit diagrams, plans for antennae, lay-out of apparatus, etc. It gives a *complete* and *correct* answer for every question a purchaser of a receiver is likely to ask.

Among the points covered are the following:

The Functions of a Radio Receiver

- Tuning Regenerative Receivers
- Why the "Tuner" Tunes
- What the Vacuum Tube Does
- The Vacuum Tube as an Amplifier

Installation

- Types of Antennae
- Ground Connections
- Lightning Protection

- Locating the Receiver
- "A" Battery and Its Care
- "B" Battery and Its Selection
- Loud Speakers

Operation

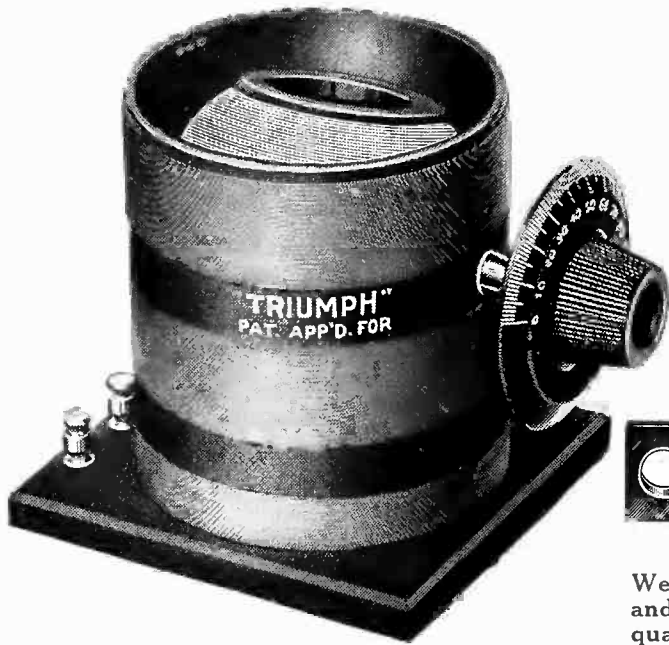
- Adjusting the Vacuum Tubes
- Testing the Circuits
- Adapting the Receiver to the Antenna
- Wave Length Calibration

Maintenance and Tests for Faults

The Adams-Morgan Company believes that this booklet will prove of such great practical value to enterprising radio dealers who *want* to give service that it has arranged for a special edition to be supplied *free* to the trade. So long as this edition lasts a complimentary copy will be sent to any radio dealer on request. To the general public the price will be 25 cents a copy. As the special edition is for dealers only and limited in number, we suggest that you write promptly on your business letterhead.

ADAMS-MORGAN COMPANY, 12 Alvin Avenue, Upper Montclair, N. J.

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
Embodies the Triumph Coupler-Meter
So simple that a child can operate it
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



F.M.C. Audio Frequency Transformers

are now being sold to Jobbers, Dealers and Manufacturers under a guarantee to give satisfaction. To customers this company will gladly send a set of transformers to any reliable house for test purpose with the understanding that same can be returned if not found satisfactory. Our prices are right. Thousands have been sold on repeat orders. Dealers can have their name on transformers if desired. Don't hesitate. Order a set. Try them out and the volume without distortion will surprise and satisfy anyone. We stand back of these transformers. So Dealers can always be sure of satisfied customers.

The following is a test report made by a well known New York radio engineer:

Ratio 5 to 1			
Primary Resistances	900	OHMS	
" Impedance	53000	"	at 500 Cycles
" Leakage Impedance	1080	"	" 500 "
" " Reactance	520	"	" 500 "
Secondary Resistance	6150	"	

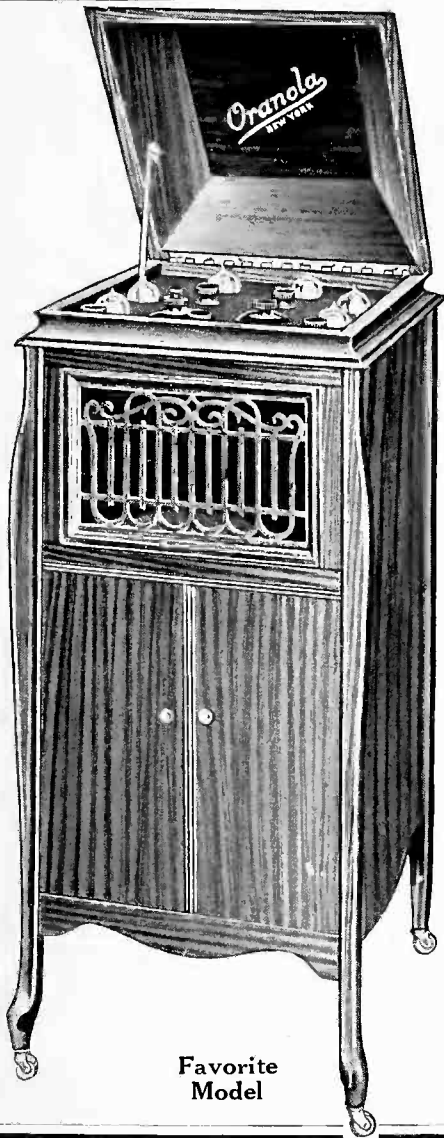
Using this transformer for one step amplification with UV 201 tube 40 volts on the plate, the amplification on mean voice frequencies is:

Audibility or telephone current increase	11.2	Times
Energy increase	126	"

FORD MICA CO., INC.

14 CHRISTOPHER STREET

NEW YORK



Favorite Model

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.

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.

Distributors Propositions open. Desirable Territory.

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

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

DISTRIBUTORS

NATIONAL RADIO PRODUCTS CO.
New York City

MONARCH RADIO LABORATORIES
Dallas, Texas

ORANOLA RADIO CORPORATION
228 SEVENTH AVENUE NEW YORK CITY

New! Better!

BESTONE RADIO PRODUCTS



Are you satisfied with mere "noise" and distorted "sounds" from your Receiving Set? It's all in the **QUALITY** of the apparatus used.

Bestone Wireless Apparatus are noted for scientific accuracy, clarity of tone and unusual volume. The Bestone products illustrated are without equal in design, construction and actual **RESULTS**.

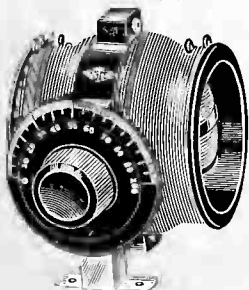
We manufacture a wide range of Crystal and Vacuum Tube Receiving Sets as well as a complete line of radio parts.

Attractive Proposition to Jobbers and Dealers

Send for Illustrated Catalog "R"
HENRY HYMAN & CO., INC.
Manufacturers

Executive Offices:
476 Broadway, New York

Branch:
212 W. Austin Ave., Chicago



Bestone Condensite Vario-Coupler

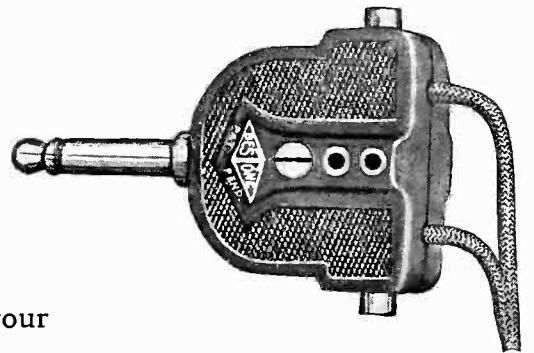
No. 712

The most improved vario-coupler on the market. Unequaled for appearance and results. Is constructed of genuine mahogany, mahogany-colored condensite, colored. By its unique design the primary and secondary coils take the same general outline within each other, placing them in very close proximity. Primary divided into 16 taps enables very close tuning. Equipped with 3-inch Bakelite dial. Price.....\$7.50

Bestone Amplifying Transformer

No. 715

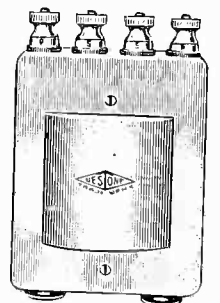
Without doubt this apparatus is the foremost type of its kind. Assures clarity and volume of tone as well as undistorted reception. This Bestone product is characterized by superiority of design, excellence of materials and scientific construction. Spaghetti tubing insulates all internal wiring. Is fully enclosed in handsome aluminum case. Price.....\$5.00



Bestone "Spring Grip" Telephone Plug

No. 727

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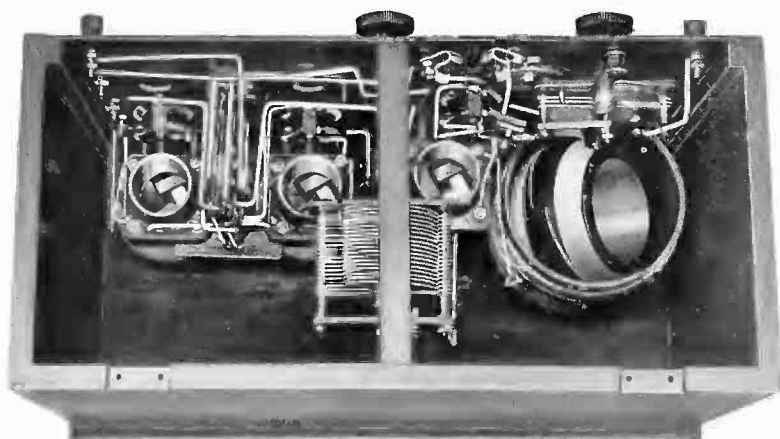
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A Book of Authentic Information About Radio. It explains—

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- The Principles of Regeneration*
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- 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.

- | | | |
|---|--|---|
| <ul style="list-style-type: none"> <i>Aerial</i> <i>Alternating Current</i> <i>Alternation</i> <i>Alternator</i> <i>Ampere</i> <i>Amplifier</i> <i>Ammeter</i> <i>Anode</i> <i>Antenna</i> <i>Antenna Coil</i> <i>Atmospheric Disturbance</i> <i>Audibility</i> <i>Audio Frequency Transformer</i> <i>Audion</i> <i>Autodyne Receiver</i> <i>Auto-Transformer</i> <i>"B" Battery</i> | <ul style="list-style-type: none"> <i>Ball-Type Variometer</i> <i>Bakelite</i> <i>Bellini-Tosi Direction Finder</i> <i>Blocking Condenser</i> <i>Bridging Condenser</i> <i>Broadcasting</i> <i>Buzzing</i> <i>By-Pass Condenser</i> <i>"C" Battery</i> <i>C.W.</i> <i>Capacity</i> <i>Carborundum</i> <i>Cascade Amplification</i> <i>Cathode</i> <i>Cat-Whisker</i> <i>Change-Over Switch</i> <i>Charging Rectifier</i> <i>Choke-Coil</i> | <ul style="list-style-type: none"> <i>Coil Receiver</i> <i>Compass</i> <i>Condenser</i> <i>Connection Block</i> <i>Counterpoise</i> <i>Coupling</i> <i>Coupling Condenser</i> <i>Coupling Transformer</i> <i>Crystal Detector</i> <i>Cycle</i> <i>Detector</i> <i>Diaphragm</i> <i>Di-Electric</i> <i>Direct Current</i> <i>Discharge</i> <i>Dummy Aerial</i> <i>Dynamotor</i> <i>Dynatron</i> <i>Earth Connection</i> |
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Bestone Tube Set, including 2200 ohm head set. Equal in results to many higher priced sets. Guaranteed mechanically and scientifically perfect.
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Bestone Variocoupler—Moisture repellent, dielectric and is wound with double silk covered wire. Assures maximum selectivity.

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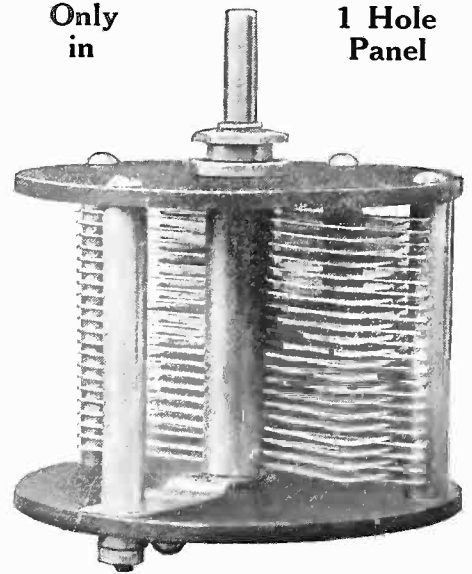
991 F Lerner Bldg. Journal Sq.



Jersey City New Jersey

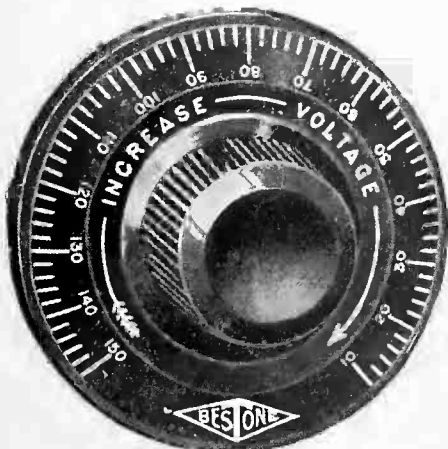
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1 Hole Panel



Variable Condenser requires only 1/2" hole in panel. Plates soldered in a slotted tubing (not spaced with washers) insuring perfect alignment.

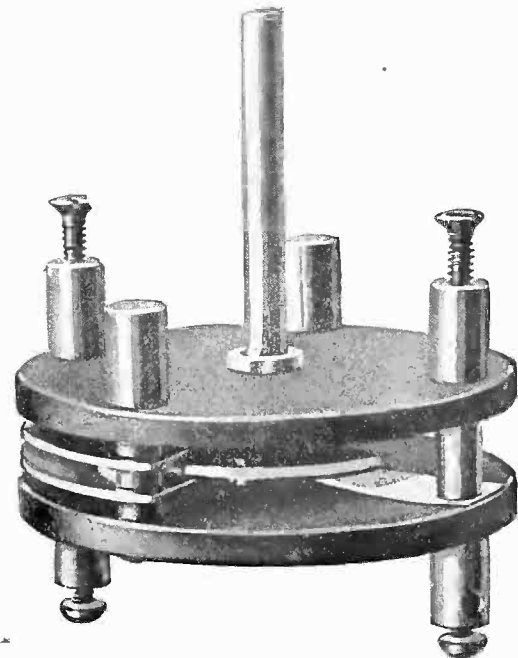
- 5 Plate .000125 mfd. List.....\$3.00
- 11 Plate .00025 mfd. List..... 3.00
- 23 Plate .0005 mfd. List..... 3.50
- 43 Plate .001 mfd. List..... 4.50
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The last word in simplicity and efficiency.
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Vernier Condenser, the best of its kind. Capacity .000246 Mfd.
List without dial.....\$1.50
List with dial\$1.75

COMSCO PRODUCTS

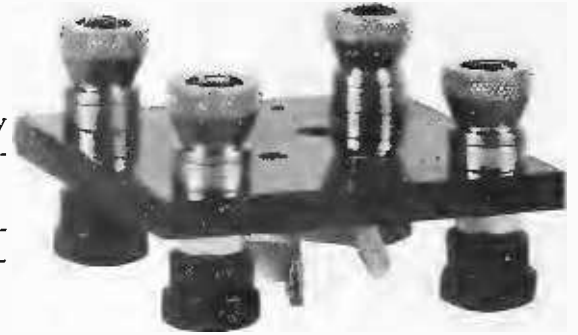


WD-11 SOCKET

Two-inch square, highly polished Radion base supported by insulated legs.

Binding posts non-removable. Phosphor bronze contacts.

List Price, \$0.70



JACK

Sterling silver contact points. plated.

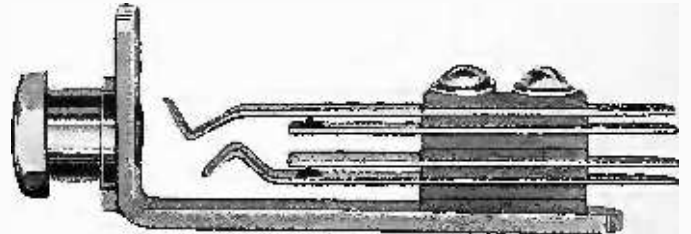
Condensite insulation. Tube brass nickel

	LIST PRICES	
Single open		\$0.55
Single closed		0.65
Double		0.85
Single Filament control		0.90
Double Filament control		1.10

VT SOCKET

Base 1/4" solid sheet Celeron-Condensite. Brass tube heavily nickel plated and polished. Phosphor bronze contacts, nickel plated—all other parts brass, nickel plated.

	LIST PRICES	
Single	\$1.00	As above but fibre base
Double	2.00	Single
Triple	3.00	Double
		Triple
		Single
		Double
		Triple



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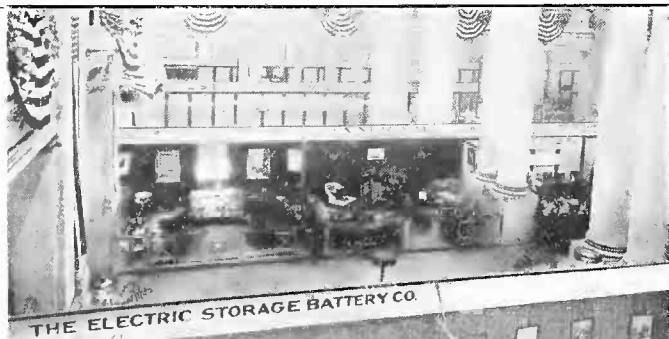
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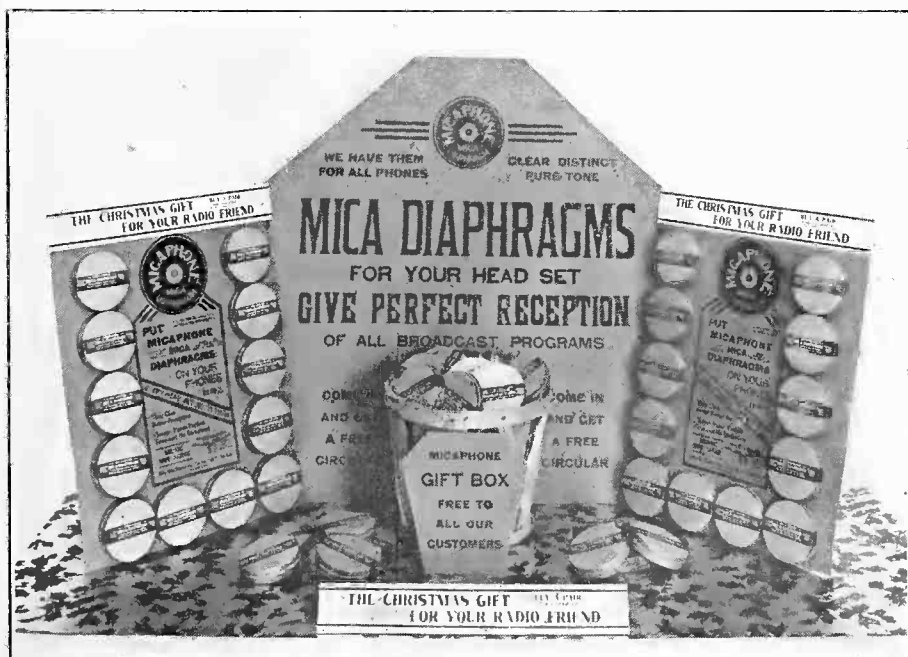
NEW YORK, DECEMBER 31, 1922

TELEPHONE LEXINGTON 3033

Radio Trade Pictures



Some of the Attractive Booths at the Radio Exposition



PLEASING WINDOW DISPLAY
 The New Window Display and Sales Proposition of the Radio Mica Products Company Is Designed First, to Attract Attention, and Then to Interest the Radio "Fan" in Mica Diaphragms

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 Recently Appointed General Battery Sales Manager of the Manhattan Electrical Supply Company, and Formerly of the Gould Storage Battery Company

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| 9 Adapters | 70 Crystals | K | 191 Porcelain tubes | 250 Telegraph keys |
| 10 Amplifiers | 71 Crystal detector units | 132 Knock down units | 192 Porcelain V. T. receptacles | 251 Telegraph teachers |
| 11 Amplifying units | 72 Crystal receiving sets | L | 193 Porcelain V. T. sockets | 252 Testing instruments |
| 12 Aluminum wire | 73 C. W. Transmitter sets | 136 Lead-in wire | 194 Precision instruments | 253 Testing clips |
| 13 Ammeters | 74 C. W. Filament heated transformers | 137 Lead-in switches | 195 Polarity indicators | 254 Terminals |
| 14 Amplifying tubes | 75 C. W. Inductances | 138 Lead-in bushings | 196 Plate connectors | 255 Thermometers |
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| 24 Batteries, storage | 89 Dry batteries | 149 Loop aerials | 201 Reactor, filter | 266 Tubes, detector |
| 25 Battery chemicals | 90 Drawings | 150 Lugs | 202 Receiving sets | 267 Tubing, flexible |
| 26 Battery chargers | E | M | 203 Receiving head sets | 268 Tube sockets |
| 27 Battery testing instruments | 91 End mountings (tubes) | 313 Mailing lists | 204 Receiving transformers | 269 Tubes |
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| 29 Battery rheostats | 93 Electrotypes | 151 Magnetic modulator | 206 Receiver magnets | 271 Two stage cabinets |
| 30 Battery clips | F | 152 Modulation transformers | 207 Rectifiers | 272 Two stage amplifier unit |
| 31 Battery handles | 95 Fibre spools | 153 Machine screws | 208 Rectifying tubes | U |
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| 33 Binding posts | 97 Filter reactors | 155 Magazines, Radio | 210 Rheostats | 277 Unassembled sets |
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| 39 Boxes | 99 Fire extinguishers | 157 Mica diaphragms | 212 Rods | 281 Vacuum tubes |
| 35 Brass parts | 100 Filament rheostat | 158 Mica condensers | 213 Rotary lever switches | 282 Vacuum tube sockets |
| 36 Bushings | 101 Filter coils | 159 Mica diaphragm transformers | 214 Rotary spark gaps | 283 Variable condensers |
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| 45 Charging rectifiers | 109 Grid leaks | 167 Mountings | 224 Sockets | 291 Vulcanized fibre sheets |
| 46 Choke coils | 110 Grid leaks, variable | N | 225 Soft metal | 292 V. T. receiving sets |
| 47 Cat whiskers | 111 Grid coils | 171 Name plates | 226 Shielded dials | 293 Variogrid leak |
| 48 Cap nuts | 112 Ground clamps | 172 Nickel parts | 227 Short wave sets | 294 V. T. detector units |
| 49 Carbon walls | 113 Ground wires | 173 Nuts | 228 Solder | 295 V. T. control units |
| 50 Cardboard tubes | 114 Ground switches | O | 229 Solder, bar | 296 V. T. receptacle |
| 78 Charts | H | 176 One stage amplifier units | 312 Soldering irons (electric) | W |
| 51 Chopper, rotary | 116 Headsets and bands | 177 Oscillation transformers | 230 Spark transformers | 297 Washers |
| 52 Clamps | 117 Honeycomb coils | P | 231 Spark coil selectors | 298 Watch case receivers |
| 53 Clips | 118 Honeycomb mountings | 178 Panels | 232 Spaghetti tubing | 299 Wattmeters |
| 54 Coils | 119 Honeycomb plugs | 179 Panel plugs | 233 Special apparatus | 300 Wavemeters |
| 55 Coil mountings | 120 Hook switches | 180 Panel controls | 234 Spark gaps | 301 Wave tuner |
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| 58 Condensers | | | 237 Sectional receiving sets | 304 Wire phosphor bronze |
| 59 Condensers, fixed | | | | 305 Wire, copper clad |
| 60 Condensers, variable | | | | 306 Wire, magnet |
| 61 Condensers, air | | | | |

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2000 Ohm—\$6⁰⁰
3000 Ohm—\$7⁵⁰



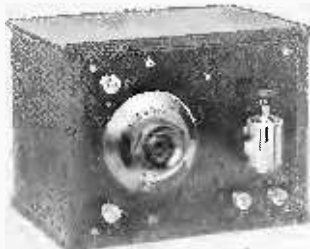
Vernier Rheostat \$1²⁵



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Write for free catalog and details of our attractive dealer and jobber proposition

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23 Plate..... 3.75	11 Plate..... 3.45

BASCO Tube Socket. Black oxidized tube holder. Bakelite base. Strong—good looking. Sure-contact springs. Nicked binding posts. An exceptional buy at 50c.

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Briggs & Stratton Co.
Milwaukee  Wisconsin
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THE RADIO DEALER

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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
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Michigan.....183	Vermont..... 12
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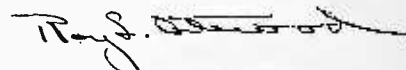
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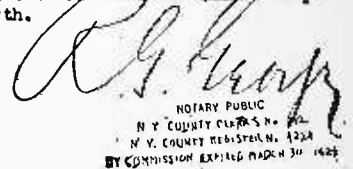
Very truly yours,



for THE WILLIAMS PRINTING COMPANY.

State of New York))
County of New York)) Se;

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First In The Field

THE RADIO DEALER

1133 Broadway, New York, N.Y.

35 South Dearborn St., Chicago, Ill.

THE RADIO DEALER

The Radio Trade Journal

For The Radio Retailer

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The Radio Dealer

THE RADIO TRADE JOURNAL

Edited and Published at

1133 Broadway, New York, N. Y.

FOR THE RADIO RETAILER

VOL. 2. NO. 4

JANUARY, 1923

ONE DOLLAR THE YEAR

1923 Should Be Big Year For Radio Business

Responsible Manufacturer and Dealer Will Find Public Ready to Purchase Reliable Apparatus in Larger Numbers

By AMPLIFIER AL

LOOKING forward to 1923 the radio trade seems to have come to the conclusion that business will run smoother and that sales in the aggregate will increase.

Recently talking with a manufacturer who refused to be quoted the following points were made:

With the inefficient retailer vanished, radio retailing will naturally fall into strong hands, and the firms who give real service to the consumer and listener-in will find their sales satisfactory.

With better and better sets being produced the man who has considered radio reception as something for people who like to "fiddle with things" will join the throng at the dealers' counters.

With less and less distressed stocks on hand, prices will be stabilized and reliable manufacturers will be able to produce quality apparatus that will retail at fair prices.

With the fading away of the cut price store dealing in inferior merchandise, the buyer will purchase much more willingly, having his confidence restored in radio apparatus.

With the failure of inefficient manufacturers, those remaining will establish cost systems and otherwise make their plants more efficient, bringing about established prices and greatly aiding in restoring public and trade confidence.

The American public is not going to forget radio. The business of listening-in is rapidly passing from a fad to an every day occurrence and we may expect to see the radio business climb and climb to an even higher place in the industry of the country. The steady improvement of the calibre of business men in the industry points to better conditions, and also speaks volumes for the

industry as having convinced skeptical business men that it is a permanent industry.

A recent survey of the country conducted by THE RADIO DEALER organization pointed out that business in general was better, not only because of holiday demand, but because the *GENERAL PUBLIC WAS SIMPLY BUYING RADIO BECAUSE THEY LIKED IT THEMSELVES.*

Knowing these facts it remains for the trade to speed the day when radio is recognized everywhere as a business that is permanent and that carries no more risk than any other business.

Manufacturers can avoid troubles in their own plants by realizing the necessity for *selling* their merchandise. The manufacturer who makes inferior goods is lost already, but there is yet hope for the maker of quality equipment who is still waiting for the world to continue to travel the "beaten path to his door." These manufacturers are developing sales ideas, sales plans and policies—and it is in their development that we base our optimism.

Distributors can avoid troubles by checking closely the inefficient retailer, but helping the reliable dealer who is striving to advance the industry and to gain friends for radio. They can help by carrying good stocks, but not by speculating or over buying.

Retailers can aid by pushing the sale of radio equipment just as they push the sale of any other commodity. By advertising locally and by selling only goods of known quality they will bring repeat orders to their stores.

Everyone can help, and apparently everyone is helping. 1923 will be a big year for the wise radio man who watches the signs of the times.

Radio Trade Association Meeting

Large Gathering Enthusiastic at Interesting Addresses of Dr. Lee De Forest and Others Prominent in Industry

By LAURENCE A. NIXON

In line with the policy of the Radio Trade Association to present informative lectures to the radio trade, no business was conducted at the meeting held at Grand Central Palace, New York City, December 26. More than five hundred radio business men were in attendance while seven interesting speeches were heard.

Henry L. Seidman was the first speaker of the afternoon, following President Henry M. Shaw who reviewed conditions in the industry as well as outlining some of the work projected by the association.

Mr. Seidman held up a warning hand to dealers, jobbers and manufacturers who are not figuring their costs. His remarks in full will appear in the next issue of THE RADIO DEALER.

Dr. Lee De Forest, the famous inventor, was the next speaker. He said in part:

"I sincerely welcome this opportunity to meet with you. First, because it gives me a chance to shake hands once more with the men whose efforts made possible the presentation of radio to the great radio public of today and the still greater radio public of the immediate future. Again, because in this exposition we have an opportunity of witnessing the success attending these early efforts. Finally, because through your secretary, Mr. Nixon, I have been requested to speak to you upon one phase of radio development in which I have long held a particular interest; namely, radio in the country districts.

"First of all, let us not forget as Daniel Webster has well pointed out, that the farmers are the founders of civilization. Webster may have had his constituents in mind when he made the remark; nevertheless, agriculture is still the largest single industry in America, and nearly one-half of our people live under rural conditions. In other words, farmers and those who live in the rural districts generally, viewed from the point of view of any one class, are still the greatest buying public of these United States.

"Since my early boyhood days were spent first in the Middle West, and later on in the South, away from the great centers of industry, art and education, naturally, later on in life, when I first began to see the possibility of communication by radio, one of the first things that came to my mind was the important part that radio would play in country life.

"In these days of such rapid advancement by science and industry, those of us who live in the city are more or less apt to think of the country in the terms of a quarter of a century ago, when the country dwellers were without good means of com-

munication and transportation, without those things which we are pleased to call city comforts and conveniences. However, the country of today and of the immediate future is an entirely different land than that of our forefathers, and no one instrument of art and industry will do more to complete the evolution of country life, and especially of home life in the country than the radio receiving sets which you gentlemen are now offering to the people in these heretofore isolated districts.

"By means of this very wonderful instrument you are in a position to afford untold pleasure and progress to those who prefer, in some small degree, the open canopy of blue to the smoky cloud of industrial city life.

"This special contribution that radio can make to the development of life at home and especially life at home in the country is, to my mind, the great selling argument not only to the farm and to the village dweller, but also to the suburban resident and those who enjoy the benefits and pleasures of owning country estates for use either in winter or summer or the year 'round.

"Our agricultural leaders have long sought for some instrument that would keep the interest of the country boy or the country girl centered in the home. What better

instrument at hand than the radio receiving set, now, more than ever, when the Government itself, as well as our great universities and colleges and musical centers are working out a program for the distribution of the highest form of entertainment and instruction.

"Only a few days ago my attention was directed to a Sunday newspaper page pointing out the possibility of the enormous saving of money—some two million dollars, if I am not mistaken—which might be effected through the use of radio in conducting the educational classes in a Middle Western city, at home, mind you, instead of at an expenditure of two million dollars in the construction of new buildings. This idea may appear a little fantastic to those who are not acquainted with the full possibilities of radio development, nevertheless in the field of school, college and public lectures, the idea is by no means an impractical one, and here again the benefits will naturally be extended into the very territory we have in view, namely, in the country districts.

"In the year 1907 I first gave expression publicly to my feeling on the benefits that radio will bring to the country districts. In that year I said:

"In rural districts scores of individual
(Continued on page 77)

President Henry M. Shaw Is Recognized Trade Authority

By H. E. BENNETT



Henry M. Shaw

When Henry M. Shaw, president of the Radio Trade Association, presided at a meeting composed of men prominent in the radio industry in Grand Central Palace, New York City, during National Radio Week, many at the gathering recognized him as Shaw of Irvington, N. J.

It was in the electrical manufacturing business that Mr. Shaw made his reputation. Few men in active business to-day have such a long history identified almost throughout with electricity. Mr. Shaw's career in the electrical field began in 1886 with the manufacturing of wooden ceiling rosettes and branch cutouts for electric wiring. To-day Mr. Shaw is at the head of the Shaw Insulator Company, of 5 Kirk Place, Newark, N. J., where moulded radio parts are made of condensite.

(Continued on page 80)

American Radio Exposition Successful Show

New York Radio Show Pleases Exhibitors and Attracts the Public in Large Numbers—Record Made for Radio Shows

By ROBERT C. HULL

The American Radio Exposition Company, promoters of the American Radio Exposition held at Grand Central Palace, December 21 to 30, are to be congratulated on their successful show, which pleased exhibitors and public alike.

While the number of exhibitors was not large, not as large as it will be when this organization again stages a show, representative manufacturers were present in sufficient numbers to please the public and present a truthful and satisfactory picture of the radio industry

To those who have attended former radio shows, held in New York and other parts of the country the exposition came as a distinct surprise and an enjoyable one at that. Not only were some of the greatest evils of former shows corrected, but the arrangement and display of the booths were above the average. Over half the booths gave evidence of considerable study and care in their arrangement, while a number were truly works of art fit to grace any exposition. To those who have attended expositions of other industries in this famous exposition place the radio show suffered

by comparison, but reflected rather the lack of age of the industry than anything else. The prediction is freely made that next year's show will have twice the number of exhibitors with three times the number of carefully arranged display booths.

One of the surprises of the show was the intense interest taken by the public in the apparatus displayed. The booths, which were larger than the usual exposition booths were crowded with people busily engaged in inspecting the apparatus and securing prices and addresses of dealers from whom it could be purchased.

While attendance figures are not available at this writing (December 28) it is believed that the crowds will exceed in number that of any former show held in any section of the country by several hundred per cent.

A greater amount of advertising done during the show brought the public in larger numbers, while special programs broadcasted from the exposition added to the public interest. The programs were of exceptional interest and reflected credit on the exposition and its program director.

A complete list of exhibitors follows:

- Western Electric Company, Inc.
- Radio Corporation of America.
- General Insulate Company.
- Pacent Electric Company.
- National Carbon Company.
- DeForest Radio Telephone & Telegraph Company.
- Sleeper Radio Corp.
- C. Brandes, Inc.
- Sound Wave Corp.
- Hutchison Radio Company.
- Manufacturers Patent Company.
- Novo Manufacturing Company.
- Henry Hyman & Company.
- Holtzer-Cabot Electric Company.
- Clapp-Eastham Company.
- Stromberg-Carlson Tel. Manufacturing Company.
- National Airphone Corp.
- Dubilier Condenser & Radio Corp.
- Executive Radio Council, 2nd District.
- National Radio Chamber of Commerce.
- American Radio & Research Corp.
- American Radio Relay League.
- Coto-Coil Company.
- Western Electrical Instrument Company.
- Signal Electric Company.
- Scholes Radio & Manufacturing Company.
- Malone-Lemmon Laboratories.
- A. H. Grebe & Co., Inc.
- Electric Storage Battery Company.
- Burgess Battery Company.

(Continued on page 74)



A Few of the Exhibits at the Radio Exposition

January Is the Inventory Month

True Condition of Radio Merchant's Business Can Only Be Obtained Through Accurate Stock-Taking and Summaries of Transactions

By HENRY L. SEIDMAN
Certified Public Accountant

The close of the year brings with it a realization that books must be closed, statements of income and profit and loss prepared, and balance sheets compiled. These statements are the summaries of the business transactions entered into during the year and disclose the elements of profit and loss and the condition of affairs on the last day of the year. They are the foundations for the business policies of the next year and prepare the way, when intelligently interpreted, for more economic and efficient management.

Before such statements can be prepared it becomes necessary to compile a list of all the merchandise on hand together with its cost or market value. This is commonly called "taking stock" or "taking inventory." Without such an inventory it is practically impossible to determine the state of affairs and the importance of determining accurately the value of the merchandise on hand cannot be too strongly emphasized.

That profits cannot be accurately determined is too well known to dwell upon much. In addition, it is a strong factor when it becomes necessary to determine the gross profit made on sales, and the percentages to be used in the future when estimating the cost of the merchandise sold. It gives a business man an idea of how much insurance he should carry at all times, and in the event of a fire an insurance company would be prone to place greater credence in a set of books which disclose the inventory at its proper value each year.

The banker and credit-man have emphasized again and again the importance of keeping the assets of a business in "liquid" form, so that they can be readily converted in cash. The danger of too great an inventory of merchandise on hand is manifest. If a sudden slump in business comes and when sales are few, the merchandise on the shelves represent a "frozen" asset, and debts cannot be readily paid. Should there come a sudden slump in prices besides, as happened in the textile, leather and

Your Inventory

Do not neglect to take it promptly. Without it you cannot accurately determine how much money you are really making or losing.

Too many merchants have hopelessly fooled themselves into failure thinking they knew the true condition of their business.

Make your inventory carefully, give conservative values to your stock and remember that merchandise yields no profit until sold.

Watch and study the inventory. It is the signal that tells of danger ahead.

metal industries only two years ago, the danger of bankruptcy is apparent.

A great deal of merchandise on hand represents an investment the funds of which are tied up so that it brings the breaking point into sight, it produces no interest or other income and becomes less valuable because of its depreciation.

An inventory must, therefore, be taken at least once a year, and where

it is practicable, it should be taken more often. In other words, watch your buying closely.

The question always arises; "How shall it be priced, at its cost, or at the price it can be bought for in the market?"

This has always been a topic for discussion, and the arguments on both sides are interesting and important. To price it at cost answers the question only partly; for, after all, if the inventory is taken for the purpose of determining the value of the business, are we not understating the value of the asset when we price it at cost when it can be sold in the trade to other dealers at higher prices?

And we are not overstating the value of an asset when we price it at a cost which is greater than the market value?

The result of following either of these courses is interesting. If we price our merchandise at market value when the cost is less, the profit and loss account includes a profit which has not been earned, and should dividends be declared, they

(Continued on page 60)

Mr. Gilbert Throws Light on Vacuum Tube Situation

By THOMAS HERRIN

Radio dealers, as well as radio fans, are interested in the tube situation. Considerable "inside information" is being handed out, in the trade, on this important matter and to get the correct slant upon the tube situation THE RADIO DEALER asked Charles Gilbert, president of the De Forest Radio Telephone and Telegraph Company for information and he responded as follows:

About two months ago our company decided that upon the expiration of the Fleming valve patent (November 7, 1922) we would again reenter that field and once again manufacture the

audion bulbs which Dr. Lee De Forest invented in 1906.

"It was only about November 15, last, that we finally decided on the design of the 6-volt tube, but for the time we have been unable to take up the design or production of a 1½ volt coated filament tube. Our machinery for the production of tubes, is now being installed."

The specifications of the 6-volt tubes are as follows:

Filament 5 to 6 volts; .05 ampere. Plate voltage 40 to 60. Filament of tungsten thorium. Horizontal plate

(Continued on page 28)

How Denver's Little Store Became Big

Dr. Reynolds, Starting in a Small Way, Won Confidence of Trade and Developed Radio Center that Handles Only Standard Lines

By L. N. ALLEN

One of the large radio stores in the country is that of the Reynolds Radio Company, Inc., which is situated at 1534 Glenarm street, Denver, Colo. The business was established in

radio enthusiasts. Today the store is one of the prominent ones in the country, with stock under one roof worth more than \$70,000—all of standard makes.

growth in disposing of radio equipment.

Dr. W. D. Reynolds, head of the technical department, is exceptionally well equipped from a technical stand-



The Salesroom Looking Toward the Street
Dr. Wm. D. Reynolds in KLZ

The Store Front
View Toward Rear of Salesroom

Minneapolis in 1914 and in 1921 was incorporated at Denver with Dr. William D. Reynolds as president, Dr. George W. Reynolds, vice-president; William D. Reynolds, Sr., secretary-treasurer; and Jack L. Hursch, general manager.

As a pioneer in the Colorado radio field, Dr. Reynolds started a very small store in Colorado Springs and later moved to Denver, where at 613 19th street he conducted a very small establishment and carried a stock valued at less than \$1,500. Gradually he won the confidence of

The store, which is 50 feet wide and 125 feet deep, is located on one of the central downtown streets of Colorado's chief city. Fine display windows, mahogany shelving and fixtures, excellent lighting arrangements and merchandise attractively displayed in pleasing show cases, make the store an unusual one.

After going through a period of depression that ended in August when policies were changed and a selling organization was formed and organized on a thoroughly up-to-date basis, the business has enjoyed a substantial

point to select the best apparatus for resale purposes.

The company operates two stations, KLZ and 9ZAF. KLZ is one of the largest broadcasting stations in the West and puts many interesting features on its programs. The so-called "canned music" is avoided. The consistent policy in the past has been to entertain and please the public.

"This broadcasting station," says Manager Jack Hursch, "is operated entirely for the benefit of the radio public and is at the service of all pub-

(Continued on page 60)

What Radio Owes to the Amateur

R. H. McMann in Interview Tells of the First Broadcasting of Music and of the Value of Early Amateur Experiments

By N. B. ZIMMERMAN

How the radio amateur succeeded in inoculating the country with the radio bug, and how the radio dealer can assist in the further spread of the radio fever was outlined in a recent interview by R. H. McMann, of the Continental Radio & Electric Corporation. Mr. McMann is one of the first amateurs in this country to broadcast music.

Mr. McMann is enthusiastic about what the radio amateur has done for radio in the past. "There would be no broadcasting today if it hadn't been for the amateur," he said in the course of a rapid survey of radio's history. "The amateur has been experimenting ever since the days when Marconi first transmitted his epoch-making message. And ever since that day a great deal of the remarkable development which radio has experienced has been due to the efforts of men who have been considered as amateurs and want to be considered as such. As amateurs pursuing the hobby that interests them more than anything else, they have constantly strived to go 'one better' and the results have been advantageous for the mechanical perfecting of radio."

Mr. McMann traced the amazing interest in radio, which startled the United States in 1921, to the influence of the radio amateurs. During the War, radio amateurs served in the Army and Navy in the Signal Corps and as operators on the ships mobilized.

"A great many other recruits to these divisions of our war activity," he explained, "came in contact with the radio amateurs and were fired by their enthusiasm for radio. From that day on the development of radio was marked by leaps and bounds."

The part that the radio enthusiast played in broadcasting was the foundation for the public broadcasting of today, represented as it is by 560 efficient broadcasting stations, according to Mr. McMann.

"The first real broadcasting," he said, "was done, as far as I know, by an amateur, Frank King, a charter member of the Radio Club of America, who in 1915, from his own home in West 107th Street, New York City, transmitted a violin selec-

tion to the fleet, stationed at that time in the Hudson River.

"Mr. Conrad of the Westinghouse Company also broadcasted from the station located in his own home. This was the first public broadcasting in the West. Then two or three amateurs in the East, among them E. V. Amy, Joseph Stantley, G. E. Burghard and myself, did some broadcasting of our own, with the help of popular phonograph records. It was no unusual occurrence then for people within a radius of 60 to 70 miles to call up by asking us would we please play this selection or could we broadcast that?"

The one big event, according to Mr. McMann, which demonstrated to the manufacturers of the allied industries that the public was interested in radio and wanted it made more accessible for home use, was the radio show which the Executive Radio Council of the Second District held in the Hotel Pennsylvania, New York, in the early part of 1921.

"But it was not until the Dempsey-Carpentier fight in July that the demand for radio on the part of the public became insistent. It was through the co-operation of radio clubs on the eastern seaboard that the broadcasting of this event, which was the centre of interest of two continents, was possible. From then on

the trend of radio toward a larger public interest was assured."

Such is the debt that the industry owes to the radio amateur. How can it benefit by his further co-operation and cater to his wants?

Mr. McMann has a carefully-reasoned answer for this, based on the psychology of the amateur who is "bugs" on radio.

"The radio man who enters the field today, although he is concerned chiefly with the reception of broadcasting, is not unlike the amateur of old, and reasons with the same philosophy. Broadcasting has only increased the bounds of experimentation, and whether the amateur is an old or new recruit to radio, he is at heart the same old 'bug.' The old amateur used to buy parts or a set, go home and experiment. In perhaps a week or so he would come back, satisfied that he knew all about radio, and argue with the dealer as a result of this strong faith within him.

"Today amateurs differ only in number, and perhaps the new recruits have more money. Whereas the pioneer experimenter bought only a crystal set, our new enthusiast buys an expensive set. But that does not mean that he will remain satisfied. If there is nothing else to egg him on, there is the 'distance bug' to irri-

(Continued on page 72)

Radio Corp. Brings Action on Tube Apparatus Patents

By JOHNSON FORBES

The Radio Corporation of America has instituted a patent action that has promise of being of far reaching importance. The defendants are A. H. Grebe & Co. and the J. H. Bunnell Company. Incidental actions against other concerns have been filed. The complaint alleges infringements of five specific patents concerning the vacuum tube.

Two suits are brought against each of the two above named defendants. The first is an action in equity on De

Forest patents numbers 841,387 and 879,532. The second action in equity is based on the Langmuir patent number 1,282,439, the Lowenstein patent number 1,231,764 and the Mathes patent number 1,426,754.

In the trade the opinion is expressed that these suits are the beginning of a long legal contest which has been anticipated since broadcasting grew to large proportions. What effect this litigation will have on the

(Continued on page 73)

Power Amplification for Loud Speakers

Types of Loudspeakers Are Described and Suggestions Given that Should Assist Salesmen in Demonstrating This Apparatus

By S. G. SEARS

Of Sterling Phonic Laboratories

To the average household or office receiving set the loudspeaker has become practically a necessity as is likewise the power amplifier since the two go, or at least should go, hand in hand. There seems to be a very poor understanding of the principle of operation of both devices among those who have taken radio seriously within the last year, and for this reason it is felt that more should be told about them than that they require power tubes and high voltage.

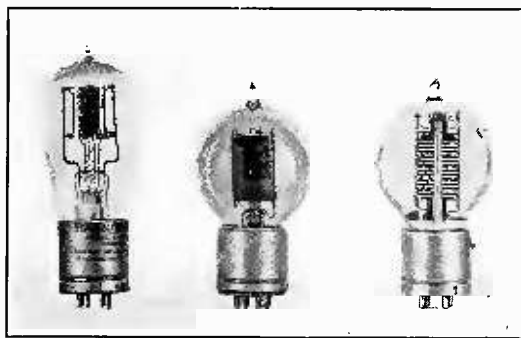
The dealer is probably the one who needs more definite information about them than anyone else, as he must depend on a good demonstration to help put over his sales. The time has passed when he can sell a customer a fine set "because it's all the rage." He has now to demonstrate it to be more entertaining and more enlightening than anything the prospective customer has at present.

The latter is becoming more critical all the time. He comments on "da-dee-da" interference and "canary birds" and scratchy noises and such. He knows distortion when he hears it, "and can't stand it so loud." Nine times out of ten these objections can be remedied by the proper arrangement and adjustment of the component parts of the set.

Most dealers can now give headphone demonstrations to perfection, but they unnecessarily murder the loud-speaking show—where the real money is. So a short discussion on power amplifiers and loudspeakers should not be wasted. If a little time is taken to try out suggestions that come to the reader throughout this paper, he will be well repaid. If the reader has not read the first two articles of this series, it will pay to obtain them and do so before reading this one. Also he should get the table of tube characteristics in the last issue for reference throughout this discussion.

The usual series of units in a good tube set is, first, detector—which converts the incoming signal energy into audible energy by rectifying; second, first stage of amplification—which intensifies the detector output somewhat and converts it to high voltage and low current, which operates the succeeding tube more efficiently; then the

second stage of amplification which increases the signal voltage still further; and the last or power stage which converts the high voltage output of the second stage amplifier into low volt-



UV-202

VT-2

216-A

age and high current, which operates a loudspeaker more efficiently.

Now since each bulb in the series acts as a relay and must generate from its own plate, current or "B" battery supply, an intensified likeness of the signal impressed on its grid, the plate voltage all along the line should increase proportionately to accommodate the greater signal. That is, the detector on say 20 volts should feed into the first stage with 45 volts, this in turn to the next with about 90 volts,

and the power stage with about 130 volts. With this arrangement no tube in the series would be overloaded unless they all were and all signals would be clear, provided, of course, other things were equal. If 5 stages are used the voltage should be still further increased.

In order to connect this up with loudspeakers it will be necessary to say a few words about them as to their efficiency and capacity. There are four general classes of them, each with a maximum capacity for sound beyond which it will start to distort or rattle and each with peculiarities all its own. If we take them up in order, we shall consider first the bi-polar, iron diaphragm type such as the usual type of headphone. These can be wound to any reasonable impedance and will operate directly in the plate circuit of the tube as do headphones. The "B" battery D. C. passing through the winding serves to intensify the magnetic field of the permanent magnet usually employed in such (provided it flows in the right direction) and increases its efficiency somewhat. This type will operate satisfactorily up to about one watt input. Here a roughly

(Continued on page 64)

Philadelphia Has Formed Radio Trade Association

By WILLIAM B. WILKINSON, JR.

The radio merchants of Philadelphia, after holding several preliminary meetings during the last few months, have slowly evolved an association of responsible distributors, jobbers, and dealers, named "The Radio Trade Association of Philadelphia." The organization of this association was effected on November 13, when officers were elected and constitution and by-laws adopted.

The objects of the organization, as set forth in the constitution, are: "to

promote the welfare of its members and to distribute among them the fullest information obtainable in regard to all matters affecting the radio business; to aid in bringing about more friendly relations among those engaged in the radio business; to assist in standardizing and marketing high-grade radio merchandise; to inaugurate and maintain publicity campaigns; to improve the quality of radio goods marketed by American manufacturers and the service rendered by

(Continued on page 68)

From the Editorial Viewpoint

The New Year and Radio

Nineteen Hundred and Twenty-two was radio's best year. What will 1923 bring forth?

The year just passed has developed radio as an industry—but not to the extent hoped for by many of radio's real friends.

This weakness is not due to the lack of interest on the part of the present radio enthusiasts but is due, in great measure, to the obvious fact that the recognized trade leaders in this field have held aloof from the rank and file.

No criticism is being directed at any group of manufacturers or jobbers or retailers for their lack of proper foresight. If they lack the spirit of trade service, the final loss will be theirs.

There is ample opportunity to recover the lost ground—mainly because the great American buying public has not been oversold on radio.

Trade surveys indicate there are not over one million real radio sets in operation. Considering the fact there is, so it is recorded, more than twenty million homes in the United States, the future possibilities from this one source are interesting.

When radio broadcasting is properly developed every public institution, every railroad station, every hotel and most restaurants, and every factory and business place, will have a radio set.

The commercial angle for radio has its possibilities. Even today air space is being sold on certain broadcasting programs, at certain rates per hour. This is a premature perversion of public interest.

There was really no public demand for radio during the past year. There is none now and there never will be, for the simple reason that the public has no imagination.

The public really never "demands" anything. It takes what is offered and, if the result is pleasing, indicates thankfulness in praise that is usually fulsome.

Once in a while some genius sees something that the public would like if it knew of its existence, gives it to the public—and makes his fortune. Then the spokesmen for the generally mute populace do declare: "There was a demand for that thing and the man who saw the demand profited."

Deems Taylor, dramatic editor of the *New York World*, speaking on "demand," indeed cites a lesson for radio folks. Says Mr. Taylor:

"There was no public demand for Balieff's Chauve Souris in this country, for the public had never heard of the Chauve Souris before it appeared. There was no public demand for Ford cars until Ford invented them, and there was no public demand for the *Saturday Evening Post* until George Horace Lorimer made one.

"The public has certain vague wants, of course, which

are in latent form the thing we call demand. It is the business of the shrewd business man or editor to find out what these are and minister to them. Ford had the sense to see that the public would like to ride around in a vehicle that went by itself and didn't cost much. Lorimer saw that it took all kinds of people to make a world and that any magazine that offered something to everybody for a nickel a week would probably sell rather extensively."

Most of the business men in the radio industry are agreed that the American public will take radio if it can get it. Not all of these men are agreed as to the methods to be employed to reach the public to fill the "demand."

Why is this?

Is it because a few of the so-called big fellows are still believers in the divine right theory, insofar as they and the radio business is concerned?

Believers in the theory of divine right, as applied to the radio industry, have already suffered losses, totaling in the millions—because of defective apparatus. Their good-will loss is not a matter of bookkeeping.

There isn't anything the matter with the radio industry that common sense cannot cure and the one way to aid in the development of a real industry is by the several trade organizations, working together to the one end, the development of radio as an art and as an industry.

Better broadcasting will develop from co-operation; better business will come and proper methods can be applied to create real "demand" on the part of the public.

Radio, in all its wonders, is a blind thing to the average American. The story of radio must be told again and again and told properly. The picture must be placed before the buyer for his approval before the trade can expect quick sales.

Some of our larger radio organizations have not prospered, in the past year, to the extent hoped for by them. Poor business management must be blamed—nothing else. They enjoyed their opportunity and found themselves lacking. They must step aside and make room for others.

Big concerns are not necessarily infallible in sales promotions. Mere size doesn't beget ability—in the radio industry.

Nineteen Hundred and Twenty-two developed a new crop of business men—radio manufacturers, jobbers and retailers. At this writing they total around eight thousand.

There are not over five thousand retailers and jobbers in this industry.

These retail radio business men, it might be estimated, did a total retail trade of around fifty million dollars. The jobbers did a volume of about half of this and the manufacturers did the balance, direct to retail trade.

Obviously one hundred million dollars has changed hands during 1922 because of the advent of radio.

Figures are not available for radio, other than the knowledge of the number of radio retailers, jobbers and manu-

factors. (These figures are as THE RADIO DEALER shows them to be.)

In the development of radio, as an art, the past year has brought forward real sets and real parts. It is no longer possible to produce apparatus of inferior quality, with the expectations of a ready market.

The radio retailers are becoming educated. Even the former electrical retailers admit they're learning!

Radio refinements developed during the past year rather than new things of basic value. The tube set situation will be cleared up this coming year, it is hoped, to the end that certain new offerings may be presented to the buying public.

Nineteen Hundred and Twenty-three can be expected to be a banner year for radio, because of the activities of a number of radio concerns who are producing real wares. The volume will be evident, during the year, and certain territories can figure their 1923 sales, now, on their knowledge of broadcasting conditions for their sections.

Good broadcasting programs, coupled with real selling development, will make 1923 the big year it should be in radio, for real merchants.

Referring to broadcasting, THE RADIO DEALER does not believe that a monopoly should be made possible for the air, no matter how obviously philanthropic the intent. There is now a tendency towards air monopoly. The time isn't right for any such monopoly and if it is maintained and enlarged the trade will suffer because the general public *will not purchase radio equipment if they are led to believe broadcasted programs are theirs through the monopolistic achievement of any certain group and that these programs are given as charity with each radio set purchased.*

Radio has a big year in sight and if proper steps are taken; if disinterested advice is followed the record at the end of the year will bear out the present prediction.

The Church and Radio

Radio has joined hands with the church.

Not only does radio bring the church into the home, but it brings church services into other churches.

The story is told of a church out West that lost its pastor. No substitute clergyman was available and it looked as if there would be no services on the Sabbath. A radio enthusiast saved the day. He rigged up a receiving set with a loud speaker. When the congregation assembled on Sunday morning it was surprised to see a mechanical device on the rostrum instead of a clergyman.

Soon the contraption on the rostrum prayed, sang, talked and preached. The sermon was said to be a good one. It was probably better than the little congregation was in the habit of hearing, for it was a poor church and had but little money.

No one knows what unexpected influences may be exerted by radio on church affairs. It may make possible the elimination of a certain number of clergymen. It may develop a new class—ecclesiastical orators—who will spe-

cialize in broadcasting and will leave the pastoral work to be done by others.

Such a condition is within the range of possibility. Doubtless it would result in better sermons; perhaps not better churches. It might also help the argument, "Why go to church when I can stay home and hear better sermons than in church?"

A recent survey shows that the broadcasting in this country of Sunday church and religious services covers 65.2 the area of the United States—surely enough for most people.

Some large churches are now broadcasting their own services to those who stay at home. Others will doubtless do this soon. Churches that aim to serve as "community centers" have receiving sets for the benefit of the church clubs and organizations seeking sociability and pleasure in the church-house.

Regardless of the effect that the church has on radio, it is not improbable that radio will have a greater effect on the church. Whatever the result, it is plain that this cooperation cannot help but increase the demand for radio equipment, which is the interesting point to the radio dealer.

Standardization of Radio Products

The Bureau of Standards in the past has done much creditable work in the direction of standardizing parts used in manufacturing. This has been a decided help in increasing factory production, in assuring quality and in eliminating many near duplications of parts. In the aircraft line alone, it has done away with many thousands of unnecessary sizes of gadgets and has given assurance of strengths of materials.

In a similar way, the Society of Automotive Engineers has done a like service for the automobile industry, and has made possible in no small way, the present comparatively low prices of motor cars and trucks.

A call for a meeting to be held in New York City this month to consider the formulation of radio standards has been made by the Bureau of Standards. The object is a worthy one, and if it receives the proper cooperation from the industry, should prove of benefit not only to the manufacturers, but also to the dealers and their customers.

Lesson Left by John Wanamaker

With the passing of John Wanamaker, the prince of retail merchants, and incidentally a radio merchant of no small magnitude, a lesson is brought home. Mr. Wanamaker from the smallest of beginnings developed a business of huge proportions. Strict industry, combined with the merchandising of reliable goods made success, which in no small part was augmented by the liberal advertising.

Mr. Wanamaker at no time lost the faith he had in advertising which he gained years ago when he was engaged in the publishing business. In a large measure he credited his success to telling the public what he had to offer.

Mountain Jobbers Develop Trade Service

Wholesalers Operate Technical and Commercial School and Co-operate to Bring Better Business to Every Radio Business Man

By JACK L. HURSCH

Manager, The Reynolds Radio Company, Denver, Colo.

For the promotion of better radio in the Western territory there has been arranged what might be termed the Radio Jobbers' Association of the Rocky Mountain District. This association will be known as the Radio Service Bureau. The organizing membership consisted of representatives of Hendrie & Bolthoff Supply Company, Mine and Smelter Supply Company, Reynolds Radio Company, Rocky Mountain Radio Company and Winner Radio Company.

These are the largest jobbers in the inter-mountain district, at this time, and at their organization luncheon meeting it was decided to call the business group, the Radio Service Bureau. Jack I. Hursch, general manager of the Reynolds Radio Company of Denver, was elected president. Baxter Lanus, of the Rocky Mountain Radio Company, was elected vice-president; Orville Sibbald, of the Broadcaster Company, was made secretary, and J. Vreeland, of the Winner Radio Company, was chosen treasurer.

So that's that. And now, to the objects of our co-operative movement: Through the means of this Bureau, we have brought about a much healthier condition, first recognizing that co-operation and harmony are the first assets to good business. The members of the association have gotten together and have assisted each other in depleting over-stock which any individual organization carried, thus creating a healthier condition.

We are also carrying on and developing publicity in the newspapers and magazines headed "The Radio Service Bureau." Under this heading articles for the betterment of radio, to assist the radio amateur and the radio prospect for radio equipment are printed. The articles appear at proper intervals and are already bringing results. Further, jobbers and dealers have gotten together through The Service Bureau and have arranged to take full page newspaper advertising, thus placing before the public radio on a sturdier advertising basis.

The Bureau also arranged during November, a course of instructions, held in Denver at the DN₄ Station for the radio dealers. Post cards were

gotten out by each jobber to his dealers in his territory, asking them to fill in the return card, advising if they would have a representative to attend the course of instructions in radio, both from a technical standpoint as well as from a selling standpoint. These lectures enjoyed a large attendance (close to forty men), which was extremely pleasing to the Service Bureau. Intense interest was shown by the dealers to become acquainted with the merchandise which they are selling to the radio trade. Its effect was quite stimulating.

The school was conducted by the best radio technical men in Denver, namely: Dr. W. D. Reynolds, president of The Reynolds Radio Company; Captain Winner, of The Winner Radio Company; Mr. Peterson, of The Rocky Mountain Radio Company; Mr. Bartlett, of the Hendrie & Bolthoff Supply Company; and the writer.

Many standard radio equipments and standard radio sets were on dis-

play at the school, thus affording dealers the opportunity to acquaint themselves with the construction and operation of each individual standard set. Technical subjects were discussed and analyzed. The selling of radio was exploited and the possibilities developed were extremely satisfactory.

After the course of instructions, dealers were entertained by the jobbers, each individual organization throwing its doors wide open, giving the dealers opportunity to come into the organization, see every piece of radio equipment, see its operation and development.

In this territory, which is sparsely settled, the radio dealer has a great many disagreeable conditions to overcome in order to get satisfactory results in selling radio equipment, the dealer sometimes having to travel anywhere from 100 to 500 miles to make a demonstration of complete radio equipment, thus being unable to prepare himself for emergencies at the

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Pointers for Radio Dealer Aiming to Increase Sales

By ALBERT EDWIN SONN, R. E.

Technical Editor, Newark, N. J., Sunday Call

Albert Edwin Sonn, who is the technical editor of the "Sunday Call," Newark, N. J., radio department, is a keen student of radio—as an art and as an industry—and is well qualified to discuss trade problems. Mr. Sonn is an early radio fan, of the vintage of 1905, when he operated a transmitting apparatus and helped create the code system applied to stations by the Government.

"Mr. Radio Dealer, what kind of service are you giving to your customers?"

It is not the purpose of this article to go into details of how the radio dealer should run his business, but to point out the little deficiencies in the dealer's attitude toward the buying public. These little points have come to the attention of the various radio circles during the fall radio season, and throw some light upon the failure of some radio supply stores to benefit from the great demand for apparatus at this season of the year.

How many dealers give their customer the benefit of a tuning talk, or an explanation of a good hook-up, or

(Continued on page 54)

Development of Melco Supreme Receiver

Lester L. Jones, the Engineer Inventor, Is Credited with Devising This Radio Amplifying Receiver After Careful Research and Investigation

By J. McKERCHAR

The Melco Radio amplifying receiver marks a distinct advance in the reception of broadcast radio telephones, according to the manufac-



Lester L. Jones

turers, with a real improvement in tone quality.

The Melco type 400 is a non-regenerative coupled circuit receiver with a two-stage audio-frequency amplifier. This outfit has a range of over 1,000 miles on an outdoor antenna, and is selective to tuning clearly and sharply between broadcasting stations. Type 400 did not satisfy the inventors as to meeting the requirements of those who could not have an outdoor antenna, so the manufacturers, the Mortimer Radio Corp., retained a consulting engineer who has a national reputation as an inventor and possesses broad experience in radio reception, Lester L. Jones, inventor of the Antenella, the Radio-bat B and the Telos variometer, to advise them in their quest for something better, to design apparatus embodying the best engineering principles, and if possible, to combine his inventions so as to permit commercial pro-

duction of a receiver that would be a real improvement.

Mr. Jones' conclusions as reported to the Mortimer Corporation were interesting. He reported:

1. The regenerative type receiver is already causing so much mutual interference among the now relatively dense radio audience, so much variation of signal intensity and so much loss of tone quality, that it hardly behooves any of us to increase their number. By itself, the regenerative type receiver does not give sufficient volume on indoor antennae for a loud speaker, and, as usually supplemented by two stage audio-frequency amplifiers, it loses tone quality.

2. The super-regenerative type set causes much more mutual interference among the radio audience than the regenerative type.

3. The supraaudible frequency amplifier type set requires too many tubes for general use and has other disadvantages.

4. The reflex type of set is sensitive, economical of tubes, but depends on audio-frequency amplification. With its attendant loss of tone quality for a large part of its volume and with the vacuum tubes now commonly used, it suffers a very rapidly increasing distortion as the signals become loud, until complete loss of intelligibility results when its full sensitivity is utilized for loud speaker reception of nearby broadcasting stations.

5. The radio amplifying receiver (non-reflex, non-regenerative, tuned radio frequency amplification) gives high amplification per stage, no loss of tone quality, no interference to other members of the radio audience and no distortion of the passing radio waves that supply all of us our radio music, lectures and stories. In addition, this system permits of single tuning adjustments that result in a high degree of selectivity. All this, provided certain technical obstacles well known to engineers and experimenters are removed in a commercially practical way, make this type most desirable.

These technical obstacles are largely related to the "feed back" reaction through the vacuum tube, which causes radio and audio oscillations to be generated in the receiver long before one can tune in a signal of satisfactory volume.

Acting on the report of Mr. Jones, the Melco Supreme radio amplifying receiver was designed. It has four tubes, two for tuned radio-frequency

amplification, one for a detector and one for a one stage audio-frequency amplifier, included mainly for assistance in tuning-in distant stations.



Benjamin H. Price

The three tuning elements are a Telos variometer for tuning outdoor or indoor antenna or the loop, and two Telos tuning amplifier transformer variometers. This gives a system of three independent elements for tuning and amplifying over a wave length range of 175 to 500 meters.

The selectivity of this system should be sufficient for all needs and may be said to lean more towards being too great than too little. To assist the user when first handling the set, charts that aid in tuning study are packed with the set. Tuning is further simplified by setting of the two right-hand dials, which are always at very nearly the same degree. This increased ability to select between broadcasting stations is believed to be well worth the effort of making the necessary adjustment.

The elimination of internal oscillations is accom-

(Continued on page 58)



The Melco Supreme Amplifying Receiver

"The Man in the Moon" Is a Regular Fellow

Famous Bill McNeary, Radio Editor, Has Right to Proud Title of Real Friend to Radio Art and Radio Industry

By HARRY M. KONWISER

Before William F. B. McNeary became radio editor of the Newark, N. J., *Sunday Call*, he served Uncle Sam in Secret Service in Poland, Esthonia, Latvia, Czecho-Slovakia for a four-year period.

The *Sunday Call* began its radio department on October 9, 1921, and from the very first issue, featuring the wireless department, became a recognized force for good in the radio world. No newspaper has done more to interest people in radio and no paper has pursued a busier policy of service to its readers.

The service rendered by this paper is large, at least sixty inquiries being received and answered each day. This service labor is handled by Albert Edwin Sonn, who as a boy—in 1905—was one of the first "radio bugs" in the land. With other "bugs" Sonn developed a code call and this is now employed by the Government.

William McNeary, who is generally called "Bill," was a boyhood chum of Sonn's and together they have ascended to radio's heights. Their every activity has been a forward, uplifting one—an unselfish devotion to radio development. He enjoys a great measure of fame as a radio editor, with records showing the printing of sixty inches of advertising in the first radio department, going to 1,930 inches in April, 1922, and now running around 1,100 inches. It is generally agreed no other newspaper can show this volume.

Obviously McNeary is the right man in the right spot. The great favor enjoyed by radio throughout New Jersey is due to the *Sunday Call*. This statement is made with proper consideration.

Apart from the stellar work done on the *Call*, mention must be made of his broadcasting activities—for Bill is "The Man in the Moon." As radio broadcasting features come and go, "The Man in the Moon" is the most popular feature that has been broadcast—serving a unique public, the children.

McNeary is almost thirty-one years of age and radio folks who learn this fact wonder at his rare ability to chat to children, in the manner in which he does. His voice is sympathetic, "carrying a tremendous amount of



William F. B. McNeary,
"The Man in the Moon"

sympathy," as Charles James Fox (Br'er Fox) puts it.

The big idea around "the Man in the Moon" stories is not only that they are pleasing to children, but carry a moral lesson administered in a unique manner. A session with "The Man in the Moon"—for any child—makes for a better child, because of the lessons inculcated in this series.

Bill McNeary is the pioneer in

broadcasting to children and the fact that over twelve thousand children have written "The Man in the Moon" speaks for the wondrous popularity of this broadcasting feature. "The Man in the Moon" stories are broadcasted Tuesdays and Fridays at 6:30 p. m. from W.O.R. A supplemental feature, employed last month, was "Santa Claus." "Hercules" is another offshoot of the McNeary stunt.

Under the direction of McNeary, the *Sunday Call* was the first newspaper to broadcast, and the same paper leads in having first broadcasted a World's Series, big football games, and election returns. This paper has been helpful to the industry—building up and maintaining consumer interest to an unusual extent.

There isn't much more to say in a story of this sort about Bill McNeary because Bill isn't the sort of chap who lends himself to an interview. He is modest.

He has the "voice with a smile" and thousands who have listened-in to enjoy themselves have learned to love the McNeary voice.

Bill has one hobby—it would seem—and that is radio, and his philosophy of radio develops hard, continuous work. He doesn't dream; he acts.

Bill McNeary has a real claim on the friendship of every radio man, woman or child—whether the interest is in radio art or radio industry.

Patent Office Choked with Work Demanding Attention

By CHAUNCEY P. CARTER
Trade-Mark Specialist

The annual report of the Commissioner of Patents to the Secretary of the Interior covering the fiscal year ended June 30 last has just come off the press. It shows an unprecedented situation in the patent office.

One hundred and thirteen thousand five hundred and ninety-seven applications for patents, designs, trade-marks and label and print copyright

registrations were filed during the year, or about 7,000 more than in the previous year, which was also a record year.

Notwithstanding the increases in salaries and staff granted by Congress last February, revolutionary changes in methods of doing business in the office, and economies of various sorts,
(Continued on page 69)

Herman Lubinsky

Pioneer and Instructor Developed the Radio Shop of Newark

Within the last year or so radio has made gigantic strides forward until it has reached its present popular position in public and family life of today. This sudden leap in prominence has caused the public to think of it as a discovery of recent years. But to a close observer its steps have been slow but positive, and its present height has



Herman Lubinsky

come only after years of experimenting. Perhaps the greatest contributor to radio progress was the early pioneer who ventured beyond the realm of telegraphy into the new field called radio. One of these early experimenters was a boy by the name of Herman Lubinsky in the small town of Branford, Conn. Being of a mechanical turn of mind, his early training was in the electrical field. He began experimenting at an early age with what little apparatus he could obtain.

Then came what was thought a great invention, the coherer detector. Mr. Lubinsky began experimenting with this. In 1904 he adopted radio as a career, and at the outbreak of the war he immediately offered his service and was accepted to teach radio to army men in the New Haven High School. Later he became instructor at the Essex County Vocational School and an instructor of electrical theory and practice at the Essex County Vocational school for Boys.

While at these institutions, he contributed articles on electrical theory
(Continued on page 56)



PALS AGAIN

Never a dull evening in the home

MORE and more is the radio consumer buying his receiving set and other apparatus merely because he needs them as preliminary to the volume and clearness he can get from Magnavox Radio the Reproducer Supreme.

The sales helps we supply to our dealers link them up directly to the most interesting National Advertising Campaign in the industry.

- | | |
|--|---|
| 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 | ment for use in homes, offices, amateur stations, etc. \$45.00 |
| R-3 Magnavox Radio with 14-inch horn: the ideal instru- | 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 |

What we are doing to help Radio Dealers is carefully explained in our publication "The Magnavox" — send for free copy.

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

MAGNAVOX

Radio

The Reproducer Supreme

What the Manufacturers Are Doing

Betts Special Receiver

An interesting receiving outfit is being brought out by Betts & Betts Corporation, 630 West Forty-third street, New York City, known in the electrical trade for the past twenty years. It consists of three units, including a highly specialized short-wave tuner, a visible detector and two-



stage amplifier and an unusually good loud speaker.

It is claimed that the tuner, being designed particularly for the usual broadcast wave-lengths of from 350 to 500 meters, is remarkably efficient and selective within this range. This being the popular demand there should be a large sale for such an instrument.

It is extremely compact, measuring only 5 x 10 inches, and goes nicely with their detector-amplifier. This latter is a neat and compact unit with the tubes in full view, embodying an ingenious inside arrangement with short connections and simple controls. The Betts loud speaker is unusually sensitive and embodies a type of horn which delivers pure, clear tones without metallic twang.

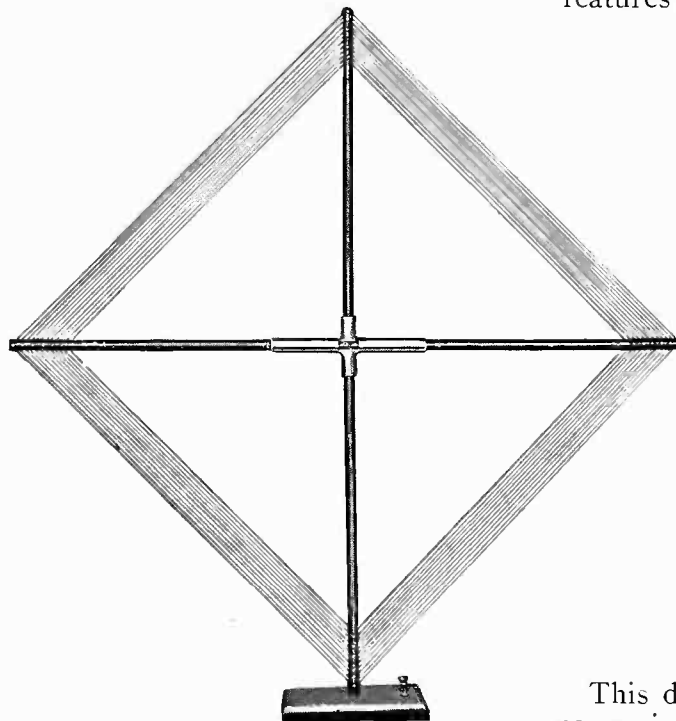
Every detail of material, workmanship and finish in this outfit is fine, and the whole is compact, simple to operate and unusually efficient, making a very high-grade receiver at a moderate price.

Neat Loop Aerial

The DuoSpiral loop aerial, made by the Radio Units, Inc., Maywood, Ill., and distributed by the Hudson-Ross Co., 123 West Madison Avenue, Chicago, is adapted for use where an or-

dinary outside aerial is not practicable or desirable. In addition, it is a quality article, whose design and material, the makers claim, is calculated to insure excellent reception.

The DuoSpiral measures 24 inches by 24, and contains 96 feet of green silk-covered wire. The horizontal arms are forced out by springs, which keep the wire ever taut, thus eliminat-



ing any possibility of lost efficiency through lax wires, and also insuring the neat appearance of the device.

Dictograph Helps Dealers

What one manufacturer is doing to assist the radio dealer to make his window displays more effective is illustrated in the accompanying cut. This shows the newest window display cut-outs and cards which the Dictograph Products Corporation, 220 West 42nd Street, New York, is supplying free of charge to all dealers handling the Dictograph products.



Parkin Dial-Type Rheostat

With a dial to match dials on the variable condenser and vario-coupler of any set, the Parkin dial-type rheostat is an innovation bound to meet with the approval of the radio enthusiast who is careful about the appearance of his radio set. This rheostat, made by the Parkin Manufacturing Co., San Rafael, Cal., has other features to recommend it.



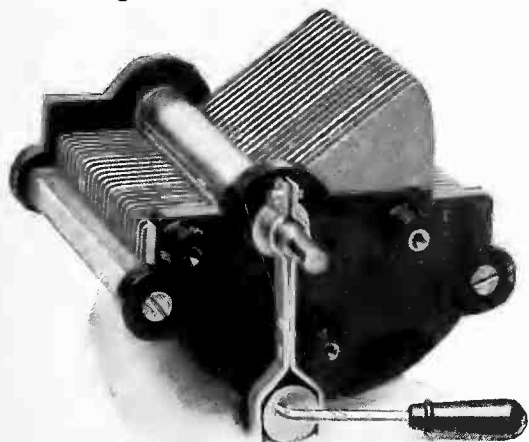
This dial-type rheostat is made for convenience. It is designed to eliminate one part in the assembling of a cabinet set, to do away with heating and to provide more cabinet space. The resistance element as used in this Parkin instrument makes this possible. It is placed in a recessed groove in the back of a three-inch molded bakelite dial, outside the cabinet. The resistance unit used is, as the illustration shows, a flat semi-circular core, wound radially with non-corrosive resistance wire. Adjacent turns are slightly spaced, allowing single-turn adjustment. The resistance is of five ohms with a carrying capacity of one and one-half amperes.

Efficient Condensers

Tests made recently at the Dunham Laboratory, Yale University, confirmed the faith that the Liberty Tool and Machine Company, of Derby, Conn., has in its Liberty Variable Condenser. The principal feature of this radio unit is the double bearing assuring rigid construction. Adjustments can be quickly made at either end and maintained with lock nuts.

Rotor Control of Hammarlund

The patented device that controls the vernier of the Hammarlund vernier variable condenser is only one of the features of this carefully designed instrument. This device moves the rotor plates by as little as one-fiftieth of a degree on the condenser scale,



and is arranged to eliminate all interference due to body capacity.

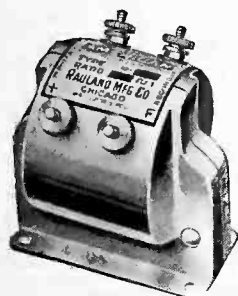
Construction of the Hammarlund condenser is rugged throughout, the capacities remaining constant at given settings. Nickel-plated brass plates, 1/32" thick, are pressed into grooves accurately spaced and milled into heavy brass shafts. The inaccuracies of the washer type are thus obviated. The shafts run in bronze bearings moulded in genuine bakelite tops and bottoms. All metal parts are nickel-plated. The plates are Bureau of Standards straight-line wave length type suitable for wave-meter work.

Shielded Transformers

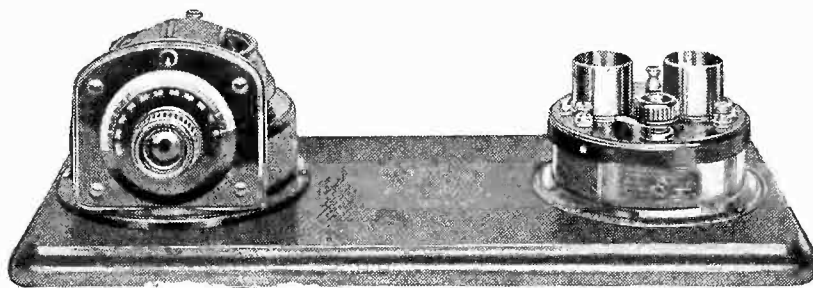
Known as specialists in radio transformers since the beginning of radio's great expansion, the Rauland Manufacturing Co., 35 South Dearborn Street, Chicago, is now on the market with a full line of its specialty, the All-American audio and radio frequency transformers.

The type illustrated here is the All-American audio frequency amplifying transformer. As the cut indicates, it is completely shielded in a black japanned case. The shielding makes it possible to mount the transformers extremely close to one another without inductive disturbances, howling, or distortion. The new 5-1 ratio transformer has an amplification constant approximately equal to that of the 10-1 transformer, but can be used in as high as three stages without distortion.

All the Rauland transformers are highly finished, presenting an extremely neat and attractive appearance for counter sale.

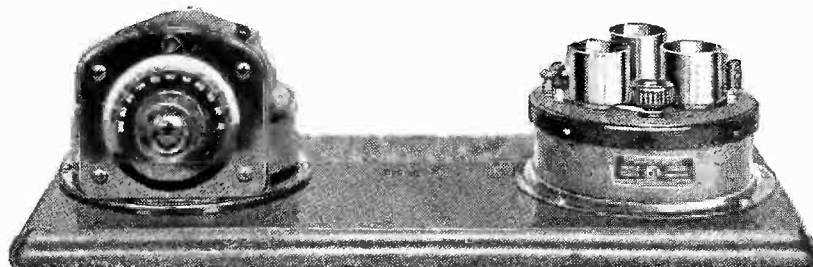


ATWATER KENT RADIO RECEIVING SETS



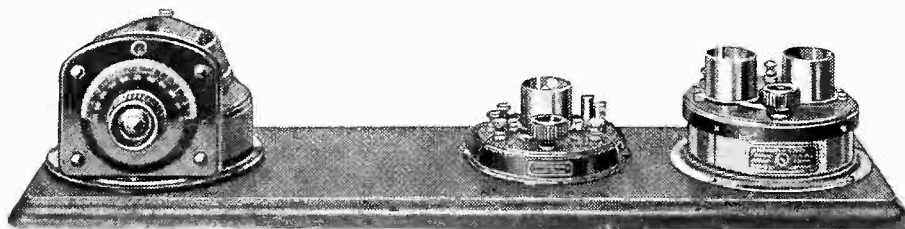
The two instruments shown above comprise an excellent and complete receiving set. The Coupled Circuit Tuner and Detector 1-Stage Amplifier on the mahogany mounting board, present a beautiful appearance.

Complete Outfit, as above, wired \$32.00



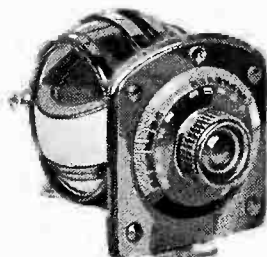
The above set, consisting of Coupled Circuit Tuner and Detector 2-Stage Amplifier, is an ideal set for either phone or loud speaker use. Note that this set includes two stages of audio frequency amplification.

Complete Outfit, as above, wired \$35.50



The Coupled Circuit Tuner and Detector Unit only, comprise a complete receiving set. Later, if desired, the 2-Stage Amplifier can be added for two stages of audio frequency amplification as shown above.

Complete Outfit, as above, wired \$37.50
Complete Outfit, as above (without Amplifier), wired, 23.50



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

Mounted Variometer . . . \$10.00

An Excellent Merchandising Proposition

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



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

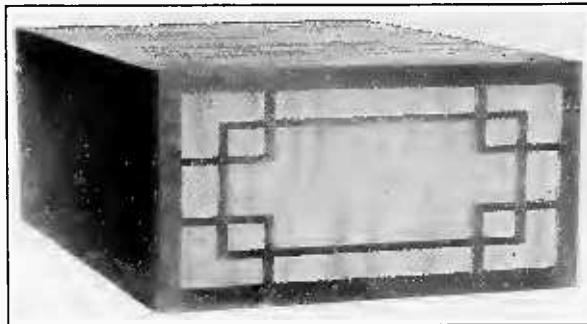
The standard thin weight fibre insulation or "fish paper."

National Fibre & Insulation Co.

Box 451-A 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

Loud Speaker Cabinet

Designed by Earl C. Hanson, the well-known technical expert of the Globe Phone Manufacturing Co., of Reading, Mass., the Globe cabinet loud speaker is a departure in point of construction from any other loud speaker or horn on the market. It most



nearly resembles the reproducing box of a cabinet phonograph, and the principles underlying the tone-box construction of the phonograph have been adapted in the Globe cabinet loud speaker to radio use.

The cabinet is mahogany with highly polished finish, has scroll work front, is silk lined, with measurements 14½-x19x7¾ inches, weight 12 lbs., and has external binding posts. No extra power from batteries is required, and the loud speaker connects to the set same as head phones.

The Globe Phone Manufacturing Company also make the Standard and Junior model headsets, crystal detector sets, antenna attachment plugs and the Vactuphone, invented by Mr. Hanson for use by the deaf.

Improved Radio Parts

New devices for radio service are being offered by the Radio Improvement Company, 25 West 43rd Street, New York City, in the shape of their improved brand of anti-capacity radio jacks for open, closed and double circuits, improved lamp sockets, battery switches and telephone plugs.

The jacks introduced by this company are said to be the first anti-

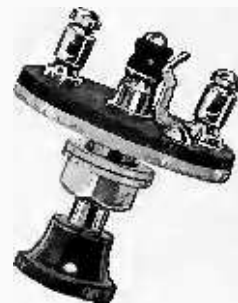


Double Anti-capacity Jack

capacity jacks designed specially for radio use. These jacks are neat in appearance, as the illustration of the double circuit jack printed herewith discloses, and are highly finished with contact springs of German silver and with silver contact points. They re-

quire no soldering, are easily mounted on the panel and fit any standard telephone plug.

The improved battery switch, also illustrated, serves as the simplest means of connecting or disconnecting the battery. A specially attractive feature is a red button which adds to the



Improved Battery Switch

appearance of the receiving set.

These products were designed by Joseph W. Jones, who has been identified for many years with the production of high class electrical and scientific instruments and other products of wide reputation.

Selco Head Phones

One of the features of the Selco head phones, made by the Spies Electric Works, of 564 West Van Buren Street, Chicago, Ill., is the tempered clock-spring steel head bands, which are nickel-plated and soil and rust-proof.



Another unique feature is the tension adjustment for regulating the pressure of the receivers against the ears. By arrangement of careful design, pressure on the ears can be increased or decreased at will, merely by varying the distance between the two head band strips. The position of the receivers is not disturbed and the pressure adjustment can be made without removing the head phones.

Other specifications of the Selco head phones are Swedish iron cores, tungsten steel magnets, rust-proof diaphragms, nickel-silver clamps and phosphor-bronze forks. The weight of the head phones is twelve ounces.

CROWN Moulded Bakelite Variometer and Vario-Coupler

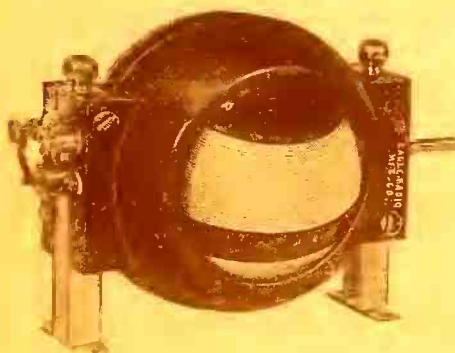
VARIOMETER

Embodied in this variometer are many unusual refinements and constructional innovations. Mechanically the instrument is without a peer. Double bearings on both front and rear shafts insure permanent rigidity and guarantee true spinning of the rotor.

Genuine red bakelite forms of deep cross section render the instrument well nigh unbreakable. The heavy brass legs are so designed as to be integral with the entire unit and yet not interfere with the mounting of the device on a panel. Extreme accuracy throughout marks the construction.

Through the utilization of the most approved principles of electrical design a degree of efficiency, seldom approached, has been attained. The carefully computed space between the inductances grants an astonishing sharpness of tuning. Connection to the rotor is made through flexible leads, so designed as to preclude any possibility of short circuits or broken connections.

The assembled instrument is possessed of superlative beauty. Burnished brass, and specially buffed bakelite forms contribute towards making the instrument a desirable and fitting unit in the finest set.



Wave Length Range—150-600 Meters

VARIO-COUPLER

The Crown Variocoupler was evolved to fill the demand for an instrument of high electrical precision. Through the employment of theoretical principles in a practical manner unusual sharpness of tuning is obtained, and the elimination of interference is made possible.

The high inductance value insures a maximum of signal intensity. Primary and secondary inductances are in the form of two concentric spheres separated one-half inch. The primary is internally wound in a bakelite form. The secondary winding is borne on a bakelite rotor. Fourteen taps on the primary, so arranged as to permit the use of any desired number of turns, are brought to a bakelite panel mounted on the rear of the instrument. This method

of construction obviates any difficulty in connecting up the instrument in the set.

Substantial red bakelite forms are used throughout the construction. Sturdy brass fittings provide for extreme rigidity. Flexible leads to the rotor guarantee a positive connection at all times.

The greatest possible care has been taken to produce an instrument of both beauty and efficiency.

Variometer List Price \$8.50

Vario-Coupler List Price \$9.00

CROWN 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.



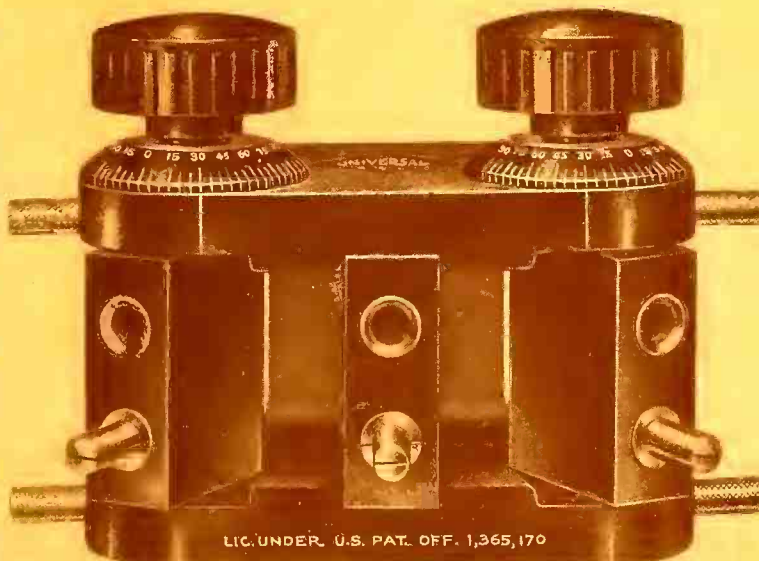
This "Crown" Mounting has the following special features:

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
Telephone Jacks . . 65c, 80c, 95c
Dials 2", 3", 3 1/2" . .35c, 50c, 75c

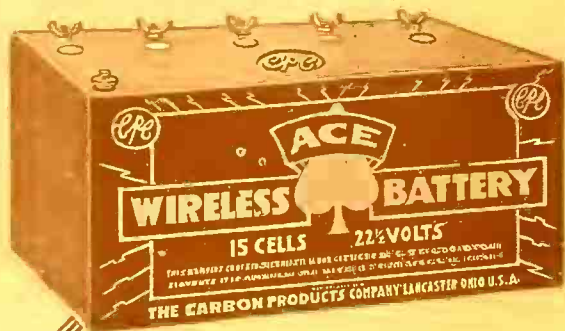
DISTRIBUTORS WANTED. WRITE FOR OUR PROPOSITION AT ONCE.

CROWN RADIO MFG. CORPORATION

78 FIFTH AVENUE

NEW YORK

DOUBLE Your Radio Sales in 1923



You can double your radio sales in 1923 if you give heed to the big selling plan back of ACE WIRELESS BATTERIES. We are going to have some real selling helps for you—not only to increase the sale of ACE batteries, but provided to sell *more* of any and all radio supplies.

The ACE RADIO BOOK is one of these ideas which, put to work, will sell and re-sell your merchandise. You give away *free* one of these interesting books to each customer buying an ACE WIRELESS BATTERY.

Get your supply of books with

Ace Wireless BATTERIES

GIVE AWAY ACE RADIO BOOKS

Everyone owning a radio set or contemplating one, wants one of these books. Besides they'll want the ACE Battery because you can guarantee results.

The battery is recognized as the leader in its field. It is silent in operation, because it is constructed along specific lines to eliminate noise. It will not bulge at the top from escaping gases. It is a higher voltage battery—each cell being higher in voltage than other makes.

Get in on this profit maker,

THE CARBON PRODUCTS COMPANY
LANCASTER OHIO

CUT OUT THIS COUPON
Please send full information regarding free Radio Books and descriptive matter on ACE batteries.
Name
Address

AT LAST!

The MICAPHONE

KODE-KILLER

THE FIRST PRACTICAL
WAVE TRAP



Eliminates code or any interfering station. Works on any set with any circuit. Just connect it in the ground lead. Every radio fan wants one. Sells on sight.

LISTS AT
\$7⁵⁰

THE SENSATION OF THE
NEW YORK SHOW

Liberal Discounts
to
Dealers and Jobbers

Orders Filled in Order of Receipt

WRITE OR WIRE TODAY

RADIO MICA PRODUCTS CO.
156 East 43rd St. New York City

See our advertisement inside back cover

Red Seal Radio Sparker

One of the greatest successes in recent radio history has been the introduction of the WD-11, or dry-cell, vacuum tube. The simplicity of its operation, and the fact that it does not require an expensive battery, are in a measure responsible for the fact that within the last seven weeks 150,000 of these tubes have been sold in the United States alone, according to one estimate.

The position of the dry-cell tubes, in the light of this tremendous demand, seems assured, and further



perfections of this tube may be anticipated. Indeed, the Manhattan Electrical Supply Company, Inc., of New York, has already looked forward to an ever increasing use of the WD-11, and has recently perfected a dry-cell battery known as the Red Seal radio sparker, which is calculated to make the WD-11 tube even more convenient, economical and altogether desirable.

One who is acquainted with the excellence of the Red Seal battery, and other products, might look for equal excellence of workmanship and design in the Red Seal radio sparker—nor would he be disappointed. The careful design, the neat appearance of this battery are selling points of great appeal. But what is more important, the sparker has several inherent advantages which are expected to make it a fast-selling part of up-to-date radio apparatus.

Radio sparkers are light in weight and easy to handle. Unlike the storage battery, they are dry and clean, with no injurious acid to spill. They are easy to move, and in moving them there is no chance of scratching floors or table tops.

The cost of upkeep of a radio set is considerably heightened by the need of recharging the storage battery from time to time. But these new dry cell batteries do away with the necessity of lugging the storage battery to the nearest service station, if no device for charging the battery at home is



This seal is accepted by the discriminating purchaser everywhere as an unconditional guaranty of excellence of design, material, workmanship, and performance.

ON JANUARY 20th, 1923

we will commence deliveries to
AUTHORIZED DISTRIBUTORS
of the

ACCURATUNE

MICROMETER DIAL

PATENT PENDING

in which a positive, yet delicate micrometer adjustment is incorporated within the dial itself, resulting in

ABSOLUTE TUNING PRECISION
ABSENCE OF CLAP-TRAP AND
UNCERTAIN VERNIER ATTACHMENTS
EXCEPTIONALLY ATTRACTIVE APPEARANCE

Simultaneously we will offer a Rheostat Dial and a Fixt-Post Inductance Switch to match—an unusual combination to attract the discriminating trade.

Distributorship franchises on these truly extraordinary articles are now being allotted.

We also take pleasure in announcing
GREATLY INCREASED PRODUCTION
of the
BURKE ADAPTER FOR WD-11 TUBES

The adapter which is outselling all others because
"IT DOES NOT RAISE THE TUBE"



845 BROAD STREET

NEWARK, N. J.

G-M

GUARANTEED RADIO APPARATUS



VARIOCOUPLER

Reinforced taps, Cellulac tubes, full 180° rotation

List Price, \$4.00

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

available. Once a radio sparker is exhausted, it is replaced at a low cost.

This feature has several important possibilities for the radio dealer. The fact that there is a radio battery that works without recharging and is easily replaced is especially appealing to the farmer in outlying districts. It also appeals to the average person who realizes that the cost per hour service rendered by a Red Seal radio sparker is much less than the cost per hour of service rendered by a storage battery, taking into consideration initial and recharging costs. It is also evident that since sparkers have to be renewed the dealer, by handling these attractive radio accessories, is adding to the volume of his sales and to the quick turn-over of his profits.

Red Seal radio sparkers are made in three types, to operate sets using from one to four WD-II vacuum tubes. Complete wiring diagrams with instructions appear on the labels of each battery. The individual special radio cells in radio sparkers are connected in parallel, and the makers say that the actual operating life of the cells is increased from 2 1/3 to 2 1/2 times the operating life of a single dry cell.

Such is the device introduced by one of the aggressive manufacturers in radio the Manhattan Electrical Supply Company, Inc., 17 Park Place, New York, to increase the usefulness and attractiveness of radio.

New Wilcox Tube Socket

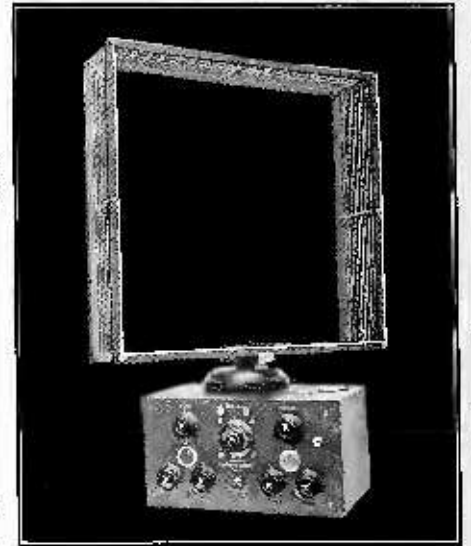
An entirely new design has been conceived by the Wilcox Laboratories of Lansing, Mich., in their new tube socket. Among the chief features of this new device is that it will fit any standard four-prong tube.

As the illustration discloses, it is easy to mount either on a base or panel, legs being provided for the former and mounting brackets, not illustrated, for the latter. It is easy to connect, as wires may be attached to connection posts at top or bottom. The insulation is of bakelite-dilecto. The Wilcox tube socket is small, being only two inches square.

Radio Buyers' Guide

The Radio Buyers' Guide is the name of an attractive folder catalog that has been issued by the Beckley-Ralston Company, 1801-1815 South Michigan Avenue, Chicago. It lists the various lines of radio equipment handled by this company. Most of the nationally-known radio sets and equipment are listed, with cuts. Many specialties of merit are included and list prices are given.

The Loop's the Thing



When You Hear

The

PORTABLOOP RECEIVER

You Have Heard
Radio at its Best

An Agency is a
Valuable
Franchise

Also

PORTABLOOP PORTABLOOP TUNER

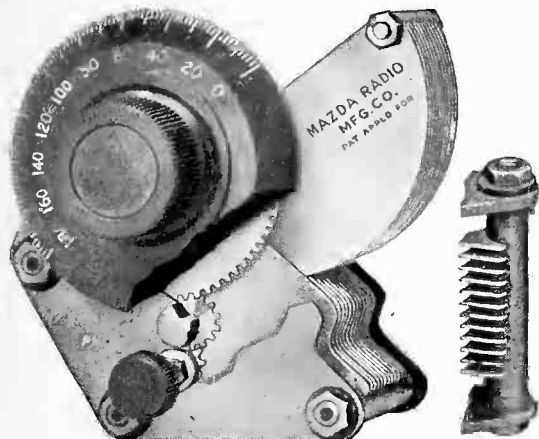


210 Central Avenue

New Mazda Parts

The Mazda Radio Manufacturing Company, of 3405 Perkins Avenue, Cleveland, Ohio, claim to be one of the few manufacturers to offer anything new in the radio line this year. So far they have announced several innovations including a vernier tuning condenser and a rheostat with several novel features especially adapted for a regenerative set.

The Mazda Radio Manufacturing Company's Senior condenser will enable one to obtain the finest and



Mazda Senior Condenser

closest tuning in a radio receiving circuit. As is well known, most circuits tune sharp when a maximum of inductance and a minimum of condenser capacity is used. Any given signal can also be picked up at different taps on the primary control by varying the condenser. The same action can take place on the secondary by varying the coupling and condenser. For the reception of continuous wave signals and radio-
phone concerts from distant stations, a very selective tuning control is needed, which in an ordinary condenser often demands the use of an auxiliary condenser.

This Senior condenser, however, contains two built-in verniers; either being independent of the other. The shape and mounting of the plates is such that a considerable movement of the dial is required to make an appreciable change in capacity at the beginning and at the end of the scale, while in the center range of movement a very great increase or decrease takes place for the same movement of the dial.

The company's rheostat is of the resistance pile type, similar in principle and application to the resistance in world-wide use in delicate electrical measurement instruments. It is so designed that the total useful range of movement is six to eight turns. Two turns from the time the filament begins to glow will bring it to near its critical temperature, and

**STANDARD
RADIO
HORNS**

**Are
Fundamentally
Right**

**That's Why
They Sell**

ALSO MAKING

**7-inch Bell, 19 inches
High**

Rubberoid finish only. Will take all makes of receivers. No air pocket. *Designed* to give proper amplification. Heavy material to avoid *blast*.

No. 17, price \$7.50

**5-inch Bell, 14 inches
High**

Rubberoid finish only. Will take all makes of receivers. Specially designed for Radio purposes. Heavy brass. No vibration.

No. 15, price \$5.00

The line of Standard horns is now complete. The dealer who stocks Standards is thus able to supply correctly made horns for any Radio need—at popular prices.

We can furnish a single high-grade loud phone with cord—to fit any of these horns—to make a complete loud speaker.

Price, \$7.50 Extra

**STANDARD
METAL MFG.
CO.**

237 CHESTNUT ST.,
NEWARK, N. J.



14 Inch Bell, 24 Inches High

Rubberoid finish only. Will take all makes of receivers. No air pocket. For use where extra large horns are desired. Heavy material. No vibration.

No. 114, price \$12.00



11 Inch Bell, 14 Inches High

Here's a new design in Radio Horns—will take all makes of receivers. Surprisingly clear reproduction. Grained Mahogany or Black Rubberoid Enamel finish.

Gem, price \$7.50



Ray-O-Vac "B" Batteries Give Dealers A Big Advantage

Radio business has settled down to the solid basis of genuine value of merchandise and the repeat orders of satisfied customers. The mad rush for any sort of equipment with "Radio" printed on it, is over.

French Ray-O-Vacs give you an advantage over every other battery on the market, because thousands of radio fans have convinced themselves by actual experience, that there is no other radio battery as good as Ray-O-Vac.

That is because French battery experts, early in the development of Radio Telephony, overcame the battery faults which cause receiving noises. Ray-O-Vacs are not only noiseless, but they provide very uniform current, steady, strong and of unusually long life.

Full particulars given in Bulletin 225—a real piece of information for live radio dealers. Send for it.

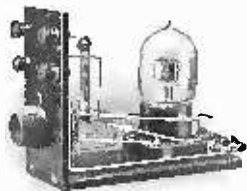
French Battery & Carbon Co. Madison, Wisconsin

Chicago Dallas Atlanta New York
Denver Minneapolis Kansas City



French RAY-O-VAC "B" Batteries

ADD-A-STEP



DETECTORS AND AMPLIFIERS

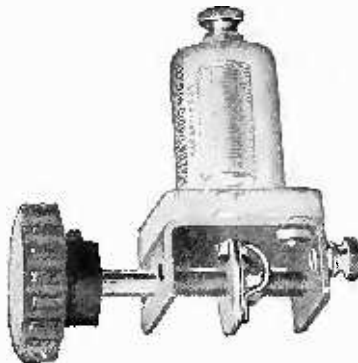
Awarded Mail's Certificate of Excellence
See them at the RADIO FAIR

ARROW RADIO CO.

Manufacturers of Quality Plus Instruments

HACKENSACK NEW JERSEY

in the remaining turns, the control range, by voltage, is approximately $1\frac{3}{4}$ volts, thus allowing delicate single knob control, over the critical range of the tube.



Mazda Rheostat

To insure flat contact surfaces, hence no losses, their rheostats are assembled with alternate bronze discs and graphite washers. The resistance pile is carried in a porcelain container. The maximum pressure possible on the pile is that exerted by a spring so that the most careless handling cannot crush them.

Telmaco Products

A neat and complete catalog, attractively bound in a colored cover, has been recently issued by the Telephone Maintenance Company, of 20 South Wells Street, Chicago. They are the makers of the Telmaco line of radio apparatus.

Besides the Telmaco vacuum tube receiver units, the Telephone Maintenance Company also make the Telmacophone, a new type of horn speaker, batteries, vario-couplers, and patented variometers. The company also are distributors in their territory for Westinghouse, General Electric, Clapp-Eastham, Remler, Chas. Freshman, Herbert Frost, Western Electric, Jewel and other brands known from coast to coast. The list is indicative of the quality of goods handled by this company. The line is complete from "A" batteries to vernier condensers, and includes microphones and molded parts.

Real Pocket Set

David M. Sarnoff, vice-president of the Radio Corporation of America, at a recent meeting of the New York Electrical Society, predicted that a new development in radio would come soon which he described as the "wrist-watch wireless set or radiolet."

"Such a set could be carried easily on the person," said Mr. Sarnoff, "and signals could be received from stations twelve or fifteen miles distant. Thus a man would receive in his vest pocket market reports, weather reports and details of championship games."

Warren
Radio
Loop
Un-
Covered



Large Quantities of Warren Radio Loops Being Sold Everywhere

How Many Are You Selling?

No mystery about the big profits in Warren Radio Loops. The Armstrong Circuit, regenerative sets and the increasing interference of stations, makes the loop aerial an absolute necessity. The Warren Loop is supplying this demand because it is best fitted for the job. National advertising is sending fans into the stores to ask for it. Be fair to yourself—try a small order.

A Type for Every Purpose

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

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.

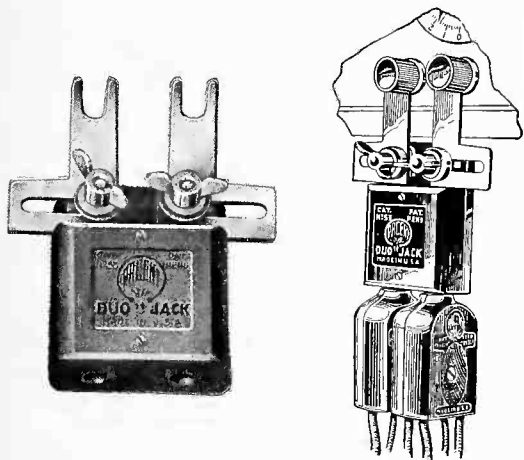
We test and guarantee to replace or refund on any unsatisfactory Ganaerite crystal.

The Harris Laboratory
26 Cortlandt St., New York City

Pacent Convenience Device

To make easier the use of two pairs of phone cords on a single pair of binding posts, the Pacent Electric Company, Inc., of 22 Park Place, New York, have introduced their new Pacent Duojack.

This device is designed to readily convert an ordinary receiving set equipped only with binding posts into a plug and jack set. At the same time it provides for plugging in two pairs



of phones or a pair of phones and a loud speaker.

The adjustable connectors on the Duojack make it easy to fit it to practically any pair of posts regardless of their spacing. When it is connected, it is properly rigid for plugging in. The two jacks are neatly enclosed in a moulded unit of heat resisting thermoplast, and resemble in appearance the ordinary wall plug. The makers of the Duojack are also manufacturers of similar devices such as the Pacent Multi-Jack, the Universal plug, and twin adapter.

Miraco Tube Units

Tube units that can be added to step by step are the specialty of the Midwest Radio Company, of 3423 Drury Avenue, Cincinnati, Ohio. The basic unit is the Miraco vacuum tube radio receiver, which was designed with efficiency, low cost and simplicity of operation in mind.

The wave length range of this basic unit is from 150-600 meters, and the makers claim an effective receiving range of from 50 to 100 miles for this outfit. Used in conjunction with the Miraco radio frequency amplifier unit, the Miraco receiver, the volume and receiving range in miles are increased many times.

The Midwest Radio Company also makes the Miraco radio frequency broadcast receiver which amplifies before it detects, and also the Miraco two-step audio frequency amplifier.



"ROYALFONE" King of All

A phone for every set

Our adjustable headband feature makes the "Royalfone" most comfortable.

The "Royalfone" is super-sensitive as very little current is required for its operation.

Our greatest selling asset is "Try one and you will buy one."

We guarantee every "Royalfone," and our guarantee holds good.

We Invite Correspondence



13000 turns—1500 ohms—\$5.00
16000 turns—2200 ohms—\$7.50

ROYAL ELECTRICAL LABORATORIES
MANUFACTURERS OF
Electrical and Radio Equipment
NEWARK N-J-

Royalfone

Ask Our Service Bureau

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.

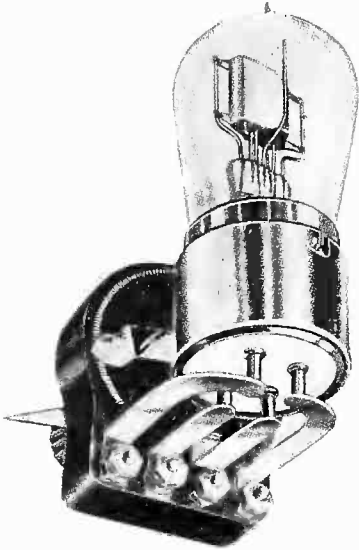
NEW YORK TESTING LABORATORIES

80 Washington Street, New York City

Bowling Green 7016

SOCKET-RHEOSTAT

Registered U. S. Patent Office



Type A-5 ohms, suitable for
detector bulb **\$2.00**
Type B-2 ohms, suitable for
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

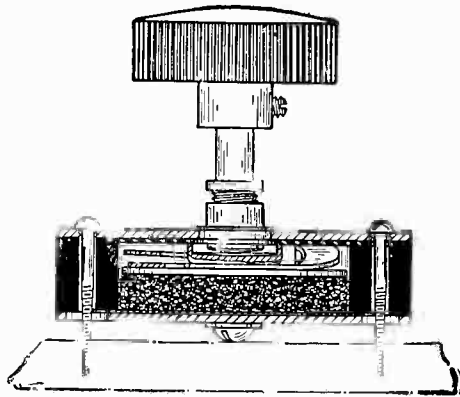
Ajax Radio Corporation

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

Resist-O-Meter

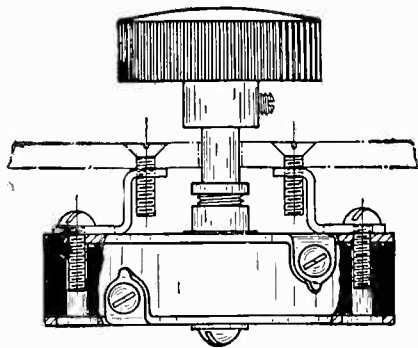
The Scholes Radio & Manufacturing Corp., 32-36 West 18th Street, New York City, recently brought out a new rheostat that embodies a number of points that will interest the radio trade. It is the invention of F. A. Rojas and its principles were evolved in the electroplating industry where a steady current is necessary.

The accompanying illustrations show the rheostat in two positions, one for bench mounting and the other



for panel mounting. By means of adjustable mounting attachments it can be attached to any panel even if the drilling is slightly out of line with the original intention.

An effective display cartoon has been devised for the apparatus, making an attractive appearance on the shelves of dealers handling the new product, which is marketed under the trade name of the Resist-O-Meter.



A recent statement of the company in regard to this product says:

The Resist-O-Meter is constructed upon the principles of a new discovery in contact-electricity which makes possible the claims of this device. There are on the market two distinct systems of rheostat, the sliding contact and the compression type. The sliding contact is deficient for radio work, first, because the wire of the coil resistor is subject to oxidation; and second, because it is noisy.

In so far as the compression type of rheostat is concerned, two main objections concur to render these instruments deficient, First, their resistance at full compression and second, their microphonic noise at low compression. A high resistance at full compression is a prohibitive condition, because aside from being wasteful of electrical energy, the magnitude of this resistance may be such that the voltage of the standard A battery may not suffice to impress

**Mercury Radio Sets**

A PROFITABLE line to handle, from the dealer's standpoint. A reasonably priced line to buy from the consumer's 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

POSTER'S Perfect PANELS**XX Bakelite-Dilecto Radio Panels**

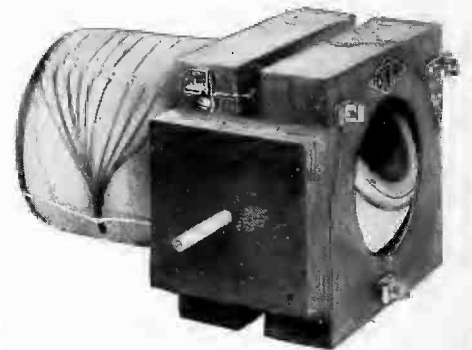
Manufacturers and dealers: immediate delivery—any quantity—cut to size.

Engraving and Drilling

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

Write Today for
Sample and Prices

POSTER & CO.
552 SEVENTH AVE. NEW YORK
PHONE BRYANT 2572

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.

the adequate filament current for the efficient working of the two. The microphonic effect is also a prohibitive feature because of its annoying interference with clear hearing.

The Resist-O-Meter claims first, an extremely low resistance at full compression. This is saving of electrical energy; second, a gradual and firm increase or decrease of its resistance without noise and fluctuation between the low and the high limits of its ohmage capacity; third, high thermal capacity will dissipate 10 watts without undue heating; fourth, high efficiency of temperature coefficient; fifth, compactness; and sixth, freedom from deteriorating elements.

Officials of the Scholes company are W. H. Scholes, president; C. W. Preston, sales manager; C. F. Smith, vice-president and designing engineer; and W. H. Smith, treasurer.

The Brandes Girl

Radio manufacturers are paying increasing attention to radio dealer helps in a more effective display of their products.

An entirely new method of displaying headphones was brought out re-



ently in the bronze statuette furnished by C. Brandes, Inc., 237 Lafayette street, New York, to their jobbers and dealers.

It consists of a bronze bust bearing the Brandes name and featuring their trademark Matched Tone, which may be put on the counter and upon which an actual set of headphones is placed by the dealer. This form of merchandising is exceptionally practical as the statuette is in itself very attractive as shown in the accompanying illustration; making a neat appearance upon the counter and displaying the headphones to good advantage for both Brandes and the dealer.

Since the announcement of this statuette, the demand has been heavy, and it is considered a most satisfactory as well as desirable form of display by dealers who have exhibited the Brandes girl.



Retail Price \$1.85

The Bradleystat gives smooth, noiseless filament control. It increases your receiving range, gives quicker tuning and louder reception. No other rheostat has so many big selling points.

The Bradleystat is the most widely advertised filament rheostat on the market, today.

The Bradleystat has been acclaimed an overwhelming success by radio fans, everywhere. Thousands of radio enthusiasts, not satisfied with the old wire rheostats, are buying Bradleystats for their sets. You can get these sales, today, by putting in a small stock of Bradleystats and the new Bradleystat demonstrator for your counter. This demonstrator, painted in six oil colors, is given free to you with your first order. Act today, for your benefit, by mailing us the attached coupon.

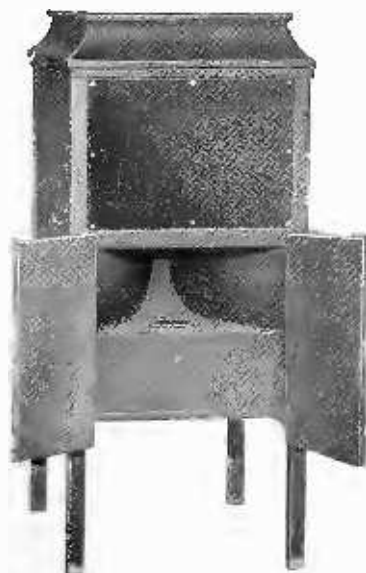
Allen-Bradley Co.
Electric Controlling Apparatus

487 Clinton Street Milwaukee, Wis.
Manufacturers of Graphite Rheostats for 20 years

Send this request for our Radio Sales Plan!

ALLEN-BRADLEY CO., 487 Clinton St., Milwaukee, Wis.

We want to get immediate benefit from your powerful advertising campaign. Tell us how we can sell the Bradleystat and how you will help us merchandise it to the radio public.



This Radio Cabinet

Especially suitable to completely and conveniently house radio sets. Size 43 inches high, 18 wide, 22 deep. Furnished in Mahogany or Oak—with or without horn, casters or Formica panel.

Write us your requirements and we will quote price.

CURTIS N. ANDREWS
BUFFALO, N. Y.

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



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.

SURPLUS RADIO STOCKS

SLOW MOVING CONVERTED INTO

QUICK—IMMEDIATE—CASH

Small lots just as desirable as large quantities. Radio Market conditions justify turning of over-stocks 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

30 E. 23rd STREET NEW YORK CITY

Phones { Ashland 1109
Gramercy 1586-1587

What Service Means

Supplying Standard Merchandise Is Duty to Public

By EDWARD J. CONNELLY
Electric Service Engineering Co.

When early last spring the radio buyer was caught in the wild rush for standard material, the Electric Service Engineering Company decided that something had to be done and done quickly. A meeting of its officers promptly laid out a definite policy of where, how and what to buy. The three factors controlling this policy were quality, quantity and service.

An all-round radio technician was secured who could answer questions and draw hook-ups in a way that customers could understand them and without loading them up with a lot of technical information and materials that they did not want.

The task of securing the merchandise that the company sold was no small one. It took a lot of time, and it cost money, too, in order to make the right connections. It was a great relief to get this work finished, but it was worth the effort, for it put the company on record for demanding the best and in acquainting the trade with the fact that it could do what seemed impossible. The conditions in business to-day are different, although the organization of the distinctive personnel of qualified electrical specialists is continuing the same service and quality that they did in the busier months.

It is necessary that a period of depression follow over-busy days such as have passed. The public cannot be expected to be bunked much longer for it holds the whip hand and will stamp out those who are holding business back. Soon conditions will improve and a code of ethics will be established which all intelligent business men will live up to.

The company will continue to carry standard, tested materials only, and will strictly observe patent rights to protect the pioneer radio manufacturers who are entitled to reward for their efforts which have made the comforts and entertainment of radio possible.

Lyradion Five-Tube Set

The Lyradion Manufacturing Company of Mishawaka, Ind., has announced a new five-tube receiving set which is made entirely in their factories. This set includes a selector unit, two or three stages of radio frequency amplification and two stages of audio frequency amplification.

"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.

EVEREADY

RADIO "A" BATTERY

Immediate Delivery from Stock

Manhattan

Storage Battery Co., Inc.

511 West 50th Street
New York City

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.

Gould

Radio "A" and "B" Batteries

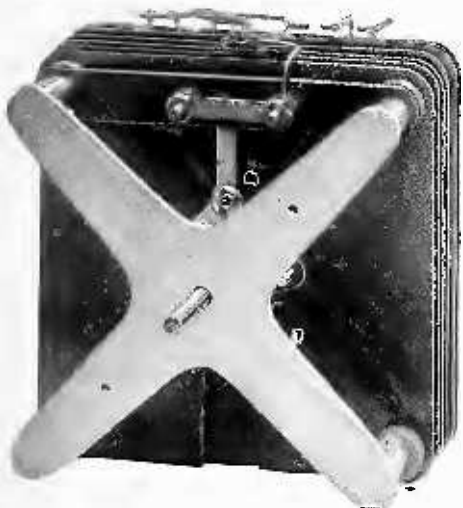
Write for Dealer Plan

Gould Storage Battery Co.

30 East 42d St., New York City

Multiple Coil Idea

By bringing into the construction of a variometer the principles of the variable condenser, the Danziger-Jones, Inc., of 143 Prince Street, New York City, believe that they have increased the efficiency of the variometer as part of radio equipment. This firm has evolved this new variometer, which they call the Telos variometer, and claim, as the



result of the new principles embodied in it, high inductance, large inductive and wave length range, minimum external magnetic field and other advantages.

A system of having the rotor and stator each built up of a series of parallel equal coils which interleave somewhat after the manner of a variable condenser has been adopted. The coil units of the rotor and stator are of equal inductance. This multiple unit construction is also found in the very efficient coils used in the United States Navy radio equipment.

What to Look for in Tubing

Oiled Tubing, sometimes called spaghetti tubing, adds to the insulating safety of a receiving set as well as to its appearance. To work properly, such tubing must be smooth both inside and out. It must be flexible, of the right size, and uniform throughout. Spaghetti tubing should neither crack nor break. It must not be sticky nor "tacky," should possess both high insulating and electric qualities, be moisture-proof and it must not dry out.

The Mica Insulator Company, of 542 South Dearborn Street, Chicago, Ill., believe that in the Empire they have a brand of oiled tubing that answers all these requirements. Not only does it do better than common spaghetti, but the makers claim that it looks better and lasts longer, without costing more. They advise dealers desiring to handle a product without a "comeback" to communicate with them.

MuRad=Radio Amplification=Distance

HEARD WITH TWO FOOT LOOP

Regular Performance
of
Mu-Rad Receivers

*The New
Star in
the Radio
World*

A MU-RAD Radio Frequency Receiver with a small loop aerial is more sensitive, more selective, simpler to operate and more compact than any other type of receiving equipment.

Guaranteed for 1000 Mile Reception

A positive, written guarantee on each Mu-Rad Receiver of 1000 miles reception on a loop.

Their Performance Sells These Sets

The astounding advance in radio reception marked by these receivers starts real business wherever they are demonstrated. It is *the* set your customers will welcome, the set you can sell in large quantities.

*Too Good a Proposition to Wait—
WRITE TODAY*

Type MA-12
3 Stage R. F. and Detector
List \$128
Type MA-13
3 Stage R. F. Detector and 2 Stages A. F.
List \$160

Mu-Rad Laboratories, Inc.
800 Fifth Ave., Asbury Park, N. J.



RADIO DEALERS

We are fully prepared to furnish you with Standard Radio Products at attractive discounts.

Prompt delivery and unlimited service
ELL-ESS RADIO EXCHANGE

<p style="text-align: center;">DISTRIBUTORS</p> <p style="text-align: center;">for</p> <p style="text-align: center;">Radio Receptor Co. Enco Electric Novelty Co. (B. Battery) Inter-Ocean Radio Corp. (Woodehorn) Jaynyxon Laboratories (Sellinite crystals)</p>	<p style="text-align: center;">ELL-ESS PRODUCTS</p> <p style="text-align: center;">At unusual Discounts</p> <p style="text-align: center;">Crystal Sets Variometers Vario Couplers K. O. Glass Crystal Detector</p>
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Also other Standard Products
Write, call or phone

ELL-ESS RADIO EXCHANGE

Tel. Cortlandt 0405
57 Dey St., New York, N. Y.

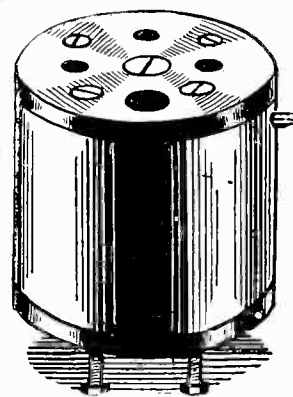
NOVO
"B"
BATTERIES FOR RADIO
22½-45 & 105 VOLTS



**NOISELESS
DEPENDABLE
GUARANTEED**

ASK YOUR DEALER

NOVO MANUFACTURING CO.
424-438 W. 33rd ST.
NEW YORK
531 SO. DEARBORN ST., CHICAGO.



Discard your Storage Battery and use Dry Cells on your Tubes

"THE STEINMETZ ADAPTER"

Will enable you to do this by simply inserting it in your standard socket and using the Westinghouse Dry Cell Tube.

"Get Our Complete Catalogue"

STEINMETZ WIRELESS MFG. CO., INC.
5706 Penn. Ave., Pittsburgh, Pa.

RADIO MAILING LISTS

12,400 Radio Dealers, covering U. S. by States, per M.....	\$7.50
1,614 Radio Manufacturers, covering U. S. by States, per list.....	15.00
1,757 Radio Supply Jobbers, covering U. S. by States, per list..	15.00
260 Radio Stations, per list.....	4.00
257 Manufacturers who make and assemble complete Radio Sets, per list.....	4.00
25,000 Radio Amateurs and Managers of Radio Stations, per M....	7.50

Ask for price list covering Canada and England. Send remittance with order.

TRADE CIRCULAR ADDRESSING CO.
166 W. Adams Street Chicago



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

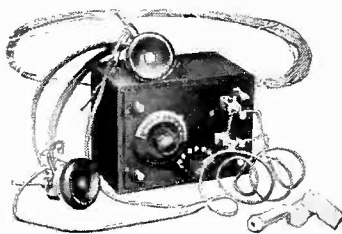
Let us send a sample set for your inspection
2200 Ohms. List \$7.00

Substantial Discounts to Jobbers and Dealers

T. B. H. CORPORATION, Dansville, N. Y., U. S. A.

Crosley Crystal Set

Carrying the unit idea for crystal sets to its logical conclusion, the Crosley radio units, made by the Crosley Mfg. Co., of Cincinnati, Ohio, are complete and form a gradual opportunity for the amateur radio enthusiast to increase the scope of his outfit as his pocket-book and his knowledge of the science allow.



The first unit in the Crosley scheme is crystal receiver No. 1. This unit has a tapped inductance, crystal detector stand, and a variable condenser to permit sharp tuning. It is recommended by the makers for use on local broadcasting stations, under ordinary conditions for a distance up to 25 miles. It is designed to cover a range from 200 to 600 meters wave length.

The units that the Crosley company has provided to complete the assembly marking a high stage of development for a crystal set are the audio detector unit, the two-stage amplifier and the radio frequency tuned amplifier.

Will Sell Standard Goods

Beginning with the first of 1923, the Ship Owners Radio Service, Inc., of 80 Washington street, New York, and branches in large American cities, announce they will confine their sales to the following lines exclusively: Acme Apparatus Company; Allen-Bradley, Bradleystats; H. H. Eby Manufacturing Company, binding posts; Exide storage batteries; Euraco tubular grid leaks and condensers; Framingham products; Federal Telephone and Telegraph Company; Frost Radio; General Radio Company; Homcharger; Jewell instruments; Wm. J. Murdock Company; Eveready "B" batteries; Radio Corporation of America; and Rasla, radio frequency R. T. transformers.

In announcing this new policy, H. H. Barroll, sales manager of the company, said that "we believe that by concentrating our entire effort on well-known, standard lines such as these, we can serve our customers to the best advantage, because we will always have a complete stock of these lines, not only in New York, but at all branch offices."

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 aeriels.



Cabinet Work Since 1900

E. ESHOO CABINET WORKS
635 Herkimer St. Telephone
Brooklyn, N. Y. Lafayette 2324

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 RD191




FINCH RADIO MFG. CO.
303 FIFTH AVE. N.Y. CITY.

"SAMCO" PRODUCTS

VARIABLE CONDENSERS

11 Plate .00025 M. F. Capac. ...	List \$2.25
23 " .0005 " " " " " " " "	2.85
43 " .001 " " " " " " " "	3.60
63 " .0015 " " " " " " " "	5.50





Vernier Dial Attachments
List, \$.50

Rheostats
6 ohms. List \$.50

Potentiometers
300 ohms. List, \$1.50

Inductance Switches
List, \$.50

WE HAVE A SPECIAL PROPOSITION TO DEALERS AND DISTRIBUTORS
STANDARD APPLIANCE MFG. CORP.
428 EAST 71st STREET, N. Y. CITY



Shamrock 180° Vario Coupler
Retail Price \$4.50

Both Tubes Are Made of **BAKELITE**

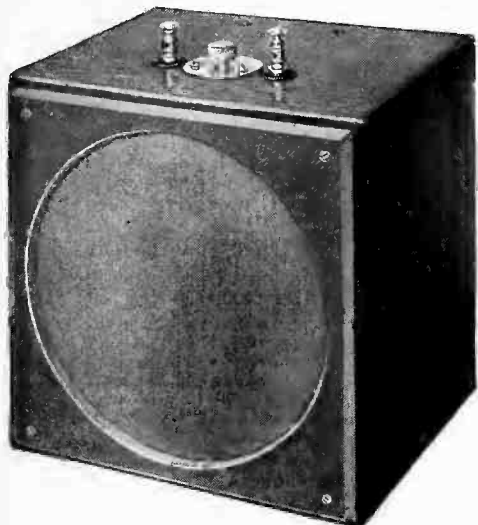
Distributors, Jobber and Dealers Write for ATTRACTIVE DISCOUNTS

SHAMROCK RADIO CO.
152 Sussex Ave., Dept. T, Newark, N. J.

Supertone Loudspeaker

The Supertone loudspeaker which is being offered to the trade by the Triangle Phono-Parts Company of 18 West 20th Street, New York City, is unique in its qualities and construction.

This instrument which has no horn and requires no power is claimed to



be the most truthful and exact radio sound amplifier that is made and eliminates all harshness. It screens all unnatural distortion that is so common among loud speakers. The Supertone enables the dealer to meet the demands of many customers who are unwilling to buy an expensive outfit, for it retails at \$15, and it will meet their demands for an exact dependable amplifying instrument that can be relied on at all times.

Radial Accurate Instruments

"Built with clock precision" is the motto behind the radio apparatus produced by the Radial Company, 99 Warren Street, New York, makers of the Langbein & Kaufman vario-coupler and variometer.

Neat and workmanlike in appearance, these instruments have the stamp of quality upon them. The shells and rotor are made of pure hard rubber, a material with a minimum dielectric constant. The coil wires are embedded in a solution, with a coating placed over the wires so that they will remain in place indefinitely. The solution has a very low specific inductive capacity and a high volume of resistance.

The vario-coupler is of the ball type which keeps the air gap at a uniform value and a fairly linear variation in coupling may be obtained from zero to 80 degrees from perpendicular.

The fine adjustment in workmanship permits the rotor to have a perfectly uniform motion which does not allow "tumbling or spinning." This even motion is one of the outstanding features of the instrument.

ESTABLISHED 1888

TRADE-MARK

SENSORY CABINET UNITS

HEINEMANN ELECTRIC COMPANY
Manufacturers
 Radio Division Philadelphia, Pa.

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?"



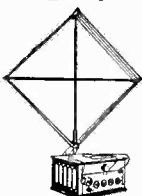
Audio Frequency
Price \$6.50



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.

J. T. 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

NOTICE!

We have an extremely profitable and timely proposition for live Jobbers, Distributors, and Buyers. Immediate action is necessary

WRITE AT ONCE

ARROW RADIO CO.

Hackensack New Jersey



"Essex" 150-600 meter 180° variocoupler with 3" molded dial.

Price. \$1.25 net

ESSEX BUS WIRE NO. 14
Square Tinned—Specially Prepared and Will Give Entire Satisfaction. \$1.00 Per Hundred Feet.

Send for Dealers' Quantity Prices

ESSEX MANUFACTURING CO.
117 Mulberry St., Newark, N. J.

Send for FREE story

Interesting, illustrated folder "How to get Greater Desk Efficiency" shows how to keep your desk cleared for action. Thousands of Kleradesks are giving entire satisfaction. Saves time locating, distributing or sorting papers. Takes less space than a tray. Sent FREE trial.

Kleradesk



Free Mailing Lists
Will help you increase sales
Send for FREE catalog showing details covering names of your best prospective customers. Counts and prices are given on thousands of different Mailing Lists.
99% Guaranteed 5¢ each by refund of
ROSS-Gould Co. St. Louis
538 N. 10th Street

COMPOSITION LIST PRICE

DIALS 50¢ DIALS

Adjustable Switchlevers
Knobs

NEW YORK RADIO-DIAL CO.
316 Holden Bldg., Detroit, Mich.

Pointers for Dealer To Increase Sales

(Continued from page 34)

why certain sets are inefficient due to design?

How many take up five minutes time in going into detail, about the care of the batteries?

How often has a crowd gathered around the counter, some wanting binding posts while another may be ready to purchase a large set, and the dealer simply hurries to serve all within a few minutes and forgets that a little talk, which would benefit all concerned, would probably net a greater sale?

What about the fellow who comes into the store with a friend who has fallen victim to the radio fever, and has purchased an expensive set elsewhere?

Do you give him all your attention, hoping some day that another friend will probably seek your quarters and probably purchase a set or some parts? Do you tell him to go back where he bought his set, thereby making a bad impression with both, or do you spend five minutes with him explaining just how simple it is to tune the set?

What about the fellow who buys a vacuum tube? Everyone knows that there is no uniformity in vacuum tubes now on the market, and that if a customer brings back a tube that lights and does not operate, do you say that you will not take any tubes back?

That customer will surely never enter your store again. But this actually happens day after day at nearly every radio supply store. In this matter the customer should be given the benefit of the doubt just as in the larger department store where no questions are asked when an article is returned as defective.

A case recently came to light where a dealer lost a hundred and fifty dollar sale, because he refused to explain how to tune a set that was purchased elsewhere. The dealer did not know that a silent friend standing near the counter was ready with his money for the same set.

Do you draw diagrams for your customers? Or do you refer them to certain books, or just let them go on their way because you are busy with some one else who has been waiting?

If the dealer is not up on radio technique, there are newspapers in every city who have radio experts that give service to the public. There are numerous simple diagrams that can be printed, and distributed after each sale.

A customer buying a cheap radio set

A NIMBLE DOLLAR-SELLER } The Chaslyn Sink-or-Swim Ball Hydrometer

Makes easy a task that otherwise bothers every battery-user—auto or radio. Three balls of different colors and densities show condition of electrolyte instantly, by the way they sink or swim.

Set also includes DEPTH TESTER and AIR-CONTROLLED RUBBER STOPPER for water bottle.

Retail price of Set \$1.00

Accredited dealers will be mailed TWO initial Sets on receipt of a dollar.

THE CHASLYN COMPANY
4315 Kenmore Ave., 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.

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 unequalled 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 Mahogany or Flemish	Genuine Formica, 3/16" thick
Oak Finish	6 x 10 1/2
6 x 7 x 10	6 x 14
6 x 7 x 13 1/2	6 x 21
6 x 7 x 20 1/2	

Other Sizes to Order

COMPLETE RECEIVING SETS

Jobbers and Dealers
Get Our Discounts

THE MIHO COMPANY

8 East Third St. Cincinnati, Ohio

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.

sometimes does not care to buy an additional set of plans for fifty cents, and it is up to the sales force to see that this man gets a diagram for whatever he buys.

When radio strikes home, a man buying parts can hardly wait until the business day is over so that he can get home and try out the parts. Why let this customer wade through a lot of old papers or magazines and find a diagram? It would be better to give him a rough sketch first to work from.

Do not think that because a man buys two binding posts he is not as important as the fellow who drops in every day for a week, planning to purchase a pair of expensive phones, or a large set. The little fellow with the small pocketbook will some day be your best cash customer.

Because there is a line of customers waiting, do not wait on each one in a hurry-scurry manner, but find out what one wants and then while you are wrapping up a package, give a little sensible radio talk to the others, to keep them from being impatient. The rest of the gang will probably gain a lot of information, and something that they had not thought of before may be purchased.

Cut price radio supply dealers sometimes sell inferior goods made for low price sales, but often a dealer having a shelf of stock that is idle will reduce the price considerably just to make sales. This is often the case and the public must be informed about it, or else they will get the impression that you have cheap, inferior goods for sale.

Prime up the service system and watch the new customers come in, and the old ones repeat.

Realistic Advertising Cut-Out

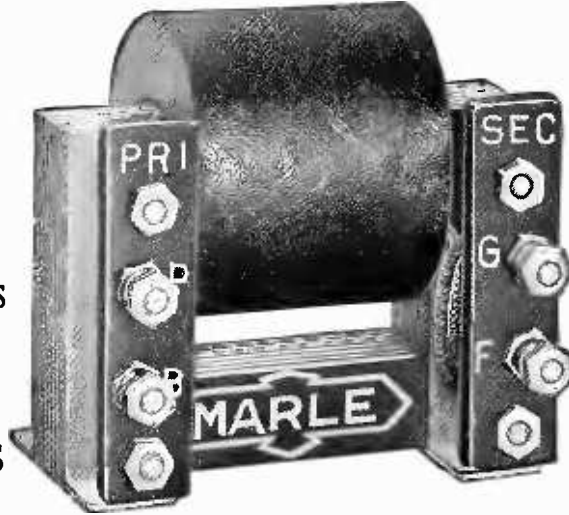
A realistic cut-out is being distributed by the Barkelew Electric Manufacturing Company, of Middletown, Ohio, to dealers of the Barkelew Four-Phone Plug.

It consists of a very effective reproduction of a panel receiving outfit in actual size, with the knobs and dials glistening as if real. Two holes are provided at the bottom of the panel for the insertion of the Four-Phone plugs. The Barkelew company suggest that in setting up the display the phones leading from the plugs be attached to the heads of large-sized dolls borrowed from the nearest dealer.

The cut-out is of heavy card-board and a device permits it to stand up of its own accord. Attached to the reproduction of the panel is a clear announcement of the Barkelew Four-Phone plug.

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

PLAY SAFE!

Sell a standard, established line, backed by a House that's in business to stay

"UNITED"

Condensers and Transformers

are dependable. Back of them stands the unqualified guarantee of this old-established electrical manufacturing company, with a plant costing \$800,000 and an organization greater than the combined staff of a score of so-called competitors.

"UNITED" Variable Condensers

Fine examples of precision workmanship electrically correct Plates are hard aluminum. Ends are ebony Bakelite. Permanent alignment insures against short-circuiting.

Vernier Type (Like Cut)

Only Vernier with Stop. Complete with knob and dial, postpaid:
46 plate \$6.50 26 plate \$5.50



Plain Type
(without Vernier, dial or knob)

43 plate \$4.50 11 plate \$3.50 3 plate \$2.25
33 plate \$4.00 5 plate \$2.75 Postpaid

"UNITED"

Audio Frequency Transformer

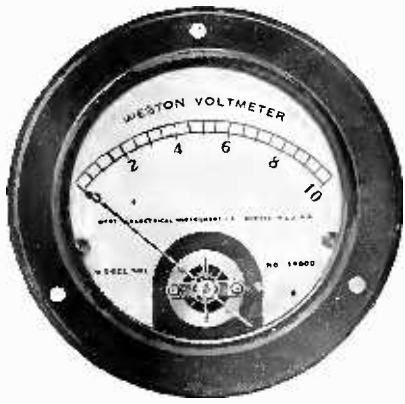
Built like a Howard Watch. Precision figured down to the thousandth of an inch. Magnetically shielded in a shell of original design. (Patent applied for.) Gives clear, loud, pleasing signals.

List price.....\$4.50
Dealers: We are as particular in choosing our distributors as you are in selecting your lines. Write frankly and fully.



Pat. Appd. For

UNITED MFG. & DISTRIBUTING CO.
536 Lake Shore Drive Chicago, Ill.



Are YOU Selling WESTON Voltmeters?

THERE are now about 700,000 vacuum tube sets in use in the United States! Everyone of these sets should have either a filament voltmeter or a filament ammeter to prolong the life of the tubes and aid quick, exact tuning. The Weston is the premier instrument in either case. And the cost is slight. It is scarcely more than that of a single tube—and the first cost is the only cost. Improve this profit making opportunity—and at the same time render your customers a valuable service.

Write for circular describing the complete group of Weston Radio Instruments. Prompt shipments made from stock.

Weston Electrical Instrument Co.

178 Weston Ave. Newark, N. J.
Electrical Indicating Instrument
Authorities Since 1888



Herman Lubinsky

(Continued from page 37)

and practice to various magazines and wrote a book on electricity, and its relation to radio.

At the close of the war he established the Standard Electric Company, thus becoming one of the early pioneer dealers of radio in Newark, N. J. His early start in this field gave him a position which enabled him, during the radio shortage of last year, to supply all customers without raising prices on scarce commodities.

His present business through honest practices and personal devotion has grown to a point where large quarters were necessary. He accordingly moved into 76 Springfield avenue, Newark, N. J., one of the most pretentious radio stores in the Newark district.

The Standard Electric Company, known to radio fans as the Radio Shop of Newark, N. J., are distributors of Acme apparatus, W. J. Murdock Products, Nathaniel Baldwin, Atwater-Kent, and Diamond Electric specialties. They are also sole distributors in New Jersey for the Grebe receiving set. A force of five men is maintained throughout the United States to take care of this business.

Radio Builder Set

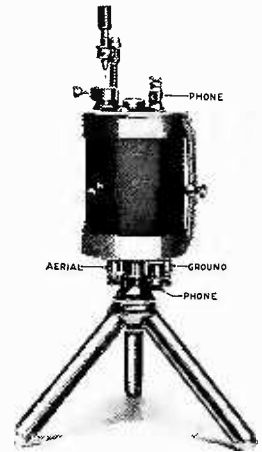
A large proportion of the buying public is interested in a reasonably priced vacuum set. The Oranola Radio Corp., 228 Seventh Avenue, New York City, perfected a set along the most advanced lines to meet the needs of those who wish to assemble their own sets. The rheostat, socket and grid condenser and leak are already wired together as a single composite unit. This point is generally the one which causes trouble to purchasers when the various units are sold separately. Photographs and instruction leaflet will enable a youngster to assemble the set correctly, merely by using a screw driver.

The box containing the parts serves as a cabinet after assembly. Battery connections are provided on a bakelite strip at the rear. Genuine bakelite is used throughout and insulation is carefully watched in every part of the set. The circuit is a non-regenerative one, assuring undistorted wire and music. The set comprises a tapped inductance and variable condenser with necessary wires properly cut, bent and labelled, socket unit, rear connection strip, extra loud speaker or amplifier contact posts, etc. This outfit retails at \$20. Judging from the greatly increased volume of business during the last few weeks, this set is reported to be meeting with popularity as a holiday gift.

LITTLE GEM

**PRICE
\$6.50**

(Canada \$10.00)



**Simple, Clear, Efficient and
Beautiful**

The LITTLE GEM presents a unique design combining compactness with efficiency. Unusually large receiving radius. Voice and musical tones come in with wonderful clearness and volume.

All metal parts are brass, nickel plated and polished. The instrument is beautiful in appearance, well made and practically indestructible. Nothing to get out of order or give trouble.

WHAT DISTRIBUTORS AND DEALERS SAY ABOUT THE LITTLE GEM:

"It will probably interest you to know that from our location at Columbus Circle, New York City, we are able to hear distinctly the broadcasting from WEAf, WJZ and WOR."

"We are enclosing an order for 100 more and trust you will be able to ship them before the 24th as specified. We also ask that you book us for 200 more." From a Troy, N. Y. distributor.

"Enter additional order for 100."—From Winnipeg, Canada.

"Last shipment of Little Gems all sold. Rush order enclosed. The Little Gem is proving to be a wonderful seller with us."—From a Tenn., dealer.

*Attractive Proposition for
Jobbers and Dealers*

United Specialties Co.
Incorporated
57-59 Spring St, Newark, N. J.

Crystal Set Amplifier

An amplifier for a crystal set is the latest and one of the most important developments offered by the Steinmetz Wireless Mfg. Company, of 5706 Penn Avenue, Pittsburgh, Pa. This innovation is intended to make the crystal set a more effective competitor of the vacuum set.

Only recently on the market, the Steinmetz amplifier is said to be suitable for any crystal set, coming in convenient units, so that one may add one, two, or three stages of amplification. These units use a peanut tube requiring only a single dry cell instead of the usual storage battery required by the more costly vacuum tube sets.

To insure against interruption in the operation of the crystal detector due to the fact of the cat whisker being dislodged from the sensitive crystal point, the makers have provided an ultra sensitive crystal which largely does away with this difficulty.

The combination of amplifier for a crystal set, coupled with the fact that no storage battery is necessary, is expected to add to the popularity of the crystal set.

Wave-Meter Design

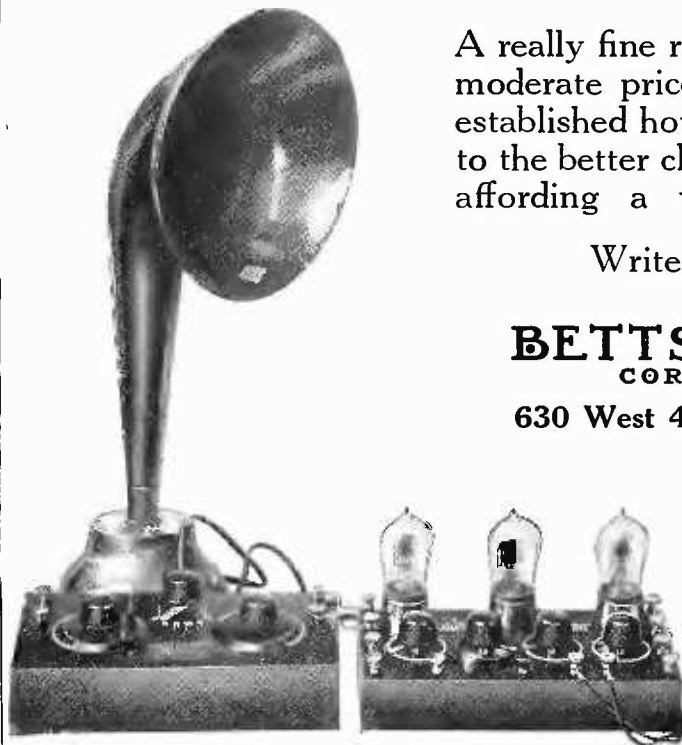
The Bureau of Standards, Washington, has just issued a letter circular bearing the title, "Design of Portable Short-Wave Radio Wavemeter" in which is described the method by which one of these instruments may be made, together with constructive details. This instrument is intended primarily for use by the amateur who by the law is restricted when transmitting to use wave lengths not exceeding 200 meters, and it is important that he be able to adjust his transmitting set within the legal limits. The Bureau of Standards requests that as it has on hand only a very limited number of the mimeographed copies of this letter circular that copies cannot in general be distributed to the public.

North Ward Moves

The North Ward Radio Company of 72 Orange street, Newark, N. J., distributors for DeForest, Brandes, Magnavox, Burgess batteries, Saturn plugs and jacks and Marle transformers have moved to new quarters at 236 Halsey street, Newark, N. J. Their business has increased so largely that they have been forced to secure larger quarters, and in their new location they will be equipped to demonstrate fully their large line of radio equipment.

BETTS SPECIAL RECEIVER

Specially designed for receiving broadcasts at 300-400 meters—highly efficient and selective within this range.



A really fine receiving set sold at a moderate price. Made by a long established house, and offered only to the better class of trade on terms affording a white man's profit.

Write for terms.

BETTS & BETTS
CORPORATION

630 West 43rd St., New York

Betts Special Tuner,
type RC11 \$24.50

Betts Visible Detector-
amplifier, type D2A
without tubes \$38.50

Betts Loud Speaker
\$24.50

Three together \$81.50

M.P.M.
MILLION POINT MINERAL
The World's Greatest Radio Crystal

Nationally Advertised

Concerts heard over six hundred miles with
M. P. M. Crystal.

If all radio dealers would handle and push
M. P. M. Crystals, the interest and enthusi-
asm of the amateur would be increased a
hundred fold.

*Don't take our word. Send
for sample and test it.*

M.P.M. SALES COMPANY

Dept. RD

247 So. Central

Los Angeles

3 Y Q Transformers

High grade specialty built up to the highest quality and not down to a price.

Creates good will in customers.

RETAIL PRICE \$6.00

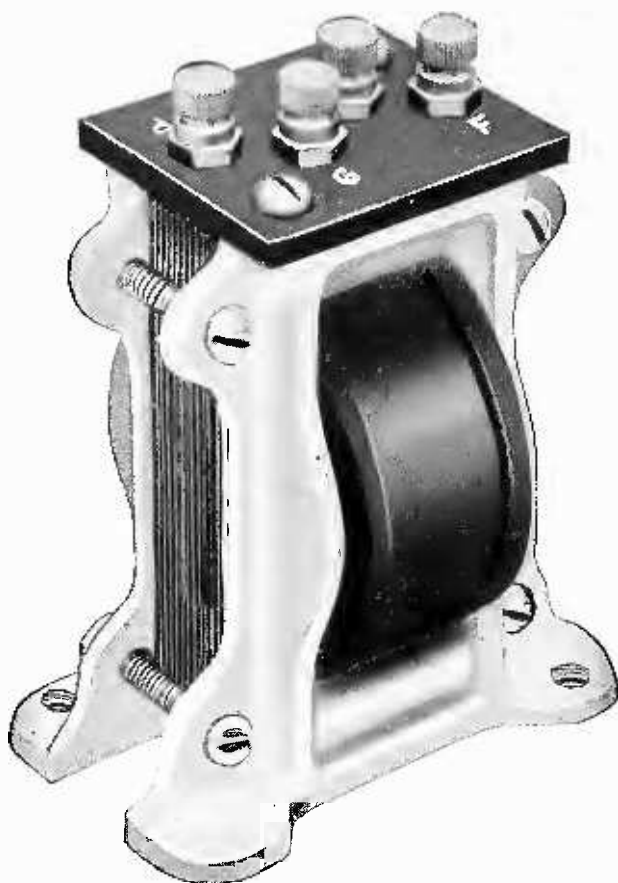
ORDER FROM YOUR
JOBBER

*“Amplification
without
Distortion”*

Federal Institute of Radio Telegraphy

Second and Federal Streets

CAMDEN, N. J.



Development of Melco Receiver

(Continued from page 35)

plished by circuits embodied in the Telos amplifying transformer variometer, and by two adjustable units mounted on the panel. These units permit the use of any standard tube in the set. Instructions for the adjustments of these units for all the standard types of tubes now on the market are given with the set.

The set is suitable for use on loop, indoor or outdoor antenna or on lighting plugs. The reception of St. Louis in New York has been easily accomplished in a three-foot loop in recent tests. In point of distance it can receive, this set ranks with the best. In quality of tone reproduction is said to be far superior to most receivers and in a class by itself. It can be used with a power amplifier for outdoor demonstrations or for use in auditoriums, but the high tone quality suffers somewhat from the inherent defects of the audio-frequency amplifier.

The Melco Supreme Radio Amplifying Receiver is manufactured by the Mortimer Radio Corporation, New York City.

They Are Electragists Now

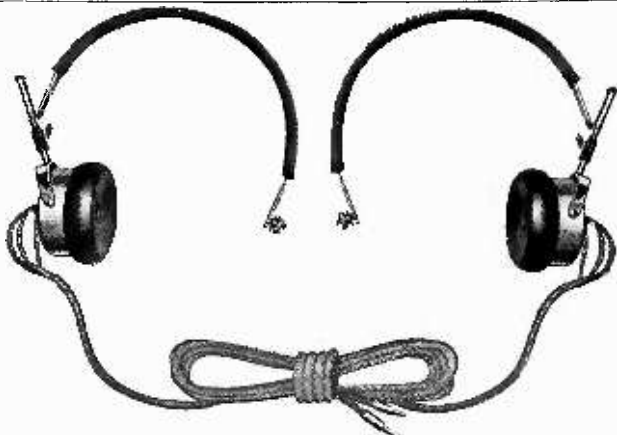
The tendency in shortening the names of occupations and in increasing their activities, as shown by the inventing of the word "realtor" to describe the "real estate man," has been followed by electrical contractors and dealers in the United States and Canada. They are now known as "electragists." What was formerly called the National Association of Electrical Contractors and Dealers is now the Association of Electragists, International, and its headquarters are at 15 West 37th Street, New York City.

Demonstration Before Sale

Payment for the crystal set after everything including an aerial has been set is the retail sales policy of the States Radio Corporation, 1416 Broadway, New York.

The company demonstrates the set first without obligation. Their salesmen make it work first in the home of the prospective purchaser. If the results are not satisfactory to him, the salesmen remove the set without any obligation.

The company's introductory set includes: States super crystal receiving set, single radio telephone receiver, 100 feet aerial wire, two insulators, clamp and wire for ground connections.



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.

Royalfone Activities

Continued increase in business has forced the Royal Electrical Laboratories to move into a new factory at 109-111 Tichenor street, Newark, N. J. The sales and advertising departments will still maintain their offices at 207 Market street, in charge of Harry L. Denburg.

The Royal Electrical Laboratories, besides making the nationally advertised Royalfone are also producing phones on contract for manufacturers of receiving sets for use as standard equipment with these sets. Their 1,500-ohm Royalfone has been found to be an ideal set for use with crystal detector sets. Due to their low resistance, greater audibility is secured when connected with this type of set. The Royalfone, 2200 ohms, is especially adapted for long range receiving, and is also suited for use in connection with loud speakers.

Charles Lehrfeld, radio engineer of the Royal Electrical Laboratories, promises that he will soon put out a phone that will have an adjustable diaphragm so that one can regulate the air gap between the poles and diaphragm and thus be able to take care of the change of potential. The person using this phone will not experience the sensation of the rough sounds that come through when change from detector to one or two stages of amplification is made. This phone is past the experimental stage and will in all probability be ready for sale within a few weeks.

As Royal Electrical Laboratories only sell to jobbers and preferred dealers they have established agencies both in the United States and Canada.

Chicago Show Opens Jan. 13

George S. Walker, president of the Western Radio Corp., at Denver, and president of the National Broadcasters' League, has instructed the secretary to issue a call for the first National Convention of Broadcasters to convene concurrent with the Second National Radio Exposition to be held in the First Regiment Armory, Chicago, January 13 to 20, 1923.

The dates for the exposition are at a time when dealers have passed through a busy holiday season and they will then be fired with enthusiasm over the future of radio. There are a number of sound proof rooms for loud speakers. None will be permitted on the main floor.

The management of the exposition is asking for help and suggestions in framing an educational program that will give the radio dealer some real information on merchandising.

WOODEHORN \$7.50 Loud Speaker

Complete special attachment to fit any loud speaking unit

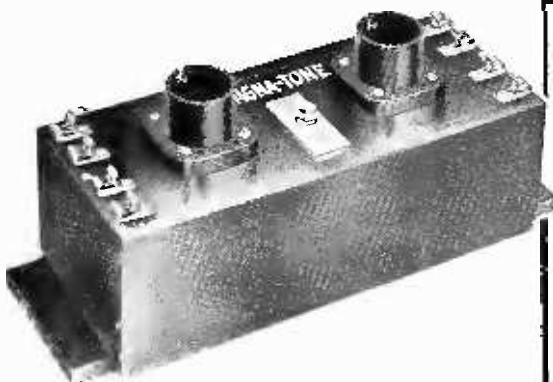


Height
26 in.
Bell
10 in.

This non metallic loud speaker is revolutionizing the radio industry. It's the wood that makes the tone good. The clear bell-like tones of *WOODEHORN* give greater amplifications without distortion. It gives results equal to horns selling for \$50 and more. Investigate the fast selling *WOODEHORN* today. Low Price! Big profits!

Write Today for Sample Horn and Discounts

INTER-OCEAN RADIO CORP.
1140 Broadway New York



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.

JOBBERS 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

"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.

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.

YOU SHOULD KNOW ABOUT OUR
AERWIN PRODUCTS
THE MILLS RADIO & ELECTRIC CO.
INCORPORATED
1008 Springfield Ave. Irvington, N. J.

Fine Cuts for Illustrating
CENTRAL ELECTROTYPE FOUNDRY COMPANY
Electrotyping and Engravings
69-71-73 Warren St., near Plane
Newark, N. J.
Telephone: Mulberry 1698

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.

NULOID
Scientific Chemical Compound for Radio Parts and Panels
NULOID CORPORATION
119 Chambers St. New York

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

PATENTS ELECTRICAL MECHANICAL RADIO
SEND SKETCH AND DESCRIPTION FOR OPINION
EMIL ALEXANDER KERN
328 SOUTH SEVENTH STREET
NEWARK, N. J.

Have Outlet For
SURPLUS STOCKS
Radio Supplies
Price and Goods Must Be Right
P. D. Jackson, 1441 So. State, Chicago

January is the Inventory Month

(Continued from page 28)
would be declared out of unearned profits which is against the law in New York and other states.

However, conservative business demands that inventories be priced at cost or market value, whichever is lower.

More business men look upon inventory-taking time with exasperation, to be mild; exasperated at the cost of it, the time lost, the slowing-up of business, and its general nuisance.

And yet the way out, the remedy, is simple. It consists of a simple system of perpetual inventory-keeping. The system fits in easily in all businesses where there is no manufacturing, but not so easily where there is. But it can be made to fit properly.

The radio dealer should have no trouble keeping such a system; it is easy to operate, costs very little or nothing for upkeep, and its advantages are multi-fold. It tells at a glance just how much of a given unit is on hand, where it was last bought, how much was paid for it, and how rapidly it is being sold. The dealer can watch his buying much more closely, and besides, keep track of where the material is going to.

Last, and certainly not the least important, an examination of your inventory will disclose to you at least some slow-moving merchandise, and a little ingenuity will show what good leaders you can arrange for your special sales which are to come.

Learn to watch your inventory and to use it, for it has proved itself one of the finest and surest danger-signals in a business. Where the signal is heeded it avoids much that may be lost, and prevents a sorry end.

How Denver's Little Store Became Big

(Continued from page 29)
lic speaking men for their lectures. A regular program as scheduled is maintained and a real, legitimate entertainment is provided. Nothing is permitted to be broadcasted in the line of advertising which may in turn be the means of a profit."

Recently the Reynolds company issued a good catalog of some sixty pages, illustrating their store and sales room and listing a number of broadcasting stations. All of the standard goods carried by the company are de-

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)

CONTAINA
The Adjustable Double Surface Crystal Setting Awarded Evening Mail Certificate of Excellence.
Minimum Cost Maximum Service
CURTIS G. CULIN
366 Broadway New York City

KNOCK-DOWN RADIO RECEIVING SET
Neatly packed in an attractive hinged cover box. Makes a wonderful display. A child can assemble this set. Practical and instructive. Complete instructions for assembly included.
RETAIL PRICE, \$4.50.
Liberal Discounts to Jobbers. (Established 1871)
CHAS. WINKLER, INC., 178 Emmett St., Newark N. J.

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.

KRAMER RADIO COMPANY
4713 Sheridan Road, CHICAGO, ILL.
MIDWEST DISTRIBUTORS
Of Quality Radio Products
Write Us for Catalog and Discounts

PATENTS
on radio inventions apply to
OTTO K. ZWINGENBERGER
38 Park Row, New York
Cortlandt 3207

Have You Our New Price List?
"EDGCO" RADIO PRODUCTS
Save money by our prices; save time by our prompt shipment. Successful dealers sell "EDGCO."
The EDW. J. GOETZ CO.
608 Race St., Cincinnati, O.

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.

PATENT
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.
MANUFACTURERS PATENT CO.
520 FIFTH AVE. NEW YORK

scribed, from crystal sets to 50-100-watt transmitting outfits. Hook-ups are shown, as are other matters of radio interest. Ten thousand of these catalogs have been distributed throughout the country and it is the plan of the company to issue another edition of this guide to radio.

The organization has a definite selling plan to the dealer and is in position to give good service on standard equipment. The reputation and methods established by Dr. Reynolds in his selling organization are worthy of the attention of the trade.

Mr. Gilbert on Vacuum Tube Situation

(Continued from page 28)

grid and filament. Standard 4-prong base, heavily nickel-plated.

These tubes are all hard pumped in contra-distinction to the other tubes on the market and require an amount of current in the filament about one-half that required by these other tubes. They are small in size which makes breakage less likely, and also makes possible extremely short parallel lead wires.

"This, combined with the high resistance base," says Mr. Gilbert, "makes these tubes ideal for radio frequency amplification."

Mr. Gilbert kindly consented to throw some light upon the legal battles now being fought anent the production of tubes. He said:

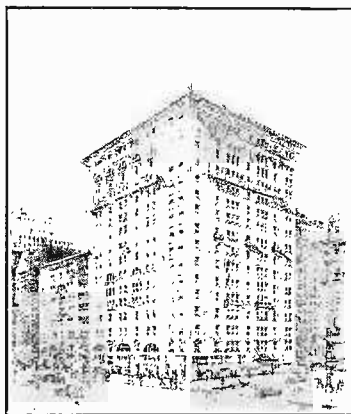
"E. D. Myers of the Radio Audion Co. is not the inventor of the audion tube and his connection with the De Forest Company as an employe was a rather brief one during 1917. He was in our employ as general foreman of the vacuum tube department and had charge of the assembling and pumping of the same.

"Mr. Myers is at present an officer of the Radio Audion Company which has no connection with the De Forest Company except that it is manufacturing and selling vacuum tubes of a special type under an immunity agreement covering the grid patent."

The American Tel. & Tel. Company and the Radio Corporation of America are questioning this agreement, claiming same is violation of the license agreement the De Forest Company granted them in 1917. They claim that Mr. Gilbert's organization has no right to enter into such agreements with concerns desiring to manufacture three-element vacuum tubes. The matter of patent rights is now being threshed out in the courts.

On this subject the Radio Audion Company, through their exclusive distributors, the Radio Supply and Serv-

ATTENTION! DEALERS



A Salesroom in New York for a Dollar a Day

Do Your Buying at

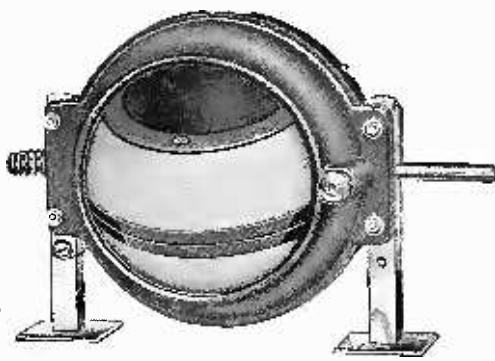
THE PERMANENT RADIO FAIR

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.



VARIOMETER

List Price \$6.50



The Finest Radio Apparatus

On the Market

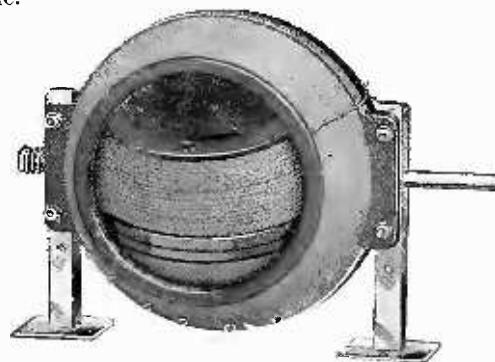
The apparatus manufactured by the Radio Products Mfg. Co. is recognized as the very highest grade, designed to meet the most exacting requirements. Each unit is made complete in our own plant from the Redmanol moulding to the winding, assembling and final testing of the completed instrument.

Twenty years in the electrical manufacturing field gives us the wide experience, equipment and specialized organization necessary to produce the highest grade equipment to be had in this line.

Write us for full information.

Radio Products Manufacturing Co.

667 W. Fourteenth St.
CHICAGO, ILL.



VARIOCOUPLER

List Price \$6.50

NEW FADA PRODUCTS



Fada Vernier Rheostat

Insures the most delicate filament control. One single knob for both main and vernier control.

No. 150-A

Price \$1.25

Vernier Attachment Only

Can be applied to practically any make of rheostat, converting it into a vernier rheostat.

No. 151-A

Price \$.50

Fada Potentiometer

Same base and construction as the regular FADA rheostats. Resistance strip accurately wound with special enamelled alloy wire.

No. 152-A (200 Ohms) Price \$1.00

No. 154-A (400 Ohms) Price \$1.00

WE ALSO DISTRIBUTE THE ENTIRE FADA LINE OF SETS AND PARTS

Immediate Deliveries at Present
DEALERS WRITE FOR DISCOUNTS

VIKING RADIO CO.

26-D Cortlandt St. New York City

PHONE PLUGS

Standard Type



35^c each

22^c each

in lots of 100 or more

The above plugs can be used with pin, spade, or plain wire ends.

No soldering necessary

S. S. NOVELTY CO.

255 Bowery, New York, N. Y.

ice Corporation, declare they will prosecute their million-dollar damage suit against the Radio Corporation of America, claiming losses suffered through the efforts of the Radio Corporation to interrupt their business.

The Radio Audion Company claims, in their legal papers, that the Radio Corporation put out a circular anent the Myers tube, declaring dealers are liable to prosecution for handling these tubes.

Pathé Loud Speakers

In the Pathé loud speaker, in contrast to other loud speakers, the sound waves are given directly from the diaphragm rather than in an indirect way by reflection from the sides of a metallic horn. This is said completely to eliminate the tinny sounds that are bound to come from many of the ordinary types.

Being experienced in the construction of tone arms, the Pathé corporation has introduced some of the principles found desirable in the designing of tone chambers in phonographs into the making of their loud speaker. The speaker is light in weight and is extremely compact. As for appearance, it can hardly be surpassed. To use the Pathé loud speaker it is only necessary to employ a receiver fitted with a two-stage amplifier and a 110-volt "B" battery. The two terminals on the speaker are wired to the telephone binding posts without the use of an auxiliary source of power. To get the most out of a Pathé loud speaker the use of a three-stage audio frequency amplifier with a plate battery of 90 to 135 volts is recommended. This apparatus is manufactured by the Pathé Phonograph & Radio Corporation, 10-34 Grand street, Brooklyn, N. Y.

Homcharger Cut-Out

One of the most effective cut-outs recently evolved by radio manufacturers is that used by the Automatic Electrical Devices Company of Cincinnati, Ohio, to bring their Homcharger before the attention of radio enthusiasts. It is in striking red and gold, a facsimile in size and outline of the regulation charger for home radio batteries. A real name plate affixed to the cut-out adds to the illusion which this piece of advertising carries out.

The cut-out graphically depicts the neatness, convenience and ornamental appearance of the Homcharger.

These cut-outs may be obtained by dealers handling Homchargers from the manufacturer or from Henry Paulson & Company, 37 South Wabash Avenue, Chicago.

\$3 makes your PHONOGRAPH the best loud speaker



Unscrew Head Phone Cap and Replace with Huguenot Sizes to fit all Standard Phones

Fits All Standard Phonograph Tone Arms. For Special Makes Use Bushing 50 Cents Extra

HUGUENOT

RADIO—PHONOGRAPH ATTACHMENT

No Metal Parts to Bend
No Leaks or Loose Connections
Quickly and Easily Attached
Made of Black Polished Hard Rubber
Double Phone Attachment—\$3.00
Single Phone Attachment—\$1.00

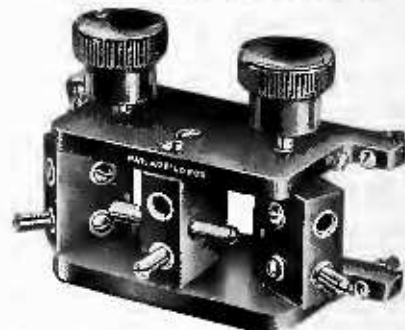
Mail orders filled promptly on receipt of remittance
Specify make of phonograph and head-phones.

McKENZIE ENGINEERING COMPANY
NEW ROCHELLE, N. Y.

Special discounts to the trade.

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

Triple Coil Mounting List \$4.00
Two Coil Mounting List \$3.00
Single Coil Mounting List \$0.50

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.

Radio-A Recharger

Believing that the radio user would appreciate the elimination of the need for having radio batteries recharged at garages, and the attendant annoyance and expense, the King Electric Manufacturing Company, Inc., of 1681 Fillmore avenue, Buffalo, N. Y., are now offering their Radio-A Battery recharger, designed expressly for the recharging of radio filament batteries.

Ensuring an easy system of recharging at a small cost, the Radio-A is designed to provide for the successful operation of the modern radio set, dependent as it is upon a well-charged storage battery that keeps the vacuum tubes burning brightly and the signals working clearly.

A special feature of the Radio-A is the vibrator which when worn out can be replaced easily and quickly without tools. Being portable the recharger can be taken into the garage to add further utility by, recharging the battery of the car at a cost of about ten cents.

Uses for Radio Voltmeter

An instrument that combines in one unit the means for testing batteries, filaments and circuits of an entire radio system is provided to the radio public by the Pignolet Instrument Company, Inc., 11 Liberty Street, New York, in the Pignolet voltmeter.

The instrument, of the D'Arsonval type, is suspended on ground steel pivots fitted into sapphire bearings. Extremely accurate readings are provided for by an adjusting screw on the face of the cover which corrects the pointer for zero readings. The instrument is designed for use in connection with direct current. It is made in three styles, PRV, a portable instrument mounted on a base, FRV, flush type for switchboard mounting, back connected, and SRV, surface type, for switchboard mounting, back connected. A pamphlet, which may be had from the company for the asking, explains how the instrument may be applied to various testing uses in radio.

Magnus Enlarges Factory

The Magnus Electric Company, nc., of 451 Greenwich Street, New York, announce that they are enlarging their factory floor space by 11,000 square feet to provide for additional output. This is the second increase in space within the year.

Specifications are being prepared for bids on new equipment and machinery for use in the electrical lug and radio accessory departments.

A representative line OF STAPLE MERCHANDISE

DeForest Equipment (New D. V. Tubes)
Saturn Products, Perfect Jacks and Saturn Automatic Radio Plugs

Rico Loud Speaker Phones—Brandes Phones
Tungar Battery Charger, Extra Attachment for Storage "B" Batteries

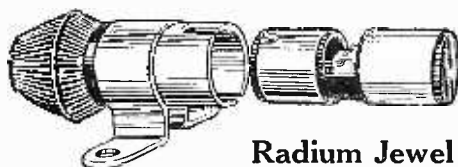
Dayton Fan and Motor Co. Variometers and Variocouplers
Woodehorn Loud Speaker—Magnavox

NORTH WARD RADIO CO.

Phone Mitchell 1463

236 Halsey Street

Newark, N. J.



Radium Jewel

Detector

Far above the ordinary crystal detector. Extremely sensitive. Easily adjusted. Makes reception much sharper and clearer. No battery or other accessories needed. The very latest development. The only device of its kind for sale.

Combination \$1.00 list.

Detector Bulb 60c

Bulb Holder 40c

Write for Very Attractive Discounts

STAR MANUFACTURING CO. 868 BERGEN STREET
NEWARK, N. J.

Their Novelty Sells and Sells Their Efficiency Brings Repeats

No shelf stuff: sells on sight, nothing like it. All guaranteed. A small trial order will show you real money. Send it today.



AEROPLUG—the Socket Aerial

Just by screwing the plug into any lamp socket, makes house lighting circuit a powerful aerial. Uses no current. No danger. Nothing to get out of order. Requires no attention. Lasts indefinitely. LIST \$1.50

GREWOL, the DETECTOR

With a National Reputation \$2.00

ENTIRELY different—infinately superior. Sells almost on sight. Makes good and makes sales. Attractively packed in individual cartons. Never stays long on any shelf.

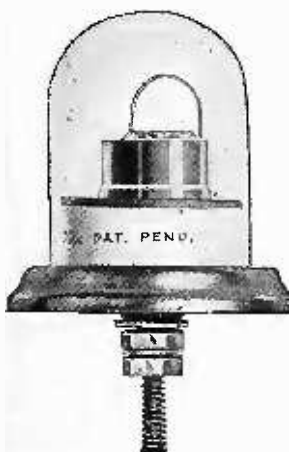
Lasting Adjustment
Always Set and Ready
Glass Enclosed

Write for Proposition TODAY!!

RANDEL WIRELESS CO.

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(Actual Size)

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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.

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Grebe Receiving Sets
Federal, Fada and
Radio Shop Products
Murdock Products
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Write For Our Special Proposition "Z"

THE RADIO SHOP
 —OF NEWARK—
 76 SPRINGFIELD AVENUE
 NEWARK, N. J.

"The Little Wonder"

FOR BOYS AND GIRLS

CRYSTAL SETS

Unassembled - Net **\$1.75**

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
 Dealers and Jobbers Write for Free Catalog

It lists all our radio parts and supplies.

Holloway Elec. Supply Co., Inc.
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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

Power Amplifiers for Loud Speaking

(Continued from page 31)

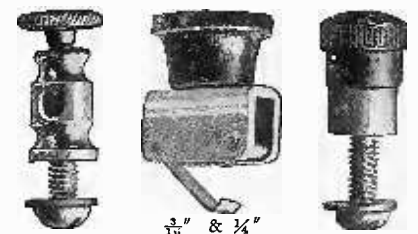
comparative table between input electrical energy (watts) to, and output sound energy from an average loud-speaker, will be helpful.

Watts Input	Relative Sound Output
¼	— Audible
½	— 3 or 4 feet from horn.
¾	— Around an average room.
1	— Fairly loud.
2	— Moderate phonograph intensity.
4	— Around a large hall.
6	— 2 or 3 blocks outdoors.
10	— About ½ mile.
20	— <i>Smell of insulation burning.</i>

This shows then that the bi-polar type of loud-speaking unit will operate satisfactorily up to the intensity of a soft (not plastic, but quiet) phonograph record and is therefore quite pleasant in an average room. If we want to let a number of persons in a large room hear well, a unit that will stand 2 or 3 times this wattage without distorting must be used. This would be one of the lever-arm type now in general use. This type is usually connected directly in the plate circuit as is the first mentioned and can likewise be wound to any reasonable impedance. The lever-arm type all have a maximum capacity of approximately 3 watts and are very good for ordinary inside work.

The next is the floating armature or Baldwin type which can be made to stand 10 (or even 20) watts if properly constructed. The Baldwin units, however, will not work clearly above approximately 2 watts and may be permanently spoiled if forced much above that value. This type should be used with a transformer since any D. C. from the plate circuit serves only to polarize the armature and therefore distort the diaphragm which in turn affects the output quality. This type gives the best results and highest quality when wound to about 2,000 ohms impedance and used with a step down transformer with a ratio of 3 or 4 to 1. They will give quite satisfactory results, however, without a transformer if wound to high impedance and used in the plate circuit of a voltage amplifier tube on not over 90 volts "B" battery.

The last of this group is the moving coil type unit which is well known on the American market. This must be used with a transformer as sufficient winding can not be put on the diaphragm without making it too heavy. The transformer is always supplied and is wound to fit moderate to low impedance tubes. The capacity can



CRYSTALS GALENA SILICON
CRYSTAL DETECTORS List \$2.00
CRYSTAL RECEIVERS List \$9.00
RADIO APPARATUS CO.
 6600 Hamilton Ave. Pittsburgh, Pa.

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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
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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

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Master Baldwins	Dubilier
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OUR NEW DISCOUNT SHEET IS READY

HUDSON - ROSS
 123 W. Madison St. Chicago

DIAMANT VARIABLE CONDENSERS AND CRYSTAL DETECTORS

Electrically and Mechanically Guaranteed
Diamant Tool & Mfg. Co., Inc.
 93 Runyon Street Newark, N. J.

be as high as 20 watts but at this input a seamless horn must be used as one with seams might be blown open. In fact very few single loudspeakers of any type have ever been operated satisfactorily at this value.

All loudspeakers have approximately the same efficiency of transformation from electrical to sound energy and the loudness of the sound from any is dependent principally on the signal energy supplied to it—the more wattage from the last tube, the more sound from the horn.

The two most important things to be done when volume is desired is to get enough signal voltage onto the grid of the power tube and then see that the tube has enough "B" battery energy supplied to it for the signal to work on. That is, if we want to operate a speaker to say 4 watts capacity we must have a power tube capable of handling high enough "B" battery voltage to allow the tube to deliver at least 4 watts and also have sufficient signal voltage available from the last stage of voltage amplification to operate the power tube 4 watts worth.

With an average antenna two stages of voltage amplification before the power stage should do this on broadcasting within 50 miles, while 3 stages may be necessary if the sending station is further away or antenna conditions are very unfavorable. Any more tubes in the circuit than necessary simply adds to the extraneous noise mixed with the music or speech and puts added drain on the batteries.

There have been observed, and only recently, too, demonstration sets in several stores with as many as eight tubes working and delivering about 3 watts of the most nerve-racking stuff imaginable. Customers come up to these places, try to listen a minute or so, look at the \$500.00 layout of apparatus, and walk out saying, "If that's all he can get with that much equipment, I think I'll wait till radio is perfected." That does not do radio justice nor does it sell apparatus. It simply kills the game—that's all.

What is the remedy? Simply this: Make your demonstration do the work with a minimum of apparatus. Make it look simple. Make it talk or sing or recite, not yell or screech or blaa-blaa. Reduce tube noises to a minimum by using the right tubes in the right place and by adjusting them to operate most efficiently. Don't put too many "B" batteries on the set—that's worse than too few. Don't let the amplifier screech at exceedingly high frequency. Ground the filament circuit. Learn to use "C" batteries if you set up your own amplifier. They make all

Etherphonette

The last word in RADIO

HERE is the most unique "listening in" outfit in the field of Radio. In the Etherphonette the receiving instrument is built right into the head phone. No extra equipment is needed. Simply connect to single wire aerial (40 to 75 feet long) inside or outside the home or to lamp socket antenna plug, and ground to radiator, gas or water pipe. Then "tune in."

One shell of the Etherphonette contains a 1500 ohm phone—the other an efficient tuner and concealed crystal detector. Catwhisker, crystal and tuning controlled by outside adjustment knobs. A special eight-foot cord with five foot split ends, and clips for aerial and ground connections, completes the set. Entire Etherphonette is no larger and no heavier than ordinary head phone. Retail at \$12.50.

Unusual Sales Possibilities

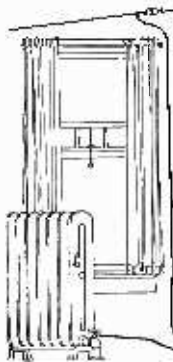
The unique construction of the Etherphonette and its low retail price offer you an unusual opportunity to materially increase your sales and your profits. Write today for particulars of our dealers' proposition, together with catalog of our complete line of Etherphone Receiving Sets ranging in price from \$3.50 to \$75.00.

RADIO APPARATUS CO.

Manufacturers of

"Etherphone" Radio Equipment

40 W. Montcalm St., Detroit, Mich.

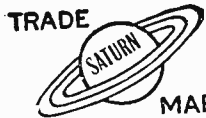


Retail Price \$12.50

Receiving Set and Head Phone Combined!

Remember that the Etherphonette is not a toy, but a practical, scientifically built, radio receiving set. Receives any broadcasting station, sending on 200 to 450 meters, within 15 to 20 miles.

SATURN



PRODUCTS

The Saturn "Automatic"



RADIO PLUG

No screwdriver required. Not necessary to disassemble.

To make connection, just insert terminal tips, and contact is made. The more you pull, the better the contact. To take terminal out, just press the release lug and the tips fall out.

The Plug you have been looking for
Every Plug sealed and fully guaranteed
List Price \$1.50

The Saturn "PERFECT" Jack



This jack is an improvement on any other Jack on the market. The crowfoot offset allows easy soldering. The Bracket is made of Brass, Nickel Plated; rounded corners. The Blades are of Spring German Silver. The Contact Points are Genuine Silver. The Nipples are shoulder type and are furnished with two washers, Nickel Plated and Polished.

- No. 1. Single Circuit Open . . . \$0.65
- No. 2. Single Circuit Closed . . . 0.75
- No. 3. Double Circuit Closed . . . 0.90
- No. 4. Single Filament Control . . . 1.00
- No. 5. Double Filament Control . . . 1.25

THE SATURN MFG. & SALES CO., Inc.

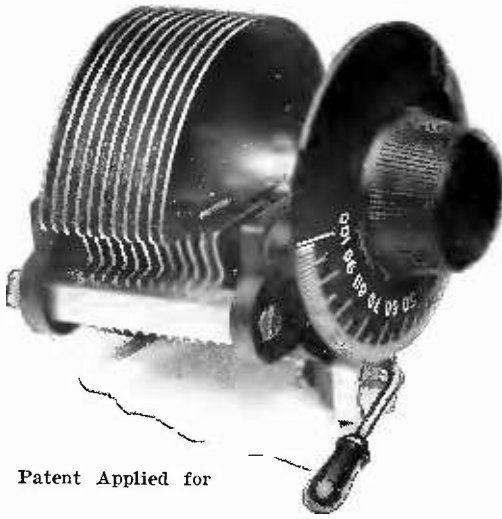
48 Beekman Street

Dept. D.

New York, N. Y.

**Hammarlund Vernier
Variable Condenser**

For Super-Accurate Tuning



Patent Applied for

The Radio News Laboratories rate this condenser 96% perfect, the highest rating given any condenser. Tested and approved by the Tribune Institute.

.001 Mfd. \$7.00

.0005 Mfd. \$6.00

3½-in. Bakelite Dial, \$1.00

Write for descriptive circular

HAMMARLUND MFG. CO., Inc.

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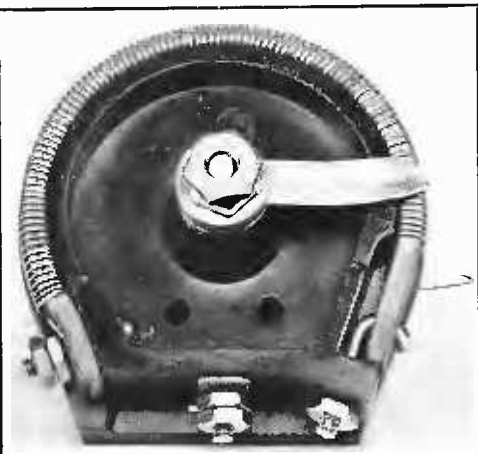
“MICROSTAT”

A Vernier Throughout its Range

\$1.50

LOUIS A. STAFF COMPANY

1755 Broadway New York



THRADIO RHEOSTAT

Plain and Vernier

Built on Absolutely New Principles

HEAD SETS—SOCKETS
CONDENSERS—TRANSFORMERS

THRESHER RADIO CORP.

476-484—18th Avenue
Newark, N. J.

the difference in the world on amplifier tubes. Do all you can to eliminate spark interference even if you must resort to a loop and an extra stage of voltage amplification. It pays, especially if your customer brings his wife along.

The good broadcasting stations are away ahead of the receiving equipment as far as quality of tone is concerned. They are sending energy from their antennae that is practically a perfect copy of the artists' work, and we believe that if it were being reproduced with absolutely no distortion in every dealers' place, they would have no good radio material on their shelves for the next two or three years. It can be done because we've done it, so why not try it yourself?

Now to get back to the "how" of it again.

In the illustration, you will recognize the three available power tubes on the open market. They are the Radiotron U. V. 202, the VT-2, and the 216-A. The first is Radio Corporation and the last two, Western Electric. Referring to our table in the December issue of THE RADIO DEALER, we see that they are rated respectively at 6, 5½, and 3½ watts maximum output. Then, by our other table above, they will all deliver enough energy to a loudspeaker to cover a large hall, and, of course, can be reduced to any intensity below that.

However, if the filaments are not heated to operating temperature, or the plate voltage is not up to that given in the table, the full output cannot be obtained from them, no matter how many stages of amplification precedes the power tube. If we only have 300 volts on the U. V. 202 it will only deliver a maximum of about 3 watts to the speaker. But since that is enough for ordinary demonstration work, they give good results at that value. Likewise, the VT-2 on about 250 volts, will deliver about three watts, which is quite satisfactory.

In the case of the Western Electric 10-A loud-speaking set, the last stage employs two 216-A bulbs (each with a maximum output of 3½ watts at 160 volts) in a push-pull circuit. This arrangement not only gives much better quality, but also a little more output, so that it delivers about 4 watts on 150 volts.

The Magnavox power amplifier will deliver a maximum of about 5 watts on 375 volts with a U. V. 202 in the last stage. It should be remembered that the higher the plate voltage the higher the drain on the "B" batteries and consequently the shorter their life. It is well, therefore, not to use any more plate voltage than necessary to



CRYSTAL RECTIFIER

MULTIPOINT (Patent Pending)

A SYNTHETIC CRYSTAL DETECTOR
Sensitive Over Entire Surface

GUARANTEED

Unequalled Clearness; Unequalled Volume; Unequalled Distance. The Standard Crystal Endorsed by Experts, Press and Trade

Manufacturers are increasing efficiency by equipping their Crystal sets with Rusonite Crystals.

List Price 50c.

RUSONITE CATWHISKER

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14 Karat Gold—Supersensitive

List Price 50c

Attractive Discounts to the Trade

RUSONITE PRODUCTS CORP.
Dept. D., 15 Park Row, New York, N. Y.

Recommended for Reliability

RADIO STORES CORP.
VARIABLE CONDENSERS—
PLUGS—RESISTANCE UNITS, ETC.
222 West 34th Street, New York

You'd walk a mile for a
RADION Panel if you
knew how much better
results you'd get.

**THE PARAMOUNT
ENGRAVING MACHINE**
for Radio Panels

Greatest Production—Lowest in Price
PARAMOUNT MACHINE CO.
207 Market Street Newark, N. J.

RADIO CATALOG No. 54
Now ready
Send for it today

The A. C. Gilbert Company,
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“VICTOR JUNIOR”

Our Latest Model
Write for Catalog

Victor Radio Corp.
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Hit it anywhere!
MAGNETITE

Every point a sensitive one. The most sensitive detector substance on the world market. Unaffected by handling or moisture, and will render efficient service indefinitely. GUARANTEED. Display posters supplied to the Trade. Being advertised nationally. List 50 cents per crystal. DEALERS write immediately.

Owners and nationally Distributors

Gibbons-Dustin Radio Mfg. Co.
518 W. 9th St. Los Angeles, Cal.

give the intensity desired, with high quality.

As we suggested in the previous article on voltage amplifiers, the U. V. 201 can be used as a power tube with good results, except that it has a maximum output capacity of only 2½ watts. It is therefore suitable for use where but moderate intensity is needed and since the filament requires only 1 ampere at about 5 volts against 2¼ amperes at about 7 volts for the U. V. 202, it is much more economical. The "B" battery drain is also smaller with the former.

The amplification constant of the U. V. 202, VT-2, U. V. 201, 216-A, and VT-1 is approximately seven, and therefore the tube that fits the circuit in which it is used best, will amplify the best.

Power tubes do not amplify any more than other tubes unless they fit the apparatus characteristics better, and since they require more "A" and "B" supply than the voltage amplifiers, they should, for efficiency, be used only in the last stage to operate the loudspeaker. We are not overlooking the fact that the Western Electric 7-A amplifier (of the 10-A set) employs a 216-A tube in the next to the last stage. If the circuit is analyzed, however, it will be seen that this tube acts as a voltage amplifier operating into the push-pull stage. This is done, primarily, for merchandising efficiency.

It is true that power tubes do give as good or sometimes better amplification in some of the commercial audio frequency amplifying units than ordinary tubes. This may be due to either of two things, namely, the amplifier tubes used not being up to standard, or, the audio transformers employed in the set not being high enough primary impedance to match the amplifier tubes properly. This condition should not obtain in a well designed amplifying unit. At any rate it is poor policy to operate a power tube into an audio amplifying transformer primary because the much higher plate current (milliamps) is liable to burn out the winding any time.

It will be noticed that our table in last issue rates the WD-II at only ¾ watt maximum output. This means that it will operate an ordinary loudspeaker to cover an average room very nicely, and if the loud-speaking unit is high enough impedance to match the tube well (i. e. is about 40,000 ohms impedance) very satisfactory loud-speaking results, for the home, can be had. But this is the limit of intensity that can be forced from the WD-II, no matter how many stages of amplification precedes it. If the tube is overloaded with signal, added distor-

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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
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Standard Special Crystals



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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.

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has grown considerably—hence its removal to new quarters was necessary, so note carefully our new address—also the

"CSE Buyers Handbook of Radio"

is ready. Your request for it on your business letterhead will bring you 60 pages (Loose-Leaf) of the most interesting Radio Reading known. Incidentally its use by you will save you many dollars. Better ask for it now.

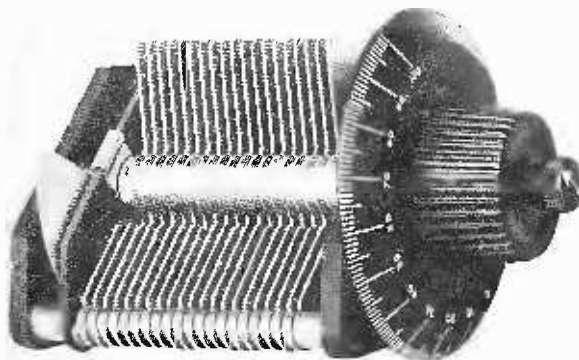
CENTRAL STATES ENGINEERING CO.

9 South Clinton Street

Chicago, Illinois

Ask Our Service Bureau

THE B-T VERNIER HAS NO EQUAL—CARRIED BY JOBBERS



FROM NEWFOUNDLAND TO SINGAPORE

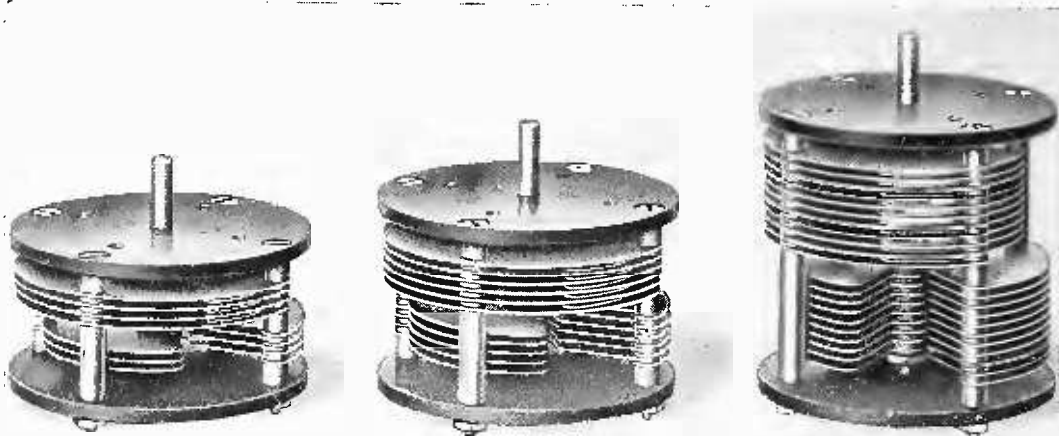
.00025, 11 pl.....	\$4.50
.0005, 21 pl.....	5.00
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With 3-Inch SOLID DIAL.

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



"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.

tion will be the only result. It will therefore never supplant the larger tubes for loud-speaking purposes, at least until a much more efficient loud-speaker than any now available is devised.

It is very encouraging to see, here and there, a dealer demonstrating radio in all its glory. One who believes "it can be done" and is putting forth every effort to make it go, and go big. There is no question that it is going, but it must be kept going big, and it must be kept the great thing that it is—"the wonder of the electric age."

Philadelphia Forms Trade Association

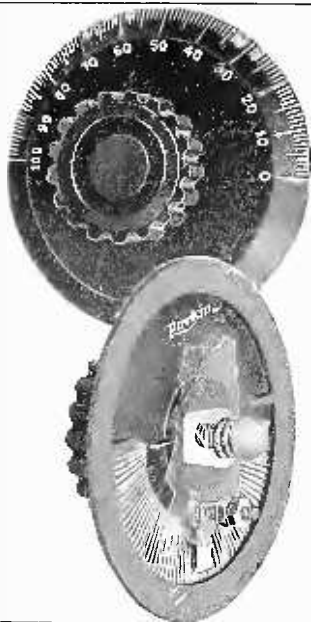
(Continued from page 31)

the various branches of the radio industry."

The qualifications of members as laid down by the constitution of the association give a clue to the aim and value of the organization: "Any individual, firm or corporation in the counties of Philadelphia and Camden (New Jersey), regularly engaged in merchandising radio supplies from an established location and carrying a comprehensive line of radio material suitably displayed, shall be eligible to membership. . . . Such firms shall have been engaged in this business for at least sixty days prior to the date of application for membership."

M. A. Wieghant, of Gimbel Brothers, has been elected president of the association. The other officers are: First vice-president, William R. Work, of W. R. Work Company; second vice-president, Earl Sager, of Central Lock & Electric Company; secretary, J. E. McCusker, of Philadelphia Radio Company; treasurer, W. L. Sayre, of Sayre-Level Radio Company; chairman executive committee, W. L. Eckhardt, General Radio Corp. The members of the executive committee chosen were: W. F. Coryell, the Sport Centre; G. H. Nagel, Nagel-Middleton Electric Co.; W. H. Fithian, Strawbridge & Clothier; F. R. Elliott, Elliott-Lewis Electric Co.; and J. L. Hill, Federal Institute of Radio Telegraphy, of Camden.

While no definite steps have as yet been taken by the organization in the active carrying out of its policies, the machinery has been set in motion, and a publicity campaign is being planned to seek to stimulate general consumer interest in radio in the Quaker City. Meetings are called regularly at the Manufacturers' Club, and a tentative fee of ten dollars per year has been suggested for members.



Parkin
Dial Type
Rheostat

SELLS QUICK
— b e c a u s e

"The Peak of Perfection"

—it will improve both the appearance and operation of any set. Will match the other dials on any panel, something no other rheostat will do. Resistance element recessed in the back of the dial outside the cabinet, which gives more cabinet space, prevents resistance over-heating, and assures constant signal strength—other exclusive talking points for the PARKIN dealer. Retail price \$1.50. Send 75 cents for dealer's sample, and if you are not convinced you can make it one of the fastest selling items in stock, we will gladly refund the 75 cents.

PARKIN MFG. CO.—San Rafael—California

"IN GOOD COMPANY"

When you join our family circle of All-American Distributors you'll be in good company.

"ALL AMERICAN"

Audio and Radio Frequency Amplifying Transformers will be found in every city, town and village in the store that has won leadership by its intelligence in choosing its lines.

Radio Frequency Transformer

Type R 10 operates on 150 to 550 meter wave lengths, amplifying signals many-fold; widening the range of any radio set and largely eliminating static and other disturbances. Last price, \$4.50.

Audio Frequency Transformers

Amplifying the detected signals so that they come clear and strong through any good Loudspeaker. Also adapted to headphone receiving. Made in three Types:

No. R-12, Ratio 3 to 1.....	\$4.50
No. R-13, Ratio 10 to 1.....	4.75
No. R-21, Ratio 5 to 1.....	4.75

Send for Bulletin 22, writing us fully and frankly about your ability to represent us properly; so that we may quote you dealer discounts and invite you to join the All-American family circle.

RAULAND MFG. CO.
35 So. Dearborn St., Chicago, Ill.



Audio Frequency Transformer



Radio Frequency Transformer

Patent Office

Choked with Work

(Continued from page 36)

at the close of the fiscal year all divisions are behind with their work, and eight of them are more than one year behind. Applications to the number of 75,916 (sufficient to occupy the whole force for a year) now await official examination.

Where trade-mark applications should be examined and accepted or refused within thirty days, it is frequently eight or nine months before they are reached at the present time. Grant of registration within a year of filing is the exception rather than the rule. This cannot be remedied without at least twelve additional trade-mark examiners.

The patent office is one of the few self-supporting offices of the government, showing an annual surplus of about \$150,000 and an accumulated surplus of over \$8,000,000. This represents money paid by inventors and trade-mark owners over and above the cost of the service rendered them, and it would seem that common justice should demand congressional authorization of some part of this sufficient to warrant a staff and salaries sufficient to give reasonably prompt consideration to the claims of inventors and trade-mark owners who pay the prescribed fees.

Besides taking care of current work, there is urgent need for many undertakings necessary to properly classify and index registered trade-marks, patents issued, etc. Congress should make a liberal appropriation for this sort of thing if the condition of our patent office is to keep pace with the demands of industry and commerce. At present Congress is considering appropriations for the patent office for the fiscal year which commences next July and those in the radio industry who are interested in seeing the issuance of patents and the registration of trade-marks and copyrights facilitated should lose no time in urging their representatives in Congress to provide liberal funds for the patent office. In a new industry, such as radio, it seems imperative that the many applications received should secure prompt attention.

To Discuss Radio

At the annual convention of the Wisconsin State Association of Electrotechnologists, which will be held at Hotel Pfister, Milwaukee, on January 24 to 28, a paper entitled, "Can the electrical contractor-dealer properly function as a radio merchant" will be one of the interesting features.

"THE BEST IN RADIO" ATTENTION! FORWARD! MARCH

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Distributors

Charlottesville, Virginia

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

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Los Angeles, 411 S. Main St.
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BALDWIN PHONES	MURDOCK APPARATUS
THORDARSON	DRAGON STORAGE BATTERIES
NOVO BATTERIES	FADA APPARATUS
GREBE and MAGNAVOX	CHELTON APPARATUS

And All Other Standard Lines

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

May Change Hook-Ups at Will

The Davis A-1 receiver, made by the Davis Radio Company, of Keyport, N. J., met with an enthusiastic reception at the American Radio Exposition at Grand Central Palace, New York.

This is a new idea in receivers. In conception it is like a telephone switchboard. The operator inserts wires



into single pole jacks in any combination, securing the hook-up desired. All the tuning instruments terminate in single-pole jacks on the face of the panel with the symbols and names of the instruments engraved at their respective terminals.

This unique cabinet is not only convenient in principle for the change of hook-up, but, as the accompanying illustration shows, the lower portion of the panel is inclined at an angle most convenient for operation. High-grade apparatus is employed for the operation of this latest receiver, which includes a variable condenser, variable coupler, two variometers, detector and two stages of audio frequency amplification. There is also a concealed loud-speaking horn which contains no metal, giving the best of tonal reproductions.

Low-Price Vario-Coupler

A low-price vario-coupler carrying a guarantee is on the new list of the Jewell Radio Sales Company, 90 West Street, New York. This Jewell vario-coupler is made in two sizes, No. 202 being adapted for use up to 400 meters, and No. 307 for use up to 600 meters. Each carries a non-warp rotor, 14 taps, screw adjustment and pigtailed. The stator of No. 202 is specially treated, that of No. 307 is of composition.

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, 134 pages. Published by the Norman W. Henley Publishing Company, New York.

This book contains valuable information for the serious fan who wishes to have in his possession a wealth of data and information that help him to build better and more efficient radio receivers. This is a how-to-do-it and a how-to-make-it volume from cover to cover.

A great deal of information and data are given on the construction of inductance coils for various wave lengths and tables are included which make the winding of coils for any particular purpose very easy for the novice. The construction of various testing and laboratory instruments is also given.

A chapter is given over to the various methods of hooking up tickler coils. This will be of great value to the radio workers who wish to get the very best results with their home-made regenerative outfits.

The final chapter contains the rules and regulations for fire protection drafted by the National Fire Protection Association for the use of wireless amateurs in the United States.

PRACTICAL RADIO. By Henry Smith Williams, M.D., LL.D. Cloth. 427 pages. Funk & Wagnalls Company, publishers, New York.

It is an unusually interesting, chatty and informative book on radio. Beginning with a few introductory remarks on the surprising speed with which the small boy has picked up the technique and vocabulary of radio, the author proceeds to describe the construction of the cheapest workable crystal set. Gradually he proceeds toward the vacuum tube set and the construction of a super-regenerative outfit.

The way is made easy for the beginner who reads this book as his first treatise on radio by numerous photographs and diagrams.

Pictures in large numbers have been used to supplement the text and these have been chosen not for their interest alone but for their informative value,

AEREX King of the Air

COMBINATION RECEIVING SET
CRYSTAL-DETECTOR-TWO STEP

Aerex Radiophone Corporation
342 MADISON AVENUE, New York City

SUPERIOR PRODUCTS

The Rolls Royce of Radio

Startling Announcement in
February Radio Dealer

SUPERIOR PRODUCTS MFG. CORP.
1080 Springfield Ave., Newark, N. J.

**FRANKLIN
SOCKET**



**FOR W-D-11
DRY CELL TUBE**

Holds tube firmly
Makes perfect contact

Price \$0.50

We also make an adaptor that fits standard sockets. Price, \$1.00.

Dealers write for discounts

FRANKLIN RADIO MFG. CO.
711 Penn Ave. Wilkesburg, Pa.

A good article is always imitated!

Sell only the genuine

FRESHMAN

**Variable Grid Leak and
Micon Condenser
Combined**



Price only \$1.00

3 Points to Remember

1. It is hermetically sealed in a mould to prevent moisture from affecting the grid resistance.
2. It has an unbroken range from zero to 5 megohms, allowing proper adjustment for maximum efficiency of detector.
3. It contains a tested Micon Condenser of .00025 M.F.

Wire or write for Terms and Discounts
Manufactured by

CHAS. FRESHMAN CO., Inc.
97 Beekman St., New York City

and any one who follows sequentially the circuit diagram, or practical hook-ups, and studies the text therewith, will gradually develop, without other instruction, into an adept in utilizing radio as a practical art.

The distinctive feature of this new book on radio is the fact that it is not cut and dried. It is away from the beaten path and is written by a man who knows how to popularize any science.

The author, Henry Smith Williams, M.D., LL.D., is also author of "The Wonders of Science in Modern Life" in ten volumes, "Miracles of Science" and other works, has long been known for his capacity for interpreting even obscure scientific phenomena in terms that are comprehensive to the average reader. He makes the story of radio a fascinating, even a romantic, narrative. Under his guidance radio apparatus becomes in its simple forms a fascinating plaything for boys and girls, and in its more elaborate development a no less fascinating instrument of precision in the hands of the adult.

RADIO RECEPTION by Harry J. Marx and Adrian Van Muffling. 241 pages. Published by G. P. Putnam's Sons, New York.

This volume covers the entire field of reception. The preliminary pages deal with the elements of electricity and magnetism related in words that can be easily understood by the "newest" amateur. The reader is brought through the various subjects relative to reception in a sequence that holds the interest and in a manner that impresses the important facts on the memory.

The book covers the subjects of wave and wave action, the merits of the crystal detector and its limits, progressing into the vacuum tube detector, explaining the operation of this generally puzzling part in a manner that leaves the reader with a sense of how simple it is after all. Receivers, loud speakers, tuning apparatus, amplifying circuits antennae, ground, batteries and miscellaneous apparatus are explained in detail. The operation of the various sets is clearly explained.

THE RADIO AMATEUR'S HANDBOOK.
By A. Frederick Collins. 404 pages.
Published by Thomas Y. Crowell Company, New York.

A revised edition of this work by one of the radio pioneers is just off the press. Written for the amateur, as are many of the author's works, it contains plain explanations of the various subjects considered and is unusually fully illustrated.

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

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The Only Quality 3000 Ohm Phones listing for \$5



TRUE-TONE
Perfection is Guaranteed
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Worth More

Costs Less

Embodying Every Factor of Highest Quality

High sensitivity attained by maximum wire turns. Super-strength magnets of Tungsten steel. Noiseless Tinsel Cords. Cord connections concealed within phones, eliminating losses from effect of body contacts.

\$5.00
LIST
3000 Ohms

Comfort Head Band, webbed; all metal parts highly nicked. Cups and caps lustrous black moulded. Caps designed to comfortably fit ears. A handsome head set.

Write or Wire for Name of TRUE-TONE Jobber in Your Territory

TRUE-TONE RADIO MFG. CO.

186 No. La Salle Ave.

CHICAGO, ILLINOIS

"EURACO" MICA GRID CONDENSERS AND LEAKS

Price 60 cents
(Designed to fit Standard Grid Leak Base)

GRID LEAK VALUES:

0.5—.75—1.0
1.5—2.0—2.5
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
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SHIP OWNERS RADIO SERVICE, Inc., DISTRIBUTORS

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Interesting Proposition to Dealers

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Milliken Radio Towers

Dealers in wireless equipment can increase their sales and prestige by selling these towers. Now being used for all classes of service in different parts of the country. Galvanized steel, self-supporting, standard types.

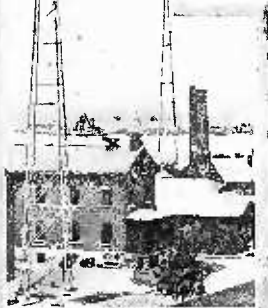
We have an attractive proposition for agents; full information upon request.

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**MILLIKEN BROTHERS
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Woolworth Building
New York, N. Y.

Agents Wanted



STATION WVP



STATION WBZ



STATION 2 X J

What Radio Owes To the Amateur

(Continued from page 30)

tate his desire, and the prospect of getting Bahia, Brazil, or Nome, Alaska, keeps him going.

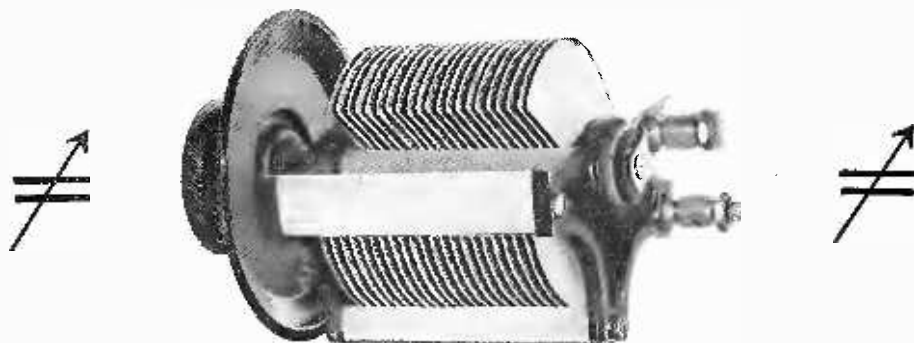
"Any amateur worthy of the name thinks a few days after he has first delved into the subject that he knows all about it and that he is the living radio prodigy. It will take all the patience and tact of the dealer's salesman to satisfy, not merely to sell, him. It is a difficult problem, but it is worthy of more than one attempt at solution. The man who can reassure the amateur about his knowledge of radio, even to the point of flattery, and at the same time impart information that will be of real help, without making his superior knowledge obtrusive, that man is going to be the successful radio dealer.

"The house that caters to the new novice," Mr. McCann said in concluding, "in the way that we used to cater to the old amateur, is bound to be successful. But he must go one step farther. Advise the prospective purchaser to buy a complete receiving instrument first in preference to parts. These parts may be made by capable or incapable concerns, but they are not necessarily designed to work together. The novice must first experience the delight of a working outfit, and incidentally acquire the fundamentals of radio. It is only after this knowledge that he can experiment and experiment satisfactorily. It is only after this primary information that he will be fired with the ambition and desire to experiment and enlarge both his radio vision and his radio needs."

Fuse Protects Tubes

A fuse that is designed to prevent burning out of vacuum tubes is the latest addition to radio equipment of the Radio Equipment Company, 630 Washington, Boston, Mass.

This device, known as the Radeco safety fuse, for which patents are pending, fits the terminals of any standard sockets. It is applied directly at the point where the current enters the tube, making it impossible for an overload or short circuit to burn out the tube. The Radeco safety fuse is easily attached to the filament terminals, all that is required being that the terminals be cleaned thoroughly, so that the fuse can be slipped on without any effort. The Radio Equipment Company claims that the device affords a positive protection for the most delicate part of a radio outfit.



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.

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

Radio Corp. Brings Action on Patents

(Continued from page 30)

manufacturers of vacuum tube radio apparatus is not yet apparent.

It is said that should the Radio Corporation be successful with this suit, it will be in position to prevent others from producing vacuum tube radio equipment, including those who are operating under Armstrong patent licenses.

A corporation of the Armstrong license holders has been formed which will co-operate with the Grebe company in defense of the action. It is expected that the cases will be tried early this year, and the decision will be awaited with interest by manufacturers, dealers and the entire radio fraternity.

In response to a request from a representative of THE RADIO DEALER for a statement regarding the cases, I. J. Adams, the patent expert of the Radio Corporation of America, said that no statement for publication would be made at this time. Willis H. Taylor, Jr., of Pennie, Davis, Marvin and Edmonds, counsel for the defendants, also declined to make any announcement.

Mountain Jobbers Develop Service

(Continued from page 34)

time of the demonstration. However, it was voted by the dealers that the course was very beneficial and its results would undoubtedly be extremely valuable. It is possible that, at the suggestion of these dealers, there will be another such course very soon.

The Bureau anticipates holding a convention at some later date in the city of Denver for the benefit of the radio dealers and prospective radio dealers throughout the territory. It is anticipated that a retail association will be formed on similar lines and that further developing of radio from the dealers' standpoint be worked out to better satisfaction, with the endeavor on every radio dealer's and jobber's part to be for better radio.

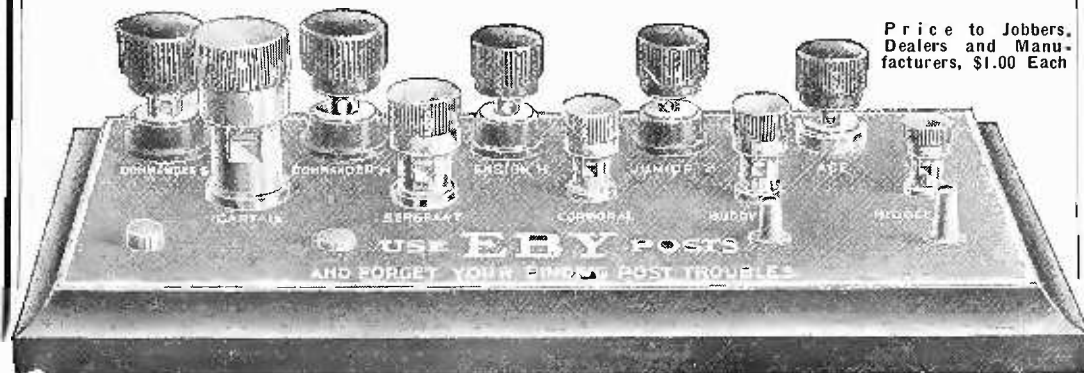
Radio Equipment of Train

Equipped with a Zenith receiving set and a two-stage amplifier in a handsome cabinet having panels of Mahoganite Radion, the Louisville & Nashville de luxe flier entertains its passengers with radio. Among the stations that have already been picked up are Louisville, Atlanta, Baltimore and New Orleans.

HELP! HELP! HELP! HELP!

This is the cry of the busy Radio salesman during rush hours

The **EBY SILENT SALESMAN** (illustrated below) will assist the man behind the counter as it enables the customer to wait on himself—and quickly.



Price to Jobbers,
Dealers and Manu-
facturers, \$1.00 Each

Full information as to specifications and prices of posts printed on the back.
THE H. H. EBY MANUFACTURING CO., PHILADELPHIA, PA.

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

DRY CELL TUBE SOCKET BIG SELLER

The WD-11 Tube has converted numerous "Crystal" fans to the use of a Detector Tube. The 1½ volt tube requires a special socket. Hence the

BIG DEMAND

for this Genuine Bakelite Socket having springs of phosphor bronze. The special contact arrangement is a feature of the

BRUNO 5 SOCKET

Dealers and Jobbers Write

Carlson Dunn Co., 26 No. Desplaines St., Chicago, Ill.

H. T. Wrecks, 1308 Majestic Bldg., Detroit, Mich.

S. H. Stone, 609 Chamber of Commerce Bldg., Pittsburgh, Pa.

A. L. Handel, 2751 Detroit Ave., Toledo, Ohio

BRUNO RADIO CORPORATION

152 West 14th Street

New York, N. Y.



List \$0.75

Radio Exposition Big Success

(Continued from page 27)

Crosley Manufacturing Company.
 Experimenter's Information Service.
 Copper-Clad Steel Company.
 Jewett Manufacturing Company.
 Musio Radio Company.
 Formica Insulating Company.
 Marko Storage Battery Company.
 Eisemann Magneto Company.
 Capitol Phonolier Company.
 Stanley & Patterson.
 S. D. Tuska Company.
 Experimenter Publishing Company.
 Radio Industries Company.
 A. D. Cardwell Company.
 Fiber Products Company.
 Willard Storage Battery Company.
 Davis Radio Company.
 Post Electric Company.
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 Radio Mica Products Company.
 Radio Digest.
 Electric Specialty Company.
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Consolidated Radio Call Book Company, Inc.
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 Radio Directory & Pub. Company.
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 Radio Detector Company.
 The Radiall Company.

F. M. C. Transformer Test

The F. M. C. audio transformer, made by the Ford Mica Company, Inc., 14 Christopher street, New York, has a five-to-one ratio. The following test report shows the efficiency of this instrument, while its appearance vouches for a well-designed and neat piece of equipment:

Primary resistance, 900 ohms; primary impedance, 53,000 ohms at 500 cycles; primary leakage impedance, 1,080 ohms at 500 cycles; primary leakage reactance, 520 ohms at 500 cycles.

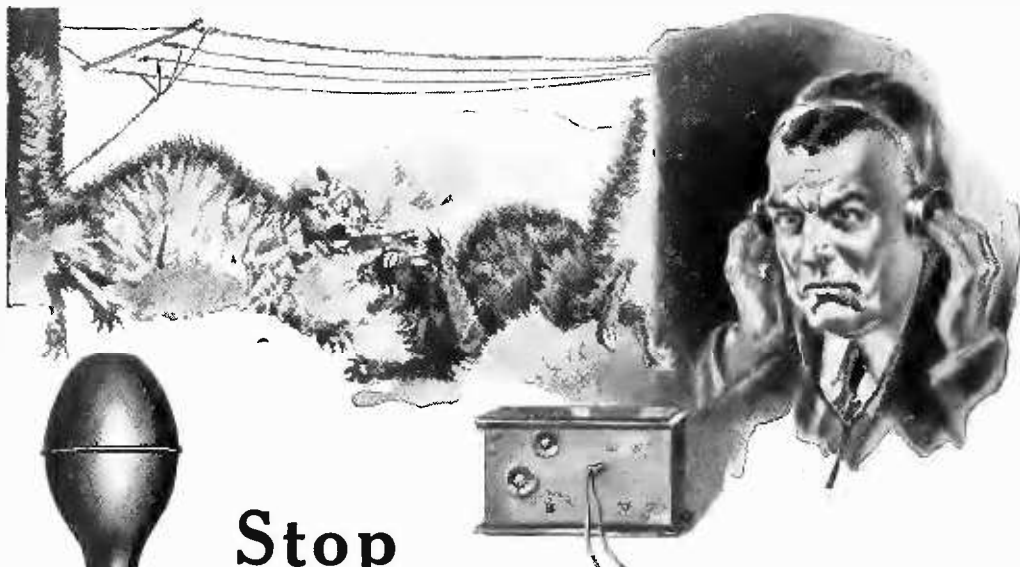
Secondary resistance, 6,150 ohms.

Using this transformer for one-step amplification with UV-201 tube, 40 volts on the plate, the amplification on mean voice frequencies is: audibility or telephone current increase, 11.2 times; energy increase, 126 times.

Dubilier Makes Du-Tec

Du-Tec is a synthetic material manufactured to take the place of crystals for purposes of rectification in radio circuits. Du-Tec is made by a secret process and it is free from all the objectionable characteristics of the natural crystal.

It is highly sensitive and uniformly so; it is sensitive all over, and the usual tedious process of searching for a sensitive spot need not be resorted to when Du-Tec is used. This synthetic rectifier does not change nor is its sensitivity altered over long periods of use. For best results it should be used with a very fine catwhisker and light contact. It comes mounted in a cup ready for insertion in place of the ordinary crystal detector. It is manufactured by the Dubilier Condenser & Radio Corporation, 48 West Fourth street, New York City.



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 "catfights." 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*

HAFNER
HYDROMETER
"First Aid To Your Battery"

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

Dealers Price List

CHAS. FRESHMAN CO.

INCORPORATED
97 BEEKMAN STREET
NEW YORK CITY

January, 1923

Telephone BEEKMAN 0829

<i>“Antenella”</i>	<i>FRESHMAN Variable Grid Leak and Condenser Combined</i>	<i>“Micon”</i>
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ANTENELLA IS DEVISED FOR TAKING RADIO WAVES FROM POWER OR ELECTRIC LIGHT WIRES.



ANTENELLA

LIST PRICE

\$2.00

Dealer's Discount 33 1/3%.

AN EXCEPTIONALLY NEAT PLUG, WELL DESIGNED AND CONSTRUCTED.
 FORMS PERFECT RECEIVING AERIAL
 RECEIVES IN ANY ROOM OF THE HOUSE
 ELIMINATES MOST STATIC
 GIVES SHARPER TUNING THAN OUTSIDE ANTENNA
 SAVES COST OF LIGHTNING ARRESTER
 NO OUTSIDE WIRES NECESSARY
 PLUGS INTO ANY LIGHT SOCKET
 USES NO CURRENT

FRESHMAN

Variable Grid Leak and Condenser Combined

INCREASES SIGNAL STRENGTH
 LOWERS FILAMENT CURRENT
 INCREASES BATTERY LIFE
 ELIMINATES HISSING



LIST PRICE

\$1.00

Dealer's Discount 33 1/3%.

Takes the place of a grid condenser, mounting and a grid leak, and in addition permits an adjustment of the correct amount of resistance.

ZERO to 5,000,000 OHMS

The condenser is the proper capacity for grid leaks .00025. This is the only grid leak on the market that gives you a straight line resistance curve.

This leak will maintain its value permanently.

Variable Grid Leak—without Condenser—List Price 75c. Dealer's Discount 33 1/3%

Price List Continued



“Micon”

NOISELESS

Tested Mica Condenser

Constant Fixed Capacity

The design of MICON is such that constant equal pressure is exerted on the condenser plates over the entire area. This is the only condenser that does this and therefore the only condenser that avoids noises, which are due to variable pressure on the plates. The metal case protects the plates and reduces hysteresis losses to a minimum. Only the best grade PURE INDIA RUBY MICA is used.

LIST PRICE

SIZE	EACH
.0001	\$.35
.00015	.35
.00025	.35
.00035	.35
.0005	.35
.0008	.40
.001	.40
.002	.40
.0025	.50
.005	.75
.006	1.00
.01	1.50

MICON condensers tested at 2,000 volts, 500-cycle A. C. Current will usually stand 5,000 volts, 60-cycle A. C.

Dealer's Discount 33 $\frac{1}{3}$ %.

The “MICON” Midgets

are noiseless Tested Mica Condensers but will not stand as high a voltage as the standard sizes.

.0001	\$.25	.0005	\$.25
.00015	.25	.000025	.30
.00025	.25	.00005	.30

Dealer's Discount 33 $\frac{1}{3}$ %.

Manufactured only by

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Radio Trade Association Meeting

(Continued from page 26)

radio telephone services can be maintained between widely separated farms, ranches, cross-road stores, etc. It will very soon be possible to distribute grand opera music from transmitters placed on the stage of the Metropolitan Opera House. Church music, sermons, lectures, etc., can be spread abroad by the radio telephone.

"This particular prophecy, spoken and written in the spring of 1907, at the time when it was my privilege to put on the market the first radio telephone instrument manufactured by the De Forest Company, is somewhat vividly recalled to my mind this afternoon by a letter which came to me hardly a week ago from one who, incidentally, is interested in a demonstration center for out-of-door life. This letter bears the imprint of the National Headquarters of the Inkowa Camp, a splendid organization headed by Miss Grace Parker and Miss Maude Wetmore for the purpose of interesting young women in some of the finer things of life, namely, outdoor life. The letter came to me after I had made an address before the New York City organization on the subject of radio communication. From this letter, I wish to read just these few lines. Miss Parker says:

"I feel that I must tell you of a unique experience which I had yesterday. I spent the week-end at Greenwood Lake, and yesterday morning in a little humble cottage there, where I went to see some of the village people, I listened to the entire wonderful St. Thomas Church service through a radio set. I cannot conceive of anything more wonderful than to make possible to the thousands of shut-ins, as well as to hundreds of thousands of others, the great things which are going on in the world, and to bring these great things into their own humble surroundings. The women in this family yesterday listened to the same service as that heard by the heretofore privileged group sitting within St. Thomas Church on Fifth Avenue. It is a marvelous achievement!"

"What greater inspiration do we need for the New Year and for the New Year's business than to sell this variety of happiness to these people in the country districts, who, perhaps more than any one class, are entitled to the news of the world, the best of music, literature and education—in short, to all those finer things which go to make life on this earth so well worth while."

Dr. De Forest was followed by Major J. Andrew White of the *Wireless Press*. Major White touched on the multiplicity of broadcasting stations, emphasizing the need for legislation. While he was appealing to his audience for co-operation with the Associated Radio Publishers who are striving to have the White Bill considered by Congress, a telegram came from Washington announcing that the bill had been referred to committee.

Every one in the trade is urged to submit their claims for amendments to the White Bill at once, so that the action of the committee may be speeded. Public hearings on the bill will be held before the Committee on Merchant Marine and Fisheries on January 2.

Major White also commented on

the large contributions sent to famous churches that broadcast their services, mentioning thousand dollar bonds, etc., that were sent to St. Thomas' in New York as an example.

Closing his remarks the Major urged closer co-operation between the trade in movements for the advancement of the industry.

"The Radio Jobber" was the subject chosen by George L. Patterson, of the firm of Stanley & Patterson of New York. Mr. Patterson had hurried back from a holiday trip in Maine and came directly to the convention hall. He pointed out the necessity of service on the part of the retailer as offering the best opportunity for selling more radio by retailers. The jobber's duty, according to Mr. Patterson, is to aid the retailer who gives service by giving still more service to the dealer.

The subject of price cutting came in for some pointed remarks by Mr. Patterson who showed how easy it is for a manufacturer to prevent his goods being sold repeatedly by retailers at prices that legitimate firms who give service cannot make. He closed his remarks by again expressing his faith in the future of radio as a business for business men.

H. H. Eby, treasurer of the association, was scheduled for an address but was unable to attend due to illness. The following telegram from Mr. Eby was read by the secretary:

"Illness prevents my being with you today in person, but not in spirit. Please convey to the officers, speakers and members of the association my sincere regrets for my inability to be with you.

"The official program was received this morning and from the eminent speakers who will take part in this our first official meeting, I am positive that much will be done for the good of radio.

"My proposed message will be sent you shortly to do with as you wish, but the summary of it is as follows:

"Radio is here to stay. Conditions outside of New York are much more promising than in the Metropolitan District. There is a tremendous demand for quality merchandise. There are too many manufacturers, jobbers and dealers in the trade.

"Manufacturers, jobbers and dealers should bind themselves together through an association such as we have just formed to keep worthless merchandise off the market and to coordinate our ideas for the public good.

"Sincerely trusting that much good seed will be sown today I assure you it is with profound regret that I cannot be with you."

Another telegram received from Mr. Eby during the meeting, read as follows:

"Please express to the members of the Radio Trade Association my sincere appreciation of their confidence in electing me treasurer of this association. I shall do my utmost to further the interests of this association and to deserve their confidence in me.

"I hope that at our next annual meeting, we can report a membership of at least five hundred."

A. C. Corwin, of the Radio Distributing Company of Newark, spoke on "Radio in New Jersey." Mr. Corwin outlined the development in the industry in what has often been termed "the cradle of the radio business," pointing out that at one time over three-fourths of the radio business was located in the state of New Jersey. He also spoke against the use of loud speakers as a street demonstration of radio, because, he said, it gave the average citizen a false idea of the quality or reproduction made by radio instruments. "Don't force the man who wants to buy passed your store because of the horrible noises coming from the speaker." In speaking of the function of the radio jobber, Mr. Corwin advised his hearers to "pick out the jobber in your district to serve you. If he doesn't, pick some jobber who will."

Paul Godley, the well-known radio expert of the Adams-Morgan Company, was the last speaker addressing the meeting on the future of the equipment now on the market. "There are two camps among American radio manufacturers," he said, "one believing that it is impossible to sell radio sets to the American public that are operated by more than one control, the other that the proper set to sell is one that is best in the long run, one that is more efficient but yet slightly more complicated. I may say," he added "that I am of the latter camp." Mr. Godley also pointed out that he believed that the present type of good sets will not be superseded by any radical improvements for at least two years.

At the close of the meeting the Western Electric Company presented to the trade in attendance a motion picture showing the action of a vacuum tube used in radio. This number was of considerable interest to the members and held the audience until the last.

The Radio Trade Association, according to recent announcements made to the membership, is planning considerable in the way of future meetings of similar character.

By-Laws of the Radio Trade Association

Due to the great interest in the activities of the Radio Trade Association THE RADIO DEALER presents the report of the committee on by-laws of the association:

ARTICLE I.

NAME

SECTION 1. This organization shall be known as the RADIO TRADE ASSOCIATION.

ARTICLE II.

OBJECTS

SECTION 1. To establish and disseminate ethical principles of fair dealing and prac-

tices for the common good of the radio industry and the public saved thereby.

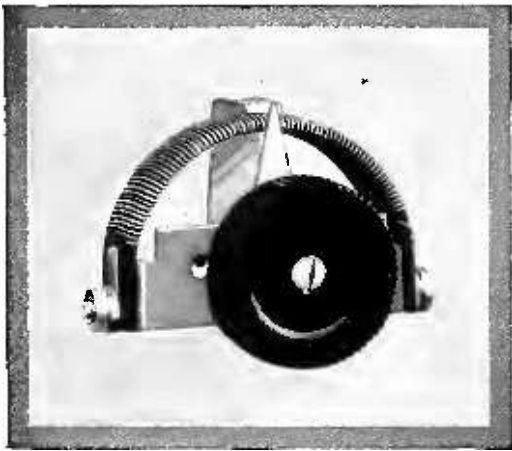
SECTION 2. To educate its members with regard to better business methods through the exchange of ideas on accounting, salesmanship, etc.

SECTION 3. To establish standards for radio equipment in co-operation with other bodies working for the same end, and to aid in defining the various factors in the trade with a view towards bettering trade conditions.

SECTION 4. To work for the betterment and stabilization of broadcasting facilities and other conditions affecting the radio business.

SECTION 5. To impress upon the public the manifold benefits to be obtained by enlarging and popularizing radio communication and the advantages of educating the youth in radio practice and operation as well as the observance of Federal and State radio laws.

SECTION 6. To co-operate with and be of assistance to similar and allied associations, always taking an active and united



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

interest in the advancement of the radio art.

ARTICLE III.

MEMBERSHIP

SECTION 1. Any firm or individual engaged in or concerned with the manufacture, sale or distribution of radio supplies and equipment shall be eligible for membership.

SECTION 2. Members shall be elected by a majority vote of the Board of Directors, but no person shall be elected whose application has not been approved by the Membership Committee.

SECTION 3. Voting shall be done by firms. Each firm shall be entitled to one vote but any member representative of the firm shall be entitled to cast that vote.

ARTICLE IV.

OFFICERS AND THEIR DUTIES

SECTION 1. The officers of this association and their duties shall be as follows:

- (a) President, who shall preside at meetings of the association, and at meetings of the Board of Directors and Executive Committee, etc.
- (b) Treasurer, who shall receive and bank all funds of the Association as collected by the Secretary, duly reporting on same at the request of the President or Board of Directors.
- (c) Secretary, who shall handle the correspondence of the Association, receive and receipt for moneys for dues from the membership, duly turning over same to the Treasurer and otherwise act at the instruction of the President and Board of Directors of the Association.
- (d) First Vice-President, who shall head the Committee on Shows and Expositions and duly pass on any advertising propositions presented to any member, also acting in the stead of the President in his absence from any meeting.
- (e) Second Vice-President, who shall head the Committee for Co-operation between the Association and Amateur Bodies having as their purpose the advancement of the science of radio.
- (f) Third Vice-President, who shall head the Committee on Standards for Radio Equipment, which also will have in charge any laboratory work that may be attempted by the Association at any time.
- (g) Fourth Vice-President, who shall head the Committee on National Publicity.

(h) Fifth Vice-President, who shall head the Legal Committee of the Association.

(i) Sixth Vice-President, who shall head the Membership Committee of the Association.

(j) Fifteen members of the Board of Directors who shall be elected by the membership in the following manner.

1. director from the membership at large.

2. directors from each of the following sections of the membership (to be elected by the members in the territory that the directors represent): Pacific Coast, The South, Central States, East of New York City, New York City, East Central Section, New Jersey.

SECTION 2. Officers shall be elected by a majority vote of the membership at large, except as provided in the case of the members of the Board of Directors who are elected to represent certain sections, and shall serve until September 1st of each year, or until their duly elected successors are installed.

SECTION 3. In the event of the resignation, death or removal of any officer prior to the expiration of his term of office the President shall be empowered to appoint his successor to serve the unexpired term of the officer removed, deceased or resigned.

SECTION 4. Balloting for officers shall be in the first week in August of each year. The Board of Directors shall appoint a Nominations Committee, which shall confer in July of each year and prepare lists of nominations for the various officers. A Teller shall be appointed and the Secretary shall mail to every member in good standing at his last known address ballots with the names of the nominees for every office printed thereon together with sufficient blank spaces for other names to be written in by the members voting. These ballots shall be mailed to reach the members as nearly to the first day of the first week of the month of August of each year as possible. The ballots shall be marked and signed and returned to the official Teller so that the post-mark on the envelope containing the ballot be not later than the last day of the first week of the month of August. After allowing a reasonable time for receipt of these ballots the Teller shall announce the results of the voting to the Secretary who shall in turn advise the membership and officially notify the new officers of their election.

Acknowledgement of acceptance of office shall constitute installation of the officer elected.

ARTICLE V.

MEMBERSHIP FEES AND DUES

SECTION 1. On and after February 1, 1923, an admission fee of five dollars (\$5.00) shall be required of all new members, which fee shall be collected by the Secretary on application for membership and shall be deposited in a bank selected by the Treasurer and held subject to withdrawal at the will of the Finance Committee and expended for such purposes as are ordered by the Committee acting under the guidance of the Board of Directors.

SECTION 2. Annual dues of one dollar (\$1.00) per member shall be collected by the Secretary each year covering the fiscal year ending with March 31st of each year, and shall be delivered to the Treasurer as collected for deposit and expenditure as specified for the admission fees.

SECTION 3. If the dues of any member are not paid within thirty days from the

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.

INVINCIBLE PRODUCTS CO., Inc.

159 N. State St.

Phone: Dearborn 2638

Chicago, Ill.

date they become due he shall be notified by the Secretary that he is in arrears and if such dues are not paid within thirty days from the date of such notice the Board of Directors has authority to suspend the member.

ARTICLE VI.

COMMITTEES AND THEIR DUTIES

SECTION 1. There shall be the following standing committees: Shows and Advertising Stunts; Co-Operation Between Amateur Bodies; Standards; National Publicity; Legal Matters; Membership; and Finance.

- (a) The heads of these committees shall be the Vice-Presidents elected to these offices except that the President shall be head of the Finance Committee.
- (b) The chairman of each of the above committees shall appoint two, three, four, or five members to serve on his committee.

SECTION 2. There shall be the following special standing committees: Policy of the Association; Export and Meetings:

- (a) The Secretary shall be the head of the Committee on Meetings which shall endeavor to promote meetings in every section where the membership desires it and to secure competent speakers to address these meetings. Members on this committee may be appointed by its chairman to serve for the full year, or for one or two special meetings.
- (b) The membership of the Committee on Policy and the Export Committee shall be appointed by the President, and the President shall be ex-officio chairman of both of these committees.

ARTICLE VII.

MEETINGS

SECTION 1. All business of the Association shall be conducted by mail.

- (a) Any member wishing to secure the attention of the Association on any subject of importance may address the President, presenting his motion together with his argument for the passing of the motion.
- (b) It shall be the duty of the Secretary to notify every member, at intervals of not over one month, of all motions proposed and invite interested members to forward their arguments for and against the motions.
- (c) It shall be the duty of the Secretary to cause to be delivered to every member copies of each motion together with the arguments for and against, together with a ballot form so that every member can register his will in regard to the motion.
- (d) It shall be the duty of the Secretary to collect these ballots and announce the result to the membership at large not later than three weeks after the mailing of the ballots.

SECTION 2. The Committee on Meetings shall endeavor to secure meeting places and speakers for public meetings of the Association open to everyone in the radio trade where educational addresses and talks of interest to the trade shall be delivered.

- (a) It shall be understood that no business shall be transacted at these meetings and that attendance is not commanded of any member.

ARTICLE VIII.

AMENDMENTS

SECTION 1. These by-laws may be amended by a two thirds vote of the members voting of the Association, after the ballots have been duly prepared and mailed out in the manner described in Article VII., Section 1.

The above regulations are submitted to the membership of the Association for approval and revision. Members wishing to amend them prior to their adoption should address the Secretary stating their amendments together with the arguments for same so that they may be submitted to the membership for ballot at an early date.



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STATES ELECTRIC CO.
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GREGG & COMPANY
ENGINEERS
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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 acoustics. Used with any 2 stage amplified receiving set. Fits any receiver. Made of statuary bronze—handsome, durable. Dealers: Write for special proposition.
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JUST OFF THE PRESS

USE THIS COUPON TO JOIN

THE RADIO TRADE ASSOCIATION

THE RADIO TRADE ASSOCIATION,
1133 Broadway,
New York City.

Please count us in as charter members of
THE RADIO TRADE ASSOCIATION
and send us all bulletins regarding same as they are issued.

We are jobbers ..., retailers ..., manufacturers ...
of radio equipment.

Name

Town

State

Date

President Henry M. Shaw is Recognized Trade Authority

(Continued from page 26)

It is typical of the man that he should be at the forefront of development of the latest angle of electricity, radio. He has never lagged behind. He has been in the electrical business almost since it existed, and to-day he is actively in touch with electricity's brightest star. Mr. Shaw made his first radio part in 1908. Indeed, he was the pioneer in lighting switches, making the first radio switch at that time.

As a consequence of being a pioneer, Mr. Shaw views the present litigations with something akin to amusement. He recalls the many patent fights in the early days of electricity when it was being exploited for light and power and when the term "alternating current" was so much Greek for the average "electrician" and beyond his comprehension.

Radio to-day is being confronted with almost the identical problems regarding patents, monopolies, credits and what Mr. Shaw terms as "get-rich-quick parasites" so that he can bring his experience to bear upon a solution of all these problems. A mere recital of the part Mr. Shaw has played in electrical manufacturing is to outline the history of electrical expansion since 1886.

With the advent of the trolley car, Mr. Shaw set to work to improve it mechanically. His contribution to the best mode of urban transportation in 1892 were overhead trolley insulator fittings from shellac compounds known to the electrical trade as Shawlac.

In 1893 he produced the swing ball and Shaw lightning arresters for electric lighting and street railways. The continued expansion of American cities and the consequent spread of trolley systems interested him, and by 1900 Mr. Shaw was financing, constructing and operating electric street railways. The telephone at the opening of the Twentieth Century was also becoming an important branch of electrical development, with the result that in that year he was also busy constructing rural telephone lines.

By 1904 Mr. Shaw was beginning to specialize in certain electrical devices, and the Edward Longstreth medal, awarded him in that year by the Franklin Institute of Philadelphia for his high-resistance lightning arresters induced him to devote his efforts to the manufacture and design

of electrical specialties. In 1905 he was making and installing soldered rail bonds and third rail insulators, besides developing lightning arresters for high tension currents.

In 1908 his first piece of wireless apparatus appeared, and along with it the first lightning arrester for wireless.

What next attracted his attention was the introduction and perfection of synthetic compounds for use in moulding electrical parts. Mr. Shaw is one of the pioneer moulders of bakelite and other patented gums of a synthetic nature. This was in 1910. By 1914 his company had come to specialize in moulded insulation. The war, however, made other demands.

At the beginning of the recent war he was called upon by the British and American governments to design the four-prong vacuum tube brass shell known as the "Shaw Base" used by the General Electric Company and the Moorhead Laboratories, and became interested in assisting Moorhead in the manufacturing of vacuum tubes for the Marconi company.

In March, 1920, he was elected president of the Moorhead Laboratories and in September, 1921, he organized and became president of the Atlantic-Pacific Radio Supplies Company. Mr. Shaw resigned both offices in May, 1922, on account of ill health, due to overwork and demands made upon his time by the rapid expansion in the radio field at that time.

Mr. Shaw is concentrating all his interests at the present time in the Shaw Insulator Company, which only recently moved into its new factory at 148-152 Coit Street, Irvington, New Jersey. Here moulded parts are made to order of condensite, Shawlac and other compounds. The company is also actively engaged in the design and manufacture of lighting protective equipment, licensed under patents held by Mr. Shaw as early as 1893 and as recent as 1908.

Mr. Shaw fits into the position of president of the Radio Trade Association by virtue of his electrical experience and his pioneering spirit, a spirit so necessary in a business which has all the future before it.

Musiophones at \$5

In the advertisement of the American Electro Phone Company, Inc., of 512 Fifth Avenue, New York City, in the December issue of THE RADIO DEALER, through a typographical error it was stated that the company is offering microphones, whereas the advertiser desired to call the attention of the radio trade to its offering of musio-phones that are guaranteed to be an eight dollar value for five dollars.

Works with Loop

To offset the inconvenience of an outside aerial and the annoyance of sound distortion, the F. Joseph Lamb Company, of 1938 Franklin Street, Detroit, Mich., have evolved the radio frequency receiver, type RFA-1, which is designed to operate on an indoor loop, making use of the highly directional properties of the loop. It minimizes interference and gives a high degree of selectivity. Radio frequency amplification permits the working of a rectifier tube at a much higher efficiency, and also gives a much purer tone, as it is not sensitive to audio frequency noises.

Among the specifications for this set are: Three rheostats, one controlling the radio frequency tubes, another the detector tube and the third the two audio frequency amplifier tubes.

The whole instrument presents a very beautiful appearance, the front panel being Gorton machine engraved, showing all controls.

Bruno Radio Plans Expansion

The Bruno Radio Corporation, of 152 West 14th Street, New York City, are negotiating for the expansion of their present factory and office. The corporation is specializing in the manufacture of a receiving set especially adapted to the use of the WD-11 tube.

Besides the Bruno receiving set, the corporation has recently perfected a two-stage amplifier, using but one control. Among the special parts necessary for the use of the dry cell tube which the Bruno corporation manufactures is a special socket.

The socket is made of bakelite, the metal contacts being of original design, insuring perfect contact. The Bruno Radio Corporation are rushing the manufacture of several other special parts suitable for use with the WD-11 tube, which will appear on the market in the near future.

New G-W Product

The latest addition to the G-W line, manufactured by Gehman & Weinert, 42 Walnut Street, Newark, N. J., is a new insulator. What should especially recommend this insulator is the fact that, before adding it to the line composed of the popular G-W slider, two-slide tuning-coil and detector, it was submitted to far more strenuous mechanical and electrical tests than would seem necessary. The manufacturers made certain that it would measure up to the G-W reputation for quality. The special composition of which this G-W insulator is made is waterproof, and is said to resist heat and stand heavy strains.

Standard Goods at Coen Sales

Ralph Coen, who has been operating regular auction sales for the radio trade, has established a reputation for square dealing and the many radio business men who attend the Coen sales, held at New York, recognize the fact that the Coen sales are honestly conducted and sales are made in proper manner.

Mr. Coen's activities, in this branch of the radio industry, are helpful because, in these sales, are offered many standard wares which are sold to legitimate dealers. If there was no such outlet as the Coen sales these wares would be offered at "less than factory" prices to the damage of the industry.

Properly conducted sales, it is generally admitted, help to stabilize an industry and in doing this pioneer work Mr. Coen has the moral support of many folks in the trade.

Attendance at the Coen sales develop the knowledge that standard apparatus can be sold, at this time readily. Apparently the New York market is not over-flooded with staples. Every article offered at the Coen sales is guaranteed and therefore so-called "junk" is not offered.

Converts Crystal Set

For converting a crystal set into a more efficient tube set the Add-A-Step detector has been designed by the Arrow Radio Company, 138 Central Avenue, Hackensack, N. J.

This detector has a bakelite panel and a smooth running rheostat controlling the filament current. An "off" position on the rheostat eliminates a switch. The grid-leak and the grid condenser are of the proper capacity for the modern tube, for which a moulded condensite socket is provided. The springs have large round-end contact surfaces. The wiring is of the approved bus-bar type and all connections are soldered. The in-put and out-put terminals of hard rubber are mounted on opposite sides so that additional steps may be added at any time.

Dodge Tone Amplifier

Ackerman Bros., Inc., 301 West Fourth street, New York City, are distributors of the Dodge tone amplifier, a new radio loud speaker which is made of wood pulp. The amplifier was designed by one of the foremost acoustical specialists. The instrument, beautifully encased and attractively finished, is entirely free from metallic sounds, and it is claimed to be free from distortion of voice or music.

Every Dealer

Every Jobber

Every Manufacturer

in

The Radio Trade

Should be a member of

The Radio Trade Association

Full details may be obtained at headquarters

The Radio Trade Association

1133 Broadway New York City

Officers and Directors are:

Henry M. Shaw, Shaw Insulator Company, Newark, N. J., president.

Hugh H. Eby, H. H. Eby Company, Philadelphia, Penna., treasurer.

Laurence A. Nixon, The Radio Dealer, New York City, secretary.

W. B. Curtis, Curtis Sales Company, Newark, N. J., first vice-president.

Laurence I. Mott, San Francisco, Calif., second vice-president.

R. P. Clarkson, Radio Mica Products Company, New York City, third vice-president.

Raymond Francis Yates, Permanent Radio Fair, New York City, fourth vice-president.

Chauncey P. Carter, trade mark attorney, Washington, D. C., fifth vice-president.

W. L. Sayre, Sayre Level Company, Philadelphia, Pa., sixth vice-president.

The Board of Directors is composed of the following:

Paul F. Johnson, Altadena Radio Laboratory, Pasadena, Calif.

Arthur Halloran, publisher, Radio, San Francisco, Calif.

J. H. Smith, Virginia Radio Company, Charlottesville, Va.

Wm. A. Debold, Oklahoma City Radio Company, Oklahoma City, Okla.

Bert B. Barsook, jobber, Chicago, Ill.

Powell Crosley, Jr., Crosley Manufacturing Company, Cincinnati, Ohio.

F. Clifford Estes, The Clapp-Eastham Co., Cambridge, Mass.

F. D. Pitts, F. D. Pitts Company, Boston, Mass.

Harold M. Schwab, Harold M. Schwab, Inc., New York City.

M. B. Sleeper, Jr., Sleeper Radio Corp., New York City.

W. M. Kunkel, Pittsburgh Radio & Appliance Company, Pittsburgh, Pa.

C. H. Love, L. F. Grammes & Sons, Allentown, Pa.

F. H. Pruden, F. H. Pruden Co., Jersey City, N. J.

A. H. Redden, A. H. Redden Co., Irvington, N. J.

Mortimer Salzman, Wholesale Radio Equipment Co., Newark, N. J.

Insulating Materials Tests

The Bureau of Standards has published a paper giving the results of extensive research on the laminated phenol-methylene type of insulating materials. This publication, Technologic Paper No. 216, "Properties of Electrical Insulating Materials of the Laminated Phenol-Methylene Type," by J. H. Dellinger and J. L. Preston, is now obtainable from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 30 cents.

The manufacture of these electrical insulating materials is an industry that has become commercially important within the last 20 years.

This paper is concerned only with materials of the laminated type, which are made up by building up to some desired thickness sheets of paper, fiber, or fabric which has been previously impregnated or coated with phenol (synthetic) varnish and then subjecting the stack to comparatively great pressure in a heated hydraulic press.

All the materials of this type on the market have been investigated; that is, Condensite Celoron, Bakelite Dilecto, Formica, and Bakelite Micarta. The properties or effects which have been measured for this type of material include radio frequency, phase difference, or power loss, dielectric constant, flash-over voltage, direct-current volume resistivity and surface resistivity, moisture absorption, thermal expansivity, and other properties.

The data of these properties have been arranged in such a manner as to be conveniently available for reference either by a person desiring detailed information or by a person interested only in a general way.

Leco Vario-Coupler

Especially suited to panel mounting is the Leco vario-coupler type VCI, made by the Lew Brothers Company, of 605 North Walnut Street, Champaign, Ill.

Illustrating the careful planning inherent in the design of this instrument is the fact that the primary coil is wound on a formica tube and the secondary coil is wound on a hard wood rotor. The instrument is suited for a wave length of 200 to 500 meters.

The makers claim for this instrument a radio part of general utility, neat appearance and all-around efficiency, and of unique value at the nominal price at which it can be sold at retail.

Radio Fair Boosts Industry

The Permanent Radio Fair which is located at the Hotel Imperial, Broadway and 32nd Street, New York City, has proved a success and a rendezvous for radio fans as well as radio buyers, who are interested in the centralized exhibits of the representative manufacturers. Radio engineers are in attendance and gladly demonstrate any of the products that are on exhibit. Every effort is made for the distribution of the literature of manufacturers to interested buyers. Arrangements have also been made so that buyers can place orders at the Fair. Additional space is available for manufacturers who desire to exhibit.

Atlantic Jr. Sets

Sharwell Radio Supply Co., 1136 Raritan avenue, New Brunswick, N. J., manufacturers of Sharadio products, are now the exclusive wholesale distributors of Atlantic, Jr. sets for New Jersey. The Atlantic, Jr. is a crystal receiving set complete with aerial and headset. This receiving set was designed by the best of engineering talent and every part of it is thoroughly inspected and tested before leaving the factory.

The manufacturers guarantee that the Atlantic, Jr. is not surpassed in performance by any other crystal receiver on the market.

Socket for Dry Cell Tube

Designed for WD-II tubes working on a single dry cell battery, the Na-Ald socket recently introduced by the Alden-Napier Company, 52 Willow Street, Springfield, Mass., is an instrument for this exclusive purpose. It is moulded from Condensite, and the makers claim that it is unbreakable and unaffected by heat. In keeping with the ideas of advanced electrical engineers, the contact in this socket slides, wipes and presses firmly at all times. The contact strips are of phosphor bronze.

Catalog of Wiener Wireless

The Wiener Wireless Specialty Company, 21 Academy street, Newark, N. J., have issued a revised list of the lines carried for the trade. The list includes Nerco phones, variable condensers, vario-couplers, variometers, crystal sets, dials, sockets, switch levers, switch points, rheostats, bakelite binding posts, composition binding posts, lightning switches, detector cups, knobs, rotors, coils, tuning coils, condensers, porcelain cleats, insulators, slider rods and sliders.

Radio Club of Illinois

Within a period of one year the Radio Club of Illinois has sprung from field of endeavor to the saddle of recognized supremacy among the radio clubs of the United States. Its club house at 16 East Ontario street, Chicago, Ill., is the scene of continued activity and social interest. Visitors in great numbers have availed themselves of the hospitable invitation to visiting radioists to make the club their headquarters.

Herbert H. Frost is chairman of the trade relation committee and a code of rules will soon be enforced that will improve the general conduct of business.

Lawrence H. Schmitt, from the Ninth District, supervisor of radio, was the first president, and upon the conclusion of his term was succeeded by Alfred Thomas, Jr., at present prominently connected with the Radio Corporation of America.

Prof. Frank D. Pearne, instructor of radio at Lane Technical High School, and contributor to radio columns of the Chicago *Herald-Examiner* and other newspapers, is chairman of the board of directors and has led a successful fight against the imposition of a tax on aerials by the city of Chicago. John P. Tansey is the secretary since its organization and the source of activity, which has placed the Radio Club in the front row of Chicago civic organizations.

Other officers are: Frank Comerford is counsel for the club. Paul G. Niehoff, prominent Chicago manufacturer; A. H. Kopprasch, an engineer of reputation, and Herman J. Pomy are vice-presidents. J. Elliott Jenkins, once with Thomas Donnelly of Station D.W.A.P., is treasurer.

Universal Loud Speaker

The Universal loud speaker has been developed by the Roller-Smith Company of 233 Broadway, New York City, with the idea of stressing the musical possibilities of radio, so that full and natural tones might be reproduced rather than the shrill and strident notes frequently associated with radio. The makers feel that they have succeeded in their aim by the design of this product and by the construction of a tone chamber specially suited to the two special receiver mechanisms employed. These are matched to within one-half a musical note. The Universal loud speaker is a symmetrical horn with a crystalline finish. Each instrument is complete, ready for installation, with five feet of green cord with pin terminals which can be attached to any standard plug if desired.

Cozzone's Condensers

The precision condenser now being made by John A. Cozzone & Company, Inc., 61 Arlington Street, Newark, N. J., is the result of a demand in the industry for instruments of quality and reliability.

Some of the features of this precision condenser are:

1. Patented adjustable brake band, which by a slight turn of the screw gives the desired tension.

2. Genuine bakelite backs, which



are guaranteed not to warp or get out of shape.

3. Furnished with both binding posts and connectors, which allows for a soldered or plain connection in the post.

4. All parts made of brass and highly nickel plated.

5. Direct wire connections from condensers to connecting plates.

6. Steel template for locating main spindle hole, and three tightening screw holes on instrument.

These condensers are made in both the plain and vernier type.

John A. Cozzone started in business in March, 1915, making small, accurate screw machine products. The company, which he formed, began manufacturing a complete line of binding posts, contact points, knock-down detectors, etc., when radio struck its present stride. Throughout this period the company has adhered to the standard adopted in the beginning.

Radio Frequency

Radio Frequency is an attractive booklet published by the Rasla Sales Corporation, 10 East 43d Street, New York City, which treats of "radio frequency for the engineer and layman." Dealing in the introductory chapter with the question of distance versus quality, it goes on with the outline of radio-frequency transformers and radio-frequency amplifiers. The pamphlet has some very clear and useful hook-ups, for securing desirable results.

Describes Use of Loop

A circular that tells much in a small space has been issued by the Easel Radio Company, 210 Central Avenue, Newark N. J., which describes the uses and mode of operation of the Portabloop.

It also shows several hook-ups of this efficient loop aerial with different types of receiving sets.

The descriptive matter is unusually clear and informing, so that the novice may easily understand an aerial loop. The chief points brought out are that with a Portabloop used in conjunction with a variable condenser, for tuning, no other tuner is necessary; that the Portabloop should be turned in the general direction of the station from which the signals are coming, and that it is of greatest utility when used in conjunction with a tube set.

Big Battery Installation

A 2,000-volt, 20-ampere hour storage battery has been installed in a new broadcasting station KFDB, which has been opened by the Mercantile Trust Company, of California, on Telegraph Hill, San Francisco. To eliminate the disturbing noise due to the commutator hum of the generator, 333 Philco radio "A" batteries made by the Philadelphia Storage Battery Company, were installed. The generator is used for recharging these batteries in series.

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.

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Custom-built, One-knob Control RECEIVING SETS

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Radak

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RELIABLE RADIO EQUIPMENT
made by America's oldest and largest manufacturers of radio equipment exclusively. Sold by the best electrical and radio dealers.

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133 Main Street Cambridge, Mass.

INTERESTED IN RADIO PATENTS?

Radio Business men and Manufacturers who are interested in the patents issued by the U. S. Patent office may find this information each week in

THE RADIO DEALER WEEKLY

Address

Two dollars the year. Sample free on request

THE RADIO DEALER WEEKLY, 1133 Broadway, New York, 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

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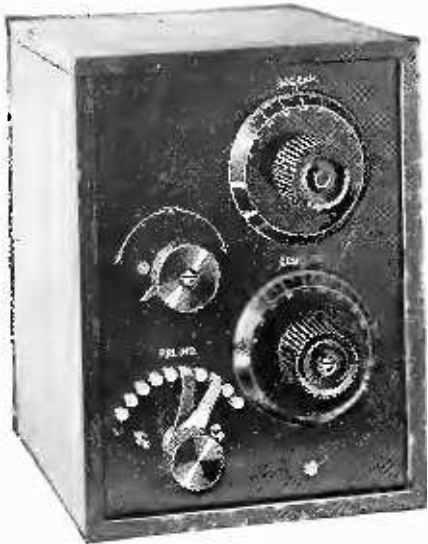


\$2.50 List

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

THE DRY SET THAT SELLS



Q. T. DRY CELL SET

\$8.50

NET TO THE DEALER

Can be sold at \$25.00 with
phones, tube and batteries at
a good profit.

SPECIFICATIONS—

Mahogany-stained cabinet, engraved
Radion panel, Ajax socket-rheostat,
21 plate variable condenser, 8 tap
vario-coupler, no external binding
posts, busbar wiring.

Write for Full Information

The Q. T. Light Co.
East Orange N. J.

Harris Crystals

Specialists in radio crystals, the Harris Laboratory, 26 Cortlandt Street, New York, have developed several grades and kinds of crystals suitable for individual styles of sets.

The feature of the Harris line are their Ganaerite crystals. This is a guaranteed highly-sensitive crystal, made from a special, crystalline form of pyrites that has been obtained from but one source and sold for several years for use in large stations. It is now quite generally distributed throughout the United States and Canada. Careful selection is made by individual test of each crystal, and the company assures 60-75% of the surface sensitive.

The company have also developed their own brand of galena crystal; culina crystal, a guaranteed, 100 per cent. sensitive surface crystal made from a special grade of silver galena; and silicon crystals, which are made up by the company on order in limited quantities.

Bureau of Standards Tests

The Bureau of Standards of the Department of Commerce, has prepared a pamphlet, Letter Circular No. 73, entitled "Fees for Testing Radio Apparatus," for the information of those who desire to have tests performed. The Bureau limits its tests of radio materials to tests for the government, tests of instruments, which in turn are to be used as standards, tests of importance to the Bureau for research, tests in which the Bureau is to act as referee, and a few other special tests in which special reason is shown why these tests are to be undertaken by the Bureau. Before an article is submitted for the test it must be preceded by a written request for test, and if it can not be undertaken the applicant is furnished, if possible, with the name and address of one or more laboratories who may make the test if requested.

The request should enumerate the articles, giving serial numbers or other identification marks, if any; should state the nature of the test desired and the conditions under which the apparatus is used, and state his reasons for believing that the test should be made by the Bureau of Standards. There is a limited number of copies of this fee schedule available at the Bureau to persons who have actual use for it.

New Loud Speaker

The Spirola Concert is one of the feature products handled by the Invincible Products Company, Inc., of 159 North State Street, Chicago, Ill. It is a self-contained loud speaker and in design is distinct from every loud speaker now on the market.

Although only eight inches high, the peculiar construction of the tone chamber permits of a horn of about two feet in length, thus insuring sufficient volume, but also eliminating distortion and metallic sounds. The paper-thin diaphragm of the Spirola Concert is the only moving part in the unit, so that there are no intrusive vibrations to spoil the reception. The loud speaker is especially adapted for use with two stages of amplification, although the makers claim that with one stage broadcasting within a radius of twenty-five miles can be heard.

The Spirola Concert comes in two finishes, mahogany and dark oak with a bronzed throat. The Invincible Products Company also handles other featured lines, including the Geraco variometer and vario-coupler, Music Master Loud Speaker, Invincible Superadio set, and Geraco aerial inductors.

Keeps Track of Radio

What the loose-leaf encyclopedia is to reference books, so is the Lefax Radio Handbook, made by Lefax, Inc., Ninth and Sansom streets, Philadelphia, to other books attempting to give the reader the requisite information for a thorough understanding of radio. The inherent advantage of the loose-leaf system is timeliness, and by the system which Lefax has adopted, the purchaser learns of new developments in radio as soon as they have been collated. At regular intervals the Lefax company sends him additional pages in loose-leaf form, all pages being numbered and properly classified. The text matter, moreover, is extremely valuable, being written by Dr. Dellinger and Mr. Whittemore, of the U. S. Bureau of Standards. Both these men are of necessity in touch with every phase of radio and with the information at their control are enabled to broadcast the new twists in radio first through the Lefax Radio Handbook.

Adapts Phonograph

Turning any cabinet phonograph into a loud speaker is the purpose of the Radiophono adapter, made by the Industrial Sales Engineering Co., of 671 Broad Street, Newark, N. J.

The Radiophono adapter is designed to give clear musical tones with volume. It is also fashioned so that all metallic and distorted sounds may be eliminated. The device is of moulded composition, fitting any of the well-known makes of cabinet phonographs. It is attached to the tone arm. In the adapter any telephone receiver can be placed, and is held firmly by the adjustable threaded cap which prevents any vibration and in which the receiver is completely encased.

The saving resulting from utilizing the phonograph cabinet as a loud speaker should be a great selling point for this device.

Comsco's New Socket

The Commercial Screw Machine Company of 427 East 102 Street, New York City manufacturers of Comsco products have added a new WD-11 socket to their line. A special feature of the socket is that the binding posts are so designed that it is impossible to remove the caps thus preventing the annoying dropping of the cap when one is connecting a wire to the posts.

Other products of the Comsco line are a V. T. socket and various types of jacks. The products are of excellent workmanship and list at a popular price.

Instrument for Fine Tuning

Sharp tuning so that interference may be eliminated is one of the features provided for in the Crown vario-coupler, made by Crown Radio Manufacturing Corporation, 78 Fifth Avenue, New York.

The high inductance value insures a maximum of signal intensity. Primary and secondary inductances are in the form of two concentric spheres separated one-half inch. The primary is internally wound in a bakelite form. The secondary winding is borne on a bakelite rotor. Fourteen taps on the primary, so arranged as to permit the use of any desired number of turns, are brought to a bakelite panel mounted on the rear of the instrument. This method of construction obviates any difficulty in connecting up the instrument in the set.

Substantial bakelite forms are used throughout the construction of the Crown vario-coupler. The heavy brass legs are so designed as to be integral with the entire unit and yet not interfere with the mounting of the device on a panel. This insures the rigidity of construction.

Connection to the rotor is made through flexible leads, so designed as to preclude any possibility of short circuits or broken connections. From the above description it appears that the Crown vario-coupler is the result of careful planning and painstaking design.

Navy Transmitter

A detailed description of the U. S. Navy one kilowatt radio transmitter, sold by the United Supply & Machinery Company, Land Title Building, Philadelphia, is contained in a striking booklet recently issued by that concern.

These transmitters were built in accordance with specifications issued by the U. S. Navy Bureau of Steam Engineering. They were constructed under constant government supervision and inspection in the Kilbourne & Clark plant and are instruments of performance and service.

Talking Movie

The pallophotophone is a recent invention by C. A. Hoxie, of the General Electric Company, by which the voice and musical instruments, or any sound, may be registered by light waves on a moving picture film, which in turn reproduces the sounds when it is run through a reproducing instrument. It has been hoped that not only would the invention be of use in radio, but that it would eventually bring



"WOODEHORN"

LOUD SPEAKER

\$7.50

List Price

STANDS
26" High
10" Bell

Complete with
Special At-
tachment for
use in Con-
nection with
any Phone.

MOST STARTLING LOUD SPEAKER
AT A
MOST AMAZING PRICE

"WOODEHORN" suggests without much effort the character of the Loud Speaker—"it's the wood that makes the tone good."

If you would have the tones of a rare violin then do not hesitate to try a "WOODEHORN" Loud Speaker.

"WOODEHORN" was the hit of the American Radio Exposition, New York. Hear "WOODEHORN" before you stock loud speakers.

Manufactured by

INTER-OCEAN RADIO CORPORATION

1140 BROADWAY, N. Y. C.

Liberal Discounts
To Recognized
Distributors and
Dealers.

about the development of a talking-movie which would be practicable.

The machine records vibrations of the voice on the edge of a strip of film, where, when it is developed, it can be traced in delicate markings, like those of a seismograph. The light wave which traces the tiny marks comes from a mirror about the size of a pin-head, which is actuated by a diaphragm influenced by sound waves. When the film is used for reproduction this process is, in a way, reversed by means which the General Electric Company has not permitted to become known. The resulting effect is striking.

Cyclone "B" Batteries

A complete line of Radio "B" batteries are manufactured by the Standard Electric Novelty Company, 324 Lafayette street, New York city, as a result of experience in manufacturing radio batteries for the United States and Allied governments during the late war.

Each of the various types is made in two styles, plain and variable. The company also furnishes special types of the amperage, voltage and variations that may be desired. Types 9285A and 9285 are made in two size

thirty large cells and thirty medium cells with fifteen variations each. Each battery is thoroughly tested and examined before leaving the factory.

Speaking for a Loud Speaker

A very effective means of bringing to the attention of radio dealers throughout the country the advantages of the Timmons Talker, a loud speaking device, has been adopted by the maker, J. S. Timmons, 339 East Tulpehocken street, Philadelphia, Pa.

This consists of a folded tab which is part of all letterheads leaving the Timmons office. The tab is not attached, but is part of the same sheet as the letter, being merely folded over, with the inscription Timmons Talker in red to excite the curiosity of the recipient of the letter so that he will turn over the tab and read about the Timmons Talker.

The Timmons Talker is an amplifier, not merely a headset with horn amplification. The amplification may be controlled to any degree desired, from a volume sufficient for a living room to that filling a large auditorium. No batteries are necessary. The Timmons Talker is built in a solid mahogany case and being of cabinet shape, adds to the appearance of the receiving set.



**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.

Lyon & Healy Store Is Complete Radio Depot

The radio store of Lyon & Healy, one of the most complete in the city of Chicago, is located on the ground floor of the Lyon & Healy building next to

it by radio by merely stepping from the radio store into the concert hall.

The Radiopera cabinet outfit shown herewith is one now offered to the

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I offer a comprehensive, experienced, efficient service for his prompt, legal protection, and the development of his proposition.

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Lyon & Healy Store



Radiopera Cabinet

Ask Our Service Bureau

Great SELECTIVITY and EXCEPTIONAL LONG RANGE are some of the CHARACTERISTICS of the

FEDERAL

DX TYPE NO. 58 R. F. RECEIVER

Write for Bulletin 119-W

Federal Telephone and Telegraph Co.
BUFFALO, N. Y.

the Jackson Boulevard entrance. A good photograph of the interior of the store has been reproduced in the accompanying illustration. This store was designed to fit the peculiar needs of radio customers and for the proper display of goods. The counter displays themselves are worthy of special note. They present in an attractive but compact form a complete array of accessories and parts.

A very attractive feature of the new store is the fact that it has special demonstration rooms where customers may, in private, test out their contemplated purchase. The radio store listens in on daily concerts held in the Lyon & Healy concert hall. As a result one may compare the voice of the singer with the reproduction of

trade by Lyon & Healy. This is a complete radio installation enclosed in an especially designed brown mahogany cabinet. The outfit contains a Westinghouse R C. receiver, Western Electric loud speaker, Willard rubber incased 'A' battery, Tungar battery charger, and Burgess "B" battery, complete with antenna, etc.

A disappearing door permits free passage of the sound waves of the horn of the loud speaker. Panel doors both in front and in back give easy access to all parts of the radio apparatus to facilitate the adjustment of wire connections. The outfit is an economical one to operate. It is compact and a very handsome article of furniture.

Phonograph Attachment

The Gilbert H. Downey Co., 7 South 17th Street, Philadelphia, Pa., have ready for distribution their new E-C (Easy Change) phonograph attachment for the Victor and Columbia phonographs.

This attachment is complete with special loud speaking unit with cord and aluminum case which fastens on to the tone arm of the phonograph after the reproducer is removed. There are no set-screws to injure the unit.

A phonograph with the "E-C" attachment makes a very satisfactory loud-speaker for the home at a very low cost.



WALCON

Radio Frequency Transformer

THE BEST YOU CAN BUY

A Transformer that Guarantees Results
Particularly suited for W. D. 11 Tubes.

List Price \$4.00

Manufactured by
THE RADIO CENTER

2 West Broadway

New York

Dealers and Jobbers write for our attractive sales proposition backed by National Advertising.

Combines Two Parts

An improvement in radio likely to meet with success is a combination variable grid-leak and Micon condenser.

The grid leak consists of a piece of fibre specially treated upon which a bronze spring is rotated to vary the resistance in an unbroken range, from practically zero to five megohms. The condenser is a tested Micon condenser of .00025 mfd. The whole is combined and sealed in a neat moulded body with nicked binding posts, and a pointer and dial to set the grid-leak resistance.

The variable grid-leak and condenser can be used in the parts of the circuit to eliminate noise and distortion. It has a distinct advantage when placed across phones instead of usual phone condensers.

This device is manufactured by the Chas. Freshman Company, Inc., of 97 Beekman Street, New York City. The accuracy and construction will be in line with the tested Micon condenser.

Simplex Panel Units

The Simplex Radio Company, of 1013-5 Ridge Avenue, Philadelphia, Pa., are manufacturers of radio telephone and telegraph apparatus of quality that is distributed through the Electric Service Supplies Company, with offices in New York, Philadelphia and Chicago. The Simplex panel units are said to be a real joy to the radio enthusiast as these perfected instruments eliminate much of the uncertainty of success in receiving broadcasting.

The units consist of Simplex panel-mounted variometers, vario-couplers, variable condensers, tube detectors and tube amplifiers. With these units an exceptionally attractive set can easily be made up and a variety of hook-ups tried. As Simplex units can be bought separately, an elaborate set may be built up by adding units when desired.

Sell Radio Books

The Norman W. Henley Publishing Company, 2 West Forty-fifth Street, New York City, one of the foremost publishers of radio books, are interesting dealers in stocking standard works that their customers will be interested in. This book feature has been found to be a profitable one for the radio dealer, especially when the long discounts that the Henley company is offering to those who buy an assorted quantity order is considered. M. B. Sleeper, E. H. Lewis, P. E. Edelman and A. P. Morgan are the authors who wrote the ten Henley radio books.

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

JEWETT MANUFACTURING CORPORATION

Herbert F. L. Allen, *President*

NEWARK

NEW JERSEY

London Is Trying to Regain Position in Radio Stocks

By FRANK T. STANTON
Radio Stock Specialist

Guglielmo Marconi was unable to get financial backing in Italy and surrounding countries for his wireless invention. His mother, who was of Irish extraction, used her influence and he was finally financed in England, where the Marconi Wireless Telegraph Company, Ltd., was formed. London then became the radio center of the world and until very recently maintained this position. The activities of the Radio Corporation of America which bought out the American Marconi Company, have placed New York on top for the past few years.

With the advance of sterling and the improved financial condition of England, London is again attempting to regain its former supreme position in radio and has been a big buyer of shares in the principal companies in the field. To illustrate this point, it is interesting to note that the Marconi Wireless Telegraph Company recently authorized 1,500,000 pounds of 6½% Convertible 10-year first debenture stock and within one hour after the books were open, the issue was oversubscribed more than ten times. The demand for radio stocks continues unabated.

Broadcasting in England is being conducted in a very efficient and economical manner. The six largest companies have combined into one unit, for the purpose of centralizing broadcasting. In order to receive the programs, etc., one has to obtain a license from the government which costs \$5. Of this, \$2.50 goes to the broadcasting company and the remainder to the government. Broadcasting reports from Newark, N. J., have already been heard in London, which served to create increased enthusiasm in radio. Practically every person owning a set is trying to hear Newark. It should not be long before both countries will be able to distinctly hear one another's broadcasting efforts.

Mr. Kellaway, postmaster-general of England, who supervises all radio, telephone, postal and other activities, has become associated with the Marconi Wireless Telegraph Company, Ltd. An exodus of high public officials into the radio companies is expected.

In the local markets, Radio Corporation of America stock issues have

maintained a very firm tone and should do considerably better. General and Westinghouse Electric have been strong and active. Both report unusually large earnings. This is the time of the year when the radio stocks show their greatest activity.

Following are the quotations for the principal radio stocks:

	Bid	Asked
All American Cables.....	\$118	\$120
Am. Tel. & Cable.....	63	65
American Marconi Unstamped.	5	7
American Marconi Stamped...	5c	20c
American Tel. & Tel.....	124¾	125¼
Canadian Marconi.....	2¼	3¼
De Forest Radio Tel. & Tel...	7	10
English Marconi, common....	11	14
English Marconi, preferred....	10½	13½
Federal Tel. & Tel. N. Y.....	9	12
Federal Telegraph Co. Calif....	6½	7½
General Electric, com.....	180½	181
General Electric, New 6%....	11	12
International Tel. & Tel.....	55	60
MacKay Company, com.....	113	114
Manhattan Elec. Supply.....	50	52
Marconi Int. Marine.....	6	8
Pacific Tel. & Tel.....	93	94
Radio Corporation, com.....	3¼	3¾
Radio Corporation, pfd.....	2⅞	3
Reynolds Spring.....	26	30
Spanish Marconi.....	1	3
United Fruit.....	156	157
Western Union.....	112½	113
Westinghouse E. & M.....	159½	160¼

(Quotations as of December 15, 1922, furnished by Frank T. Stanton & Company, 35 Broad Street, New York City. Specialists in wireless securities.)

Woodehorn a Success

Myron Studner, general manager of the Inter-Ocean Radio Corp., of 1140 Broadway, New York, has introduced a radio horn of distinction both in the quality of the tone produced and in the moderateness of price.

This horn is called the Woodehorn and its name reveals its most unusual feature. The entire bell and throat are made of wood, which more than any

other material now on the market, is resonant and full of ample tones and vibrant sounds, according to Mr. Studner. A wooden bell insures less distortion and scratchy sounds than any other method of sound amplification, while the shape of the Woodehorn is scientific in principle and graceful in design.

The Woodehorn is neat in appearance and convenient in size. The height of the instrument is 26 inches, and the diameter of the bell is ten inches. It is not surprising, in view of all the features and advantages of the Woodehorn that it has been a success ever since its recent introduction, so that now it is one of the fastest selling horns in the market.

SEABOARD

SPECIAL VALUES OF
23 Plate Variable Condensers.
Radio 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.
Jobbers and Distributors
Write for Our Proposition

SEABOARD RADIO CORPORATION
266 GRAND STREET, NEW YORK CITY
Phone Orchard 9156

CONQUEROR

CUSTOM-BUILT **\$115.00**
ONE KNOB CONTROL

RADIO
RECEIVING SET

LEWIS & DeROY RADIO CORP.
560 Seventh Ave., New York City


WRITE FOR
OUR DISCOUNT
ARRANGEMENT

Dealers and Jobbers ask for our
MERCHANDISING PLAN
TITAN-O-TONE RADIO PARTS
AND SETS

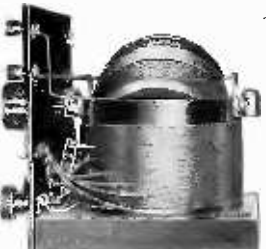
Manufactured by
T-F RADIOPHONE CO.
667 Coney Island Ave. Brooklyn, N. Y.

Ask Our Service Bureau

SIMPLEX PANEL UNITS



No. 47490
Simplex Detector Panel
Side View



No. 47499
Simplex Vario-Coupler
Showing Side View of
Panel Mounting

Simplex Panel Units permit trying out many different hook-ups and thus determining the best for a 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 good receiving set at minimum cost with the advantage of later adding additional units to obtain greater sensitiveness and selectivity. Thus a Simplex outfit is unquestionably one of the most attractive and efficient receiving sets now offered to the public.

A very attractive line for Jobbers and Dealers. Simplex Material is high grade in every respect. Write for new circular today.

ELECTRIC SERVICE SUPPLIES CO.
17th and Cambria Streets, Philadelphia, Pa.
Manufacturers of Lightning Arresters for 30 years. Distributors for SIMPLEX RADIO CO.

Where to Buy

A Handy Guide For the Convenience of Our Readers

"A" BATTERIES		CABINETS		DETECTORS	
Manhattan Storage Battery Co., Inc.	50	Andrew, Curtis N.	49	Star Mfg. Co.	63
ACCOUNTANTS		E. Eshoo Cabinet Works.	52	Mydar Radio Co.	43
Henry L. Seidman & Co.	18	Marvin B. Fallgatter	64	New York Radio Dial Co.	54
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Where to Buy

A Handy Guide for the Convenience of Our Readers

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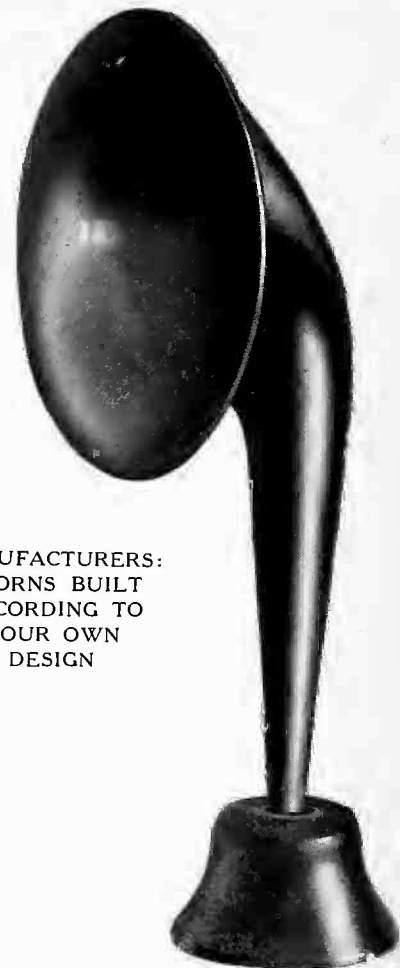
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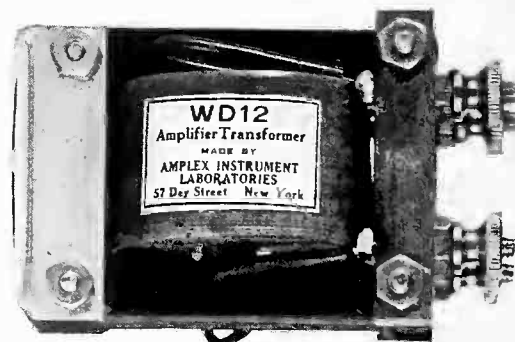
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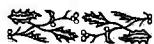
Appreciation



We wish to express to you our appreciation of the business entrusted to us during the past year.

It is our firm belief that a business can not last long unless it benefits the customers who make money for it as much as it benefits the proprietors who make money by it.

The new year finds us better equipped and more efficient than the year before and we assure you that our best efforts will be extended to give every radio dealer the kind of service he may justly expect.



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A. H. CORWIN, General Manager

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