

Radio Retailing

The Business Magazine of the Radio Industry

A McGraw-Hill Publication

FEBRUARY, 1928

Sell General Electric Battery Chargers



For millions of battery-operated sets

The millions of sets which are battery-operated present a vast market for Tungars—the General Electric Battery Charger. You can give your customers

freedom from all battery-charging troubles. And you can give yourself a generous profit. More than one million Tungars have been sold. You can sell them, too.

Merchandise Department
General Electric Company
Bridgeport Connecticut



Tungar—a registered trademark—is found only on the genuine. Look for it on the name plate.

New low prices
East of the Rockies

2-AMP. TUNGAR \$14

\$24 5-AMP. TUNGAR

TRICKLE TUNGAR \$10

GENERAL ELECTRIC

NEW



\$35.00

*Slightly higher, Far
West and Canada*

Farrand CONCERT S P E A K E R

NEW—in the Farrand lexicon—is something more than outward change of design. It represents the outgrowth of constant research and experiment. It signifies marked *tonal* improvements—in quality, in range, in volume-acceptance.

The Farrand *Concert* Speaker is NEW in all these virtues. Its advent marks an even

further success in capturing the wanted BASS tones—richer, fuller, clearer—with all the pleasing treble retained. Designed in the manner of a fine portrait frame—richly finished walnut, 22 inches in height—its eye-value, likewise, sets it above and apart from other speakers. Your Farrand distributor will supply you.

FARRAND MFG. CO., INC., LONG ISLAND CITY, NEW YORK

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Radio Retailing

The Business Magazine of the Radio Industry

WILLIAM C. ALLEY
Managing Editor

EARL WHITEHORNE,
Editorial Director
RAY V. SUTLIFFE,
Western Editor, Chicago
HENRY W. BAUKAT,
Technical Editor
S. J. RYAN,
Merchandising Counsellor

Editorial Staff
HARRY PHILLIPS
LEWIS F. KENDALL, JR.
OVID RISO
C. GRUNSKY, San Francisco
PAUL WOOTON, Washington

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2,500 Miles to Ask a Question

THE other day a young man walked into *Radio Retailing's* editorial rooms and asked to see the technical editor.

"I am so-and-so," he said, "and I've just come in from Mexico. We have a serious interference problem in ——" (mentioning the name of a mining town in the north of Mexico) "—— and I'd like to ask his advice."

The story is just this—the young man was a mining engineer connected with a company operating large mines in Mexico. The mines generated their own electric current to run their machinery, and the generators were creating so much interference with a broadcasting station nearby that the station's programs were being seriously impaired; to such an extent, in fact, that it was practically impossible for the station to send out an unimpaird signal.

All knowledge and means at their disposal had been used to remedy the situation, but without avail. The next step occurred when the mining engineer arrived at *Radio Retailing's* New York office.

He was journeying to New York on other business, but one of the first things he did upon arriving was to seek the advice of this publication concerning his interference problems.

In the Editor's Mail

I want to write and congratulate you on your splendid editorial that appeared in your December issue entitled "Keep Your Shirt On!"

I read this article many times, and think it most timely and sensible. We need more straight thinking like this in the radio business.
HAROLD J. WRAPE,
St. Louis, Mo. President, Benwood-Linze Co.

* * *

Just a line to congratulate you on "Keep Your Shirt On." It certainly was to the point and as far as the writer is concerned, expressed his own thoughts exactly.

There is nothing to be gained by going into the dumps over slumps. We are out after every nickel's worth of business that we can see on the surface and believe we are getting our share of it.
ARTHUR MOSS,
New York City Treasurer, Electrad, Inc.

* * *

I have read and re-read "Keep Your Shirt On," and I want to tell you how close this comes to a "Bull's-eye."

I am calling this article to the attention of all our distributors and if they have read it I want them to re-read it.
W. H. HETZNECKER,
Emporium, Pa. Sales Manager, Sylvania Products Co.

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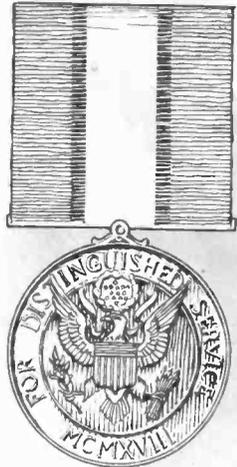
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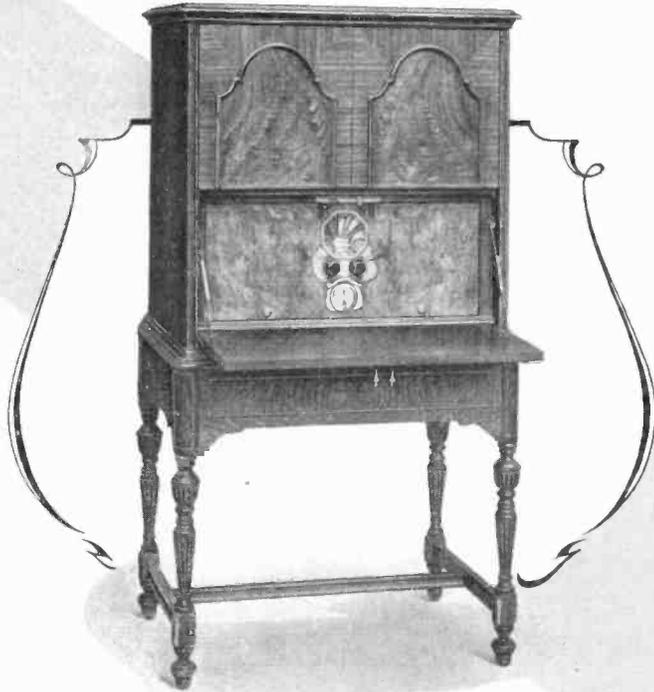
The Distinguished Stromberg-Carlson



The Distinguished Service Medal of the United States. Awarded to those who have distinguished themselves by deeds of valor on the field.

Broadcasting that helps the dealer

Stromberg-Carlson broadcasting every Tuesday night at 8 o'clock over Stations of the Blue Network is definitely designed to aid the dealer in selling Stromberg-Carlson Receivers.



None Quality Sells it

The broadest appeal to the radio buyer and one to which most people respond, is the Quality of Tone which the receiver possesses.

As broadcast programs grow in splendor, Tone becomes more and more important. For true fidelity of tone only, can faithfully interpret these programs so that they may be fully appreciated to their fullest extent.

This is the reason why many buyers who want finer radio reception select the Stromberg-Carlson, and the growing demand among people of musical discrimination for these receivers is indisputable evidence of the tone quality every Stromberg-Carlson possesses.

(A. C. Stromberg-Carlsons range in price: East of Rockies, Radio Sets, equipped with phonograph input jack, \$295 to \$755; Radio and Phonograph Combined \$1245; Rockies and West \$315 to \$1299; Canada \$390 to \$1650.)

STROMBERG-CARLSON TELEPHONE MFG. CO., ROCHESTER, N. Y.

Stromberg-Carlson

Makers of voice transmission and voice reception apparatus for more than 30 years



The illusion of actual presence is created when you listen through — not to — the new UTAH "No. X" SPEAKER. Its qualities of reproduction are expressed in the mystic spell of pleasure which they weave for you.

UTAH RADIO PRODUCTS CO.
1615 S. Michigan Ave., CHICAGO

*The only complete line—
ranging from \$10 to \$100*



D-40

D-40 . . .	\$175.00
D-40-60 . . .	260.00
D-40-25 . . .	260.00



D-10

D-10 . . .	\$ 75.00
D-10-60 . . .	160.00
D-10-25 . . .	160.00
D-5 Console . . .	30.00

Federal Ortho-sonic line lengthened, strengthened and made more attractive than ever

Prices \$75⁰⁰ to \$1250⁰⁰

Federal Announces

—in effect at once, a longer price range—prices from \$75 to \$1250 (higher in Canada)—instead of \$100 to \$1250 as heretofore.

—a sharp price-reduction on the D-10 and D-40 sets as here illustrated and priced.

Here is fresh incentive for the designated Federal retailer to renew his efforts—and for the retailers not handling Federal to investigate the line.

A sales potential that has been greatly increased. A product that is exclusive—the only Ortho-sonic radio. A quality of *radio performance* that is absolutely non-competitive—with a price for every purse and satisfaction for every purchaser. The foundation for a flourishing retail trade and a permanently successful business. . . . All this is offered—

But get the whole story. Find out about the good profit margin, the protection, the freedom from red tape, the many other features going with the Federal designation. You'll say there's nothing in the industry like it—that it's just what you want. Get details at once from your wholesaler. If you don't know him, write us.

FEDERAL RADIO CORPORATION, Buffalo, N. Y.

(Division of the Federal Telephone Manufacturing Corp.)

Operating Broadcast Station WGR at Buffalo

Federal Ortho-sonic Radio, Ltd., Bridgeburg, Ont.



The sign of the Designated Federal Retailer

FEDERAL ORTHO-SONIC

Reg. U. S. Pat. Off.

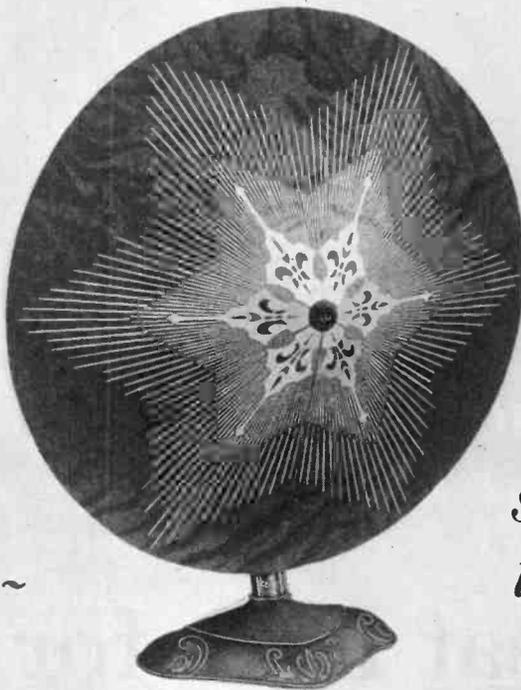
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RADIO

B U I L T T O E X C E E D Y O U R E X P E C T A T I O N

Get it *Better* with a Grebe

The
New Grebe
Six-Point
Speaker
has~



*six points
that make
sales*

- 1. *Appearance* that attracts and pleases — a cone with a delicately toned blue background that blends with, yet offsets the gold bronze design, surmounting a graceful base finished in metallic blue.
- 2. *Tone*—remarkable in purity and naturalness, faithfully reproducing the tone of the set.
- 3. *Construction*—The new Grebe motor construction enables this small cone to handle efficiently high and low notes without distortion.

- 4. *Size*—A small speaker that is particularly attractive. 17 inches in diameter and light in weight. Can be hung on the wall.
- 5. *\$17.50—a Price* that means quantity sales. It enables you to offer high quality reception at a figure far below that which it has heretofore cost.
- 6. *Grebe-Built*—a guaranty of long life and square dealing.

Send for Booklet RR

A. H. Grebe & Company, Inc., 109 West 57th Street, New York City

Factory: Richmond Hill, N. Y.

Western Branch: 443 So. San Pedro St., Los Angeles, Calif.

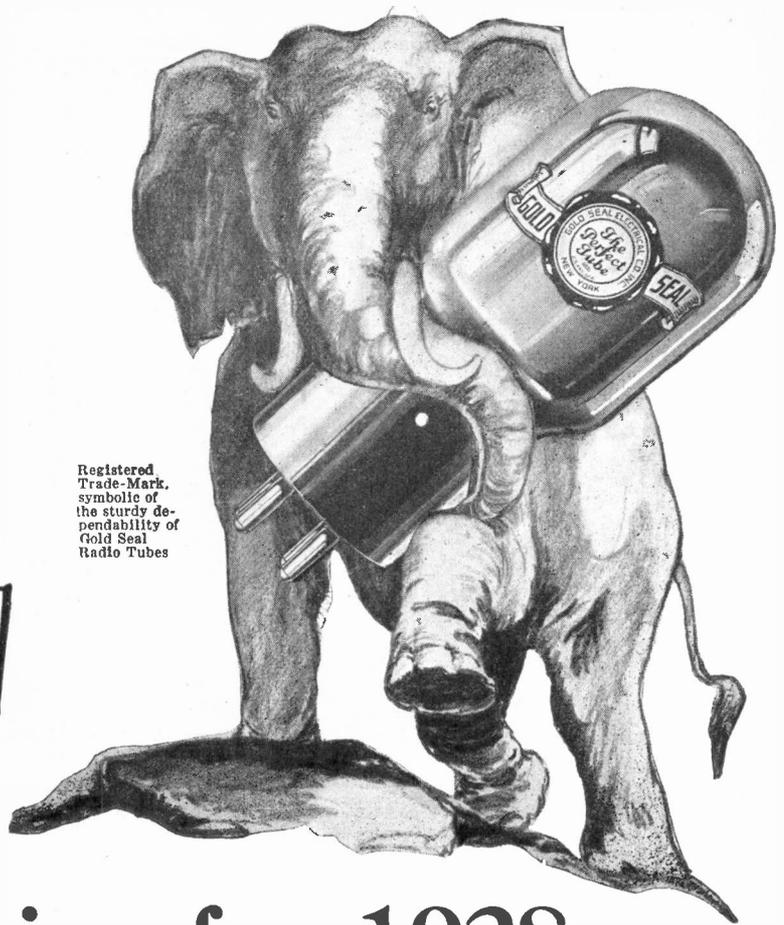
- Grebe Natural Speaker . . . \$35
- Grebe Synchrophase Seven . . . \$135
- Grebe Synchrophase Five . . . \$95

GREBE Six-Point SPEAKER



Makers of quality radio since 1909

Gold Seal Radio Tubes



Registered
Trade-Mark.
symbolic of
the sturdy de-
pendability of
Gold Seal
Radio Tubes

The Great Line for 1928

More and more jobbers and dealers are finding that the Gold Seal proposition includes *everything* to assure a profitable business—

(A) Highest quality tubes in a full range of types to meet all requirements. (B) A

Policy that builds success on giving satisfaction in all dealings (C) The largest factory in America making tubes exclusively (D) Most complete selling helps for dealers and jobbers (E) Effective advertising—national and local.



GSX 281
Half Wave Rectifier
List Price \$7.50



GSY 226
For amplification and
Audio Frequency
List Price \$3.00



GSX 227
For detection and amplifier
heater type
List Price \$6.00

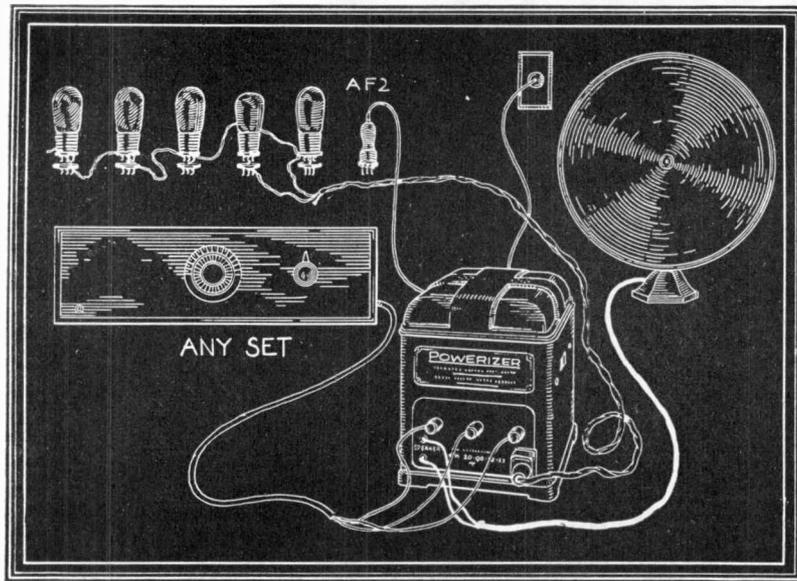


GSX 280
Full Wave Rectifier
List Price \$5.00

All Standard Types

Write today for full information

Gold Seal Electrical Co., Inc.
250 Park Avenue, New York



Showing how Powerizer supplies powerized amplification direct to speaker, as well as power for A.C. tubes in set. Note harness with adaptors holding A.C. tubes. These adaptors fit into sockets of sets—eliminating rewiring. Note A.F.2 goes to super power tube UX210 in Powerizer.

POWERIZER

does more than make every set
an A. C. Electric
*it makes it a power amplified
DeLuxe A C receiver*

WITH the Powerizer you do far more than make every radio just an A. C. electric—you make it a power amplified De Luxe A. C. receiver—a set that gives the finest tone quality in radio. Powerizer is the same tone and power plant that is used in the \$800 and \$1,000 De Luxe radios and phonographs. Only through powerized amplification—the use of the UX-210 tone quality A. C. radiotron—can the finest tone quality be realized. Only with powerized amplification can you get those rich deep tones.

Now POWERIZER is supplying A. C. operation with A. C. radiotrons on thousands of sets throughout the country.

POWERIZER is licensed under United States patents: Radio Corporation, General Electric Co., Westinghouse Electric and Manufacturing Co., American Telephone and Telegraph and patent applications pending.

There is a Powerizer for every make of set from a tuned radio frequency to a super-hetrodyne. General model for all standard sets, with harness—\$60.00, for Radiola "20"—\$59.00, special Powerizer and power pack designed exclusively for Radiola "25" and "28"—\$84.00.

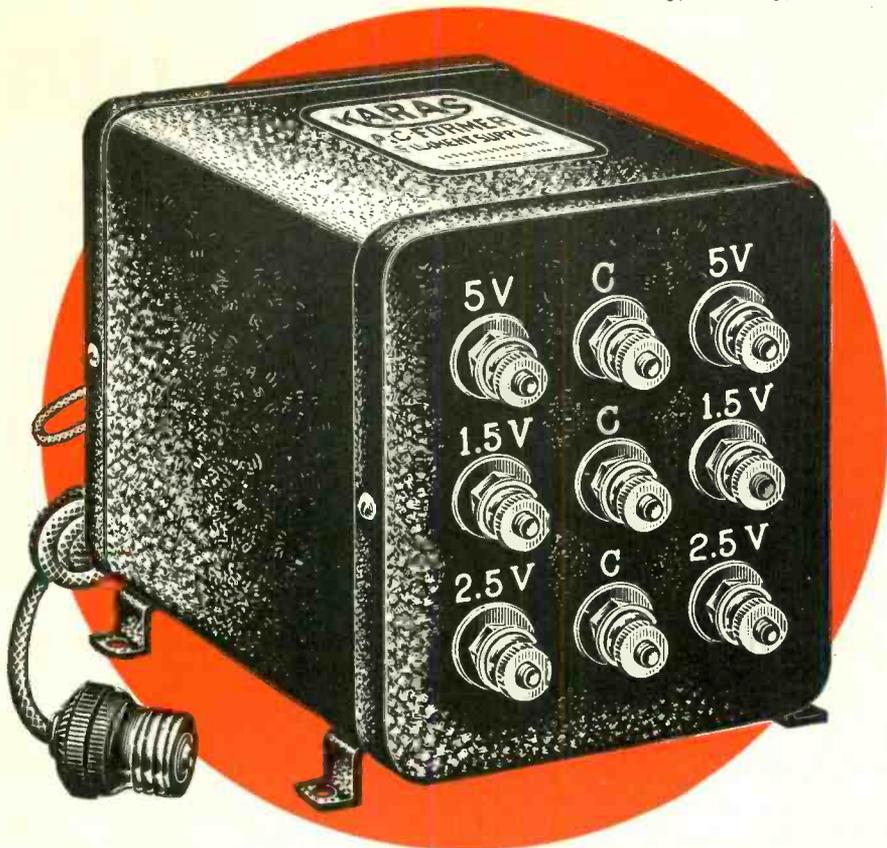
POWERIZER is a proven permanent source of power! At the RMA convention of June, 1927 Powerizer showed the first battery set with A. C. operation.

RADIO RECEPTOR CO., 106 7th Avenue, New York City

SETS POWERIZED IN 24 HOURS

—thousands will be looking for the dealers who display this sign in their windows. Bulletin RR-1018 gives latest details on Powerization. Send for it.





Your CUSTOMERS
are waiting
for

AC!

Sell it to them—
EASILY—
PROFITABLY—
with the NEW

KARAS A-C-FORMER

in conjunction with the CARTER, EBY, ENTERPRISE
and other makes of CABLE HARNESS

Quality FEATURES:

THE new Karas A-C-Former delivers the correct voltage for the new standard AC Tubes, types X-226 or CX-326 and Y-227 and CX-327. It does not permit the excessive voltage and current fluctuations which are ruinous to AC tubes, which is vitally important because the slightest variation in building or wiring, or any appreciable surge or overload in the AC supply line will cause trouble. The Karas A-C-Former protects AC tubes and insures long life—and there is not a hum in a trainload.

The A-C-Former needs no separate device for center tap. It has a convenient extra loop of wire for connection to the panel controlled switch. It is designed for mounting all connections beneath sub-panel or may be mounted on separable feet as shown above. It is sturdy, compact, powerful, silent, never heats up and always delivers an unvarying absolutely correct filament voltage. It has plug-in connection for "B" eliminator.

TYPES 12 and 13

TYPE 12 supplies filament potential for 12 tubes, as follows: 8—1½ volt, Type 226 or 326 tubes, 2—2¼ volt, type 227 or 327 tubes, and 2-5-volt Type 171 tubes.

TYPE 13 supplies filament potential for 10 tubes as follows: 8 Type 227 or 327, 2—¼-volt tubes, and 2 Type 171 5-volt tubes, or 2 Type 210 tubes.

LIST PRICE **\$8-75**

This new low price is warranted by the tremendous volume of orders reaching us since we announced the A-C-Former indicating that conversion has achieved immediate consumer acceptance.

SELL CONVERSION— and WATCH Sales Boom!

THE big news of the day is conversion of battery sets to AC operation! You can sell the sensational new Karas A-C-Former, together with cable harness and tubes to every man to whom you have ever sold a battery set—and many more besides! Thousands upon thousands of consumer inquiries which have been filling our mail since the announcement of this new product, give an indication of the strong influence which this amazing development will have on the radio business throughout the year. The Karas A-C-Former will be backed by a strong consistent advertising campaign in magazines and newspapers which will bring you quick, profitable sales!

Good Business All Spring and Summer!

A new source of business! No slump this summer for wide awake dealers who will carry a stock of Karas A-C-Formers to meet the tremendous demand! Don't delay another moment! Get in touch with your jobber at once, and write us today, using the coupon below to obtain further details.

KARAS ELECTRIC CO.
4040-A N. Rockwell St.
Chicago, Ill.

Convert Your Battery Sets, Too!

THERE is no longer any reason to carry a dead stock of battery-operated receivers when you can quickly convert them to AC operation with the Karas A-C-Former filament supply and a converting cable harness! Then watch them sell—and watch the profits roll in! No re-wiring, so simple, a boy can make the change. Write for a list of 50 receivers for which we have developed harness connections. Just tell us the name, model and number of tubes in your sets and we will send you complete details.

Mail the Coupon!

KARAS ELECTRIC COMPANY
4040-A N. Rockwell St., Chicago, Illinois
Send me complete details and further information regarding the conversion of my customers' battery sets to AC operation with KARAS A-C-FORMER.

My Name.....

Address.....

City..... State.....

Jobber's Name.....

All orders will be shipped through your jobber.

Worth waiting for!

New A.C.

Electric Receivers Added to present Fada line

A. C. Special

Using latest type A. C. Tubes

6 tubes. 3 radio frequency stages. Detector. 2 audio amplification stages. Shielded. Equalized amplification. Mahogany cabinet.

\$160

Tubes Extra

A. C. Seven Table

Using latest type A. C. Tubes

7 tubes. 4 radio frequency stages. Detector. 2 audio amplification stages. Individual stage shielding. Disappearing loop antenna. Equalized amplification. Walnut cabinet.

\$250

Tubes Extra

A. C. Seven Console

Using latest type A. C. Tubes

7 tubes. 4 radio frequency stages. 2 audio amplification stages. Individual stage shielding. Equalized amplification. Loop or antenna operation. Movable loop on swinging bracket. Matched walnut panels.

\$350

Tubes Extra

Fada Cone Speakers

17" Table or Wall Type... \$25
22" Table or Wall Type... 35
22" Pedestal Type..... 50

Free-floating cone. Permanent Parkerized magnet. Antique-bronze-finished trifold or pedestal.



IN announcing the New A. C. Special, the New A. C. Seven Table and the New A. C. Seven Console, we fulfill a definite promise to the trade. We said all along that we would never offer an A. C. receiver until we KNEW it paralleled in radio quality and minimum servicing the record set by all Fada receivers.

Now Fada engineers, after two years of costly experiments and "life tests," have overcome every drawback which characterized so many of the premature types of A. C. receivers. They were rigidly held to the requirements that "there must be no sacrifice of Harmonated Reception tone for A. C. operation, in order to satisfy a popular demand."

They have added to the superiority of Fada radio performance the convenience and economy of 100% house current operation.

In this, as in all other cases, the Fada product has been proved *right* before being offered to you and to the public. The new additions to the Harmonated Reception family are unsurpassed in tone, selectivity and general dependability by any type of receiver at any price.

The present line of Fada receivers remains unchanged as to price, design and construction. And with the new A. C. Electric Receivers the Fada dealer offers a complete line of high class receivers for every possible home condition.

FADA

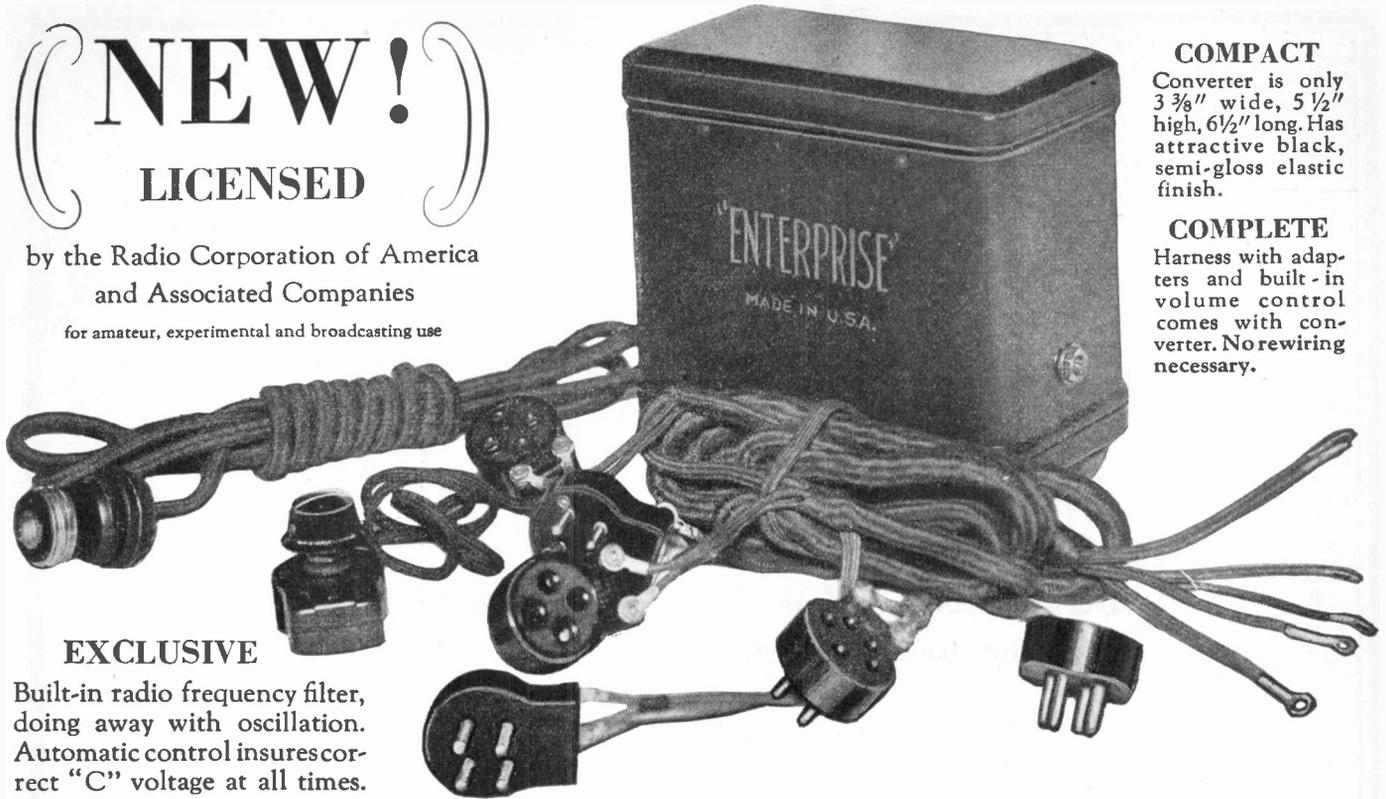
Radio

Licensed under Hazeltine, Latour, R. C. A., Gen. Elec. Co., Westinghouse Elec. & Mfg. Co., Amer. Tel. & Tel. Co. patents only for Radio Amateur, Experimental and Broadcast Reception.

F. A. D. ANDREA, Inc.
Jackson Avenue, Orchard & Queens Street
Long Island City, New York

NEW!
LICENSED

by the Radio Corporation of America
 and Associated Companies
 for amateur, experimental and broadcasting use



COMPACT
 Converter is only 3 3/8" wide, 5 1/2" high, 6 1/2" long. Has attractive black, semi-gloss elastic finish.

COMPLETE
 Harness with adapters and built-in volume control comes with converter. No rewiring necessary.

EXCLUSIVE

Built-in radio frequency filter, doing away with oscillation. Automatic control insures correct "C" voltage at all times.

"Enterprise" A-C Converter Unit makes any battery set an A-C set

NOW you can turn battery-operated receivers into sets using the new alternating current tubes—UX226, CX326, UY227, CY327, UX171, or CX371.

The "Enterprise" A-C Converter Unit does it all, in a moment—no rewiring necessary. Take out the tubes, insert the adapters, already hooked up to the Converter, put in the new A-C tubes and the set is ready for the house current!

The new "Enterprise" unit automatically eliminates "A" and "C" batteries, chargers, etc., and supplies "C" power to old sets without "C"

connections. It brings old sets up to date, makes late sets better than ever.

The built-in radio frequency filter, exclusive with "Enterprise", does away with all tendency toward oscillation. The "Enterprise" Converter Unit can be used in the most critically balanced R. F. receiver.

care of sets without terminals for "C" batteries.

Perfect volume control is given by a permanent unit, built into the harness—a real advantage.

The "Enterprise" A-C Converter Unit is the complete unit that you need to modernize your own D-C receivers, and to give lasting satisfaction to your customers, who want A-C operation. It enables you to move your stock of battery-operated sets and "B" eliminators and tubes.

Jobbers, wire your orders. Retailers, write or use the coupon to get full information.

The ENTERPRISE MFG. CO. of Pa.
 Philadelphia

LIST PRICE
\$32.50 complete: converter unit, harness, built-in volume control.
 Converter harness sold separately if desired... **\$12.50**

Another exclusive "Enterprise" feature is correct "C" voltage, provided automatically regardless of variations in house current, taking



The Plant Behind the Product
 "Enterprise" Specialties are sold the world over. Sixty years' reputation for quality.

The Enterprise Mfg. Co. of Pa., Philadelphia

We're interested in making money by turning battery-operated receivers into the modern A-C sets. Send us full information and prices on "Enterprise" A-C Converter Units.

Name

Address

SUCC

Every morning's mail contains evidence that Kolster demand is growing stronger and stronger.

In the big cities the growth of Kolster popularity is unprecedented.

Reports from jobbers' salesmen indicate that authorized Kolster dealers are finding their protected Kolster franchises more valuable than ever before.

The evident fact is that the army of families who prefer Kolster performance to that of all other radios have started *talking*

KOLSTER

Enjoy the KOLSTER FAMOUS COMPOSERS HOUR
over the nation-wide Columbia Broadcasting System.

Every Wednesday 9 to 10 P. M. Eastern Time

Prosperity!

... and the sounds they are making mean faster turnover for every dealer authorized to display the symbol of prosperity on the right!

AUTHORIZED



DEALER

Use the coupon.

KOLSTER

FEDERAL-BRANDES, Inc.
200 MT. PLEASANT AVENUE
NEWARK, N. J.

© 1928, Federal-Brandes, Inc.

Please let me know if there is room for another Kolster dealer in my locality.

Name

Street

City State

53

Retailers *demand*ed it!

-here it is

ALITTLE over two years ago one of the best known merchants in the retail field made an interesting statement.

"Shortly after I went into business for myself I took your Modern Business Course and Service," he said. "It gave me a knowledge of business fundamentals that I could not have gained any other way. Probably no other single factor has helped as many men to success in business as your Course and Service.

A stirring challenge

"Why don't you do the same thing for retailers?" he

went on. "With your standing among business men you could undoubtedly get the best merchants in retailing today to contribute their knowledge.

"With a similar Course devoted exclusively to merchandising, retailers would benefit as they have never benefited before. Modern methods would take the place of guesses."

We received many such letters from retailers all over the country, and as a result of this demand we prepared the Modern Merchandising Course and Service.

The Modern Merchandising Course and Service

NEVER before have outstanding men in all fields of retailing come forward so wholeheartedly in the interest of better merchandising methods.

Now, for the first time in the history of American business, the priceless experience and intensely practical methods of such experts as J. C. Penney, Frederick D. Corley, Edgar J. Kaufmann, Clayton Potter, W. T. Grant and the late Col. David May are placed at the disposal of retailers all over the country.

These men, and many others equally well known, have given their unstinting cooperation in making the Modern Merchandising Course and Service the most practical profit producer ever offered retailers. For example: John B. Garver, The Garver Bros. Co., Strasburg, Ohio (a store doing a volume of over three-quarters of a million per year in a

town of 900), discusses the problem of building a big business in a small city; Joseph M. Meyers, in charge of Store Systems, Kaufmann's, Pittsburgh, tells what years of experience have taught him about hiring, training and paying extra sales help.

Every problem answered

Every phase of retailing is discussed by an equally capable authority. Problems are answered, suggestions made. Space will not allow us to tell

the whole story here, but we have written a book that does. It is called "Progress and Profits." It tells exactly how over 50 retail experts have combined their knowledge and experience with the enormous resources of the Alexander Hamilton Institute, to pour a wealth of profit-producing ideas onto the desk of any retailer who will simply grasp the opportunity they offer. Mail the coupon now for your copy.

ALEXANDER HAMILTON INSTITUTE

ALEXANDER HAMILTON INSTITUTE, 169 ASTOR PLACE, NEW YORK CITY

Please mail me a copy of "Progress and Profits," which I may keep without charge.

Name.....

Company.....

Business Address.....

Business Position.....



In Canada, address the Alexander Hamilton Institute, Ltd., C. P. R. Bldg., Toronto

WIRE OR MAIL YOUR ORDER TODAY

for **NA-ALD** A. C. CONNECTORALDS

Be the first to get started to move inventory of battery sets electrified with genuine RCA or Cunningham A. C. tubes.

NA-ALD Adapters and CONNECTORALDS are used exclusively by the leading manufacturers of tube testing equipment because they are mechanically and electrically correct. NA-ALD A. C. CONNECTORALDS are being adapted universally by the leading B Eliminator manufacturers to make complete power units for conversion of battery sets to electrically operated receivers. NA-ALD A. C. CONNECTORALDS with any good filament transformer and B Eliminator will completely electrify any battery operated sets. No batteries of any kind are needed—not even C Batteries on the power tubes. No center taps on transformers are needed. NA-ALD A. C. CONNECTORALDS with their automatic oscillation controls give the fullest efficiency of the New A. C. Tubes. NA-ALD production will care for your needs on time. Order now or write for complete story. We are making large daily shipments.



ADAPTERS—CONNECTORALDS—SOCKETS
Produces More Than Any Other Manufacturer in the World

NA-ALD A. C. CONNECTORALDS are packed in kit form for easy ordering and selling. They will fit all battery sets. They are compact, neat and simple. NA-ALD CONNECTORALDS will go into completely shielded sets. The adapters—Y Tap resistors—bypass condensers—harness and jumpers are included. A few extra No. 926 and No. 926GT Adapters on hand will help you convert any battery set. Sterling, White, Fansteel, Compo, Kingston Silver Marshall, Triple A Eliminators. Dongan, White, Silver Marshal, Acme, Thor-darson Filament Transformers. RCA, Cunningham, Ceco, Sylvania, Sonatron, and Armor Tubes have all been approved. There is a NA-ALD CONNECTORALD Socket Adapter for every purpose.

Write for the story on New NA-ALD Patented A. C. Sockets.

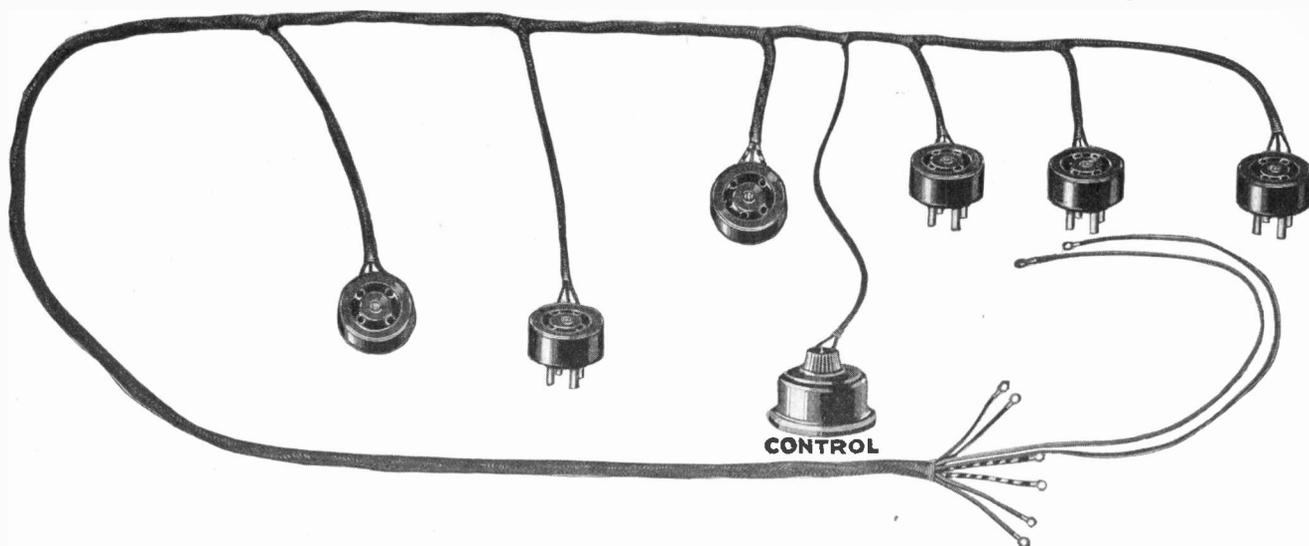
Pin this coupon to your letterhead.

It guarantees special 5% Cash Discount.

Ship me	No. 905 A.C. Kits for 5 tube sets.....	\$9.00
.....	No. 906 A.C. Kits for 6 tube sets.....	10.00
.....	No. 907 A.C. Kits for 7 tube sets.....	11.00
.....	NA-ALD Volume Controls.....	3.00
And NA-ALD A.C. Booklet.....		Discount 35%.
My jobber is.....		

ALDEN MANUFACTURING CO., Dept. R.R.2, Springfield, Mass.

Here's the Simplest Way



To Change DC Receivers to AC

Absolutely no Rewiring Necessary on Standard Sets

The Eby AC Adaptor Harness can be used in practically any standard five or six tube set equipped with separate B battery and C bias feeders for the last AF stage *without changing the wiring in any way.*

EBY AC Adaptor Harness Cable has only Eight Leads

And six of them go to the transformer. It is as easy to hook-up the Eby AC Adaptor Harness as it is to connect the set cable. The whole installation can be made in less than ten minutes.

Made in two Universal Models—Only two stocks to carry

The Eby AC Adaptor Harness is made in one universal five and one universal six tube model. The five tube model lists for nine dollars and the six tube model for ten dollars.

Designed for use with Standard Tubes and Transformers

The Eby Harness is designed for use with R. C. A. Radiotrons UX 226, UY 227, UX 171 and UX 112-A or with tubes having the same characteristics. Standard filament supply transformers made by Acme, Bremer-Tully, Jefferson, Karas, Silver-Marshall, Thordarson, and other manufacturers can be used with the harness.

Improves Reception without changing characteristics of Set

The harness automatically rewires the set for AC tubes without changing its characteristics in any way. The new tubes improve reception.

Complete, Simple Instructions packed with each Harness

Our instruction booklet gives complete directions and tells the whole story. Write for it.



The H. H. EBY MFG. CO., Inc.

4710 Stenton Ave., Philadelphia

Makers of EBY Binding Posts and Sockets



Still leading!

Sterling

whips the

ACTUBE SITUATION

for battery-type sets

1 by converting DC Sets to use ACTubes.

2 by adding "A" and "C" to "B"
Powered Sets — for AC Tubes.

3 by providing Testing Equip-
ment for ACTubes.

4 by providing AC Power
for Radiolas and other
4 volt receivers.

The Big Mid-Season Sales Booster!

THE STERLING MFG. CO.
CLEVELAND, OHIO

SALES

YOU COULD NOT GET BEFORE

2

SELL AC

3

SELL YOUR DC SETS WITH

SETS WITH

1

Convert DC Sets to use AC Tubes!

RIGHT NOW, AC tubes are the biggest thing in radio. Your present and future customers—all are talking AC tubes. Whether the tide will turn back to DC makes a lively topic for conversation, but the fact remains that *DC sets must be sold NOW*. Here Sterling can help you.

This new and remarkable Sterling Tri-Power supplies "A," "B" and "C" voltages for AC tubes to Radiola 16, Crosley Bandbox, Freed-Eisemann, Kolster, Fada, Stewart-Warner, Bosch, Sonora and almost any other 5 to 8 tube DC set.

In fifteen minutes your service man at the store, or customer in his home, can convert a DC receiver into a full-fledged AC tube outfit. Without rewiring or extra batteries, without makeshift, guesswork or after grief!

The Tri-Power is performance proved, rugged and reliable. Sterling engineers (backed by our 21-year-old reputation for knowing how, electrically) have checked it for tone quality, for convenience and for perfect application to the various sets.

Seems too good to be true, but there's no catch in it. Ask your jobber, or use coupon on back of this insert.

Add "A" and "C" to "B" Powered Sets and use AC Tubes

NO owner of Sterling "B" Power, or any other good "B" supply, need regret not having waited for an AC tube set. His present 115-volt "B" eliminator plus this Sterling R-850 Transformer and a set of AC tubes gives him a true AC tube receiver.

A feature of the Sterling AC Transformer is its provision for "C" bias, which is fixed, and automatic. Requires no wiring connections. Like the Sterling Tri-Power, this ACTube Transformer supplies *exactly* the right filament voltage to types 226, 227 AC and 112 or 171 power tube.

LIST PRICE including cable and adapters without tube

\$ 38.00

Raytheon BH Tube \$4.50



AC TRI-POWER

Sterling

LEADERSHIP

Universal Tube Testers for AC Tubes and Service

YOU must now be prepared to test AC tubes. To meet this necessity Sterling has come forward with two new AC tube testers — one for store use, and another for outside service men. Filament emission and grid performance of all styles of AC amplifier and detector tubes are quickly classified as good, fair or poor.

Both testers also test filament rectifier tubes used in Power Units and AC Power Packs, making them the complete servicing units for AC sets at a low price. Compact, rugged, portable. New problems that come with AC Tubes can't be solved by guess-work.

You must have reliable AC testing equipment to avoid loss and keep customers' good will.

Any "B" Power Supply plugs into the end of the AC Tube Transformer, and all control is through the single pendant switch. To save time and expense of rewiring DC receivers, we supply standard cable and adapters for AC tubes.

New Sales to Old Customers

This Sterling Transformer puts every old customer who already has a "B" eliminator on your new prospect list. It brings his set up to date with AC tubes, and rids him entirely of all battery cares. Hundreds of such set owners in your locality are ready to equip their DC sets with AC tubes. Show them how easily this is being done and how economically—with the Sterling R-850 AC Tube Transformer. And don't forget, you'll sell them AC tubes also.

Here is a real
Sales Opportunity—
backed by Sterling



Model R-850
AC Tube Transformer
Size: 3 x 3 x 6 inches. Operates
from 115 volt A.C. Price

\$17.50

Model R-810
AC Tri-Power
Operates from 115 volt A.C.
Size: 7 1/2 x 4 1/2 x 5 1/2 inches.

SEE NEXT PAGE FOR NO. 4

TUBE EQUIPMENT TO DC SET OWNERS



For Counter Testing

the R-509 enables you to check your AC tubes as they come in from the jobber, protecting yourself against losses due to defective stock. When selling, you likewise show the customer the exact condition of the tube before it leaves your store, preventing unjust comebacks. Operates from 115 Volt, 50-60 cycle, AC. List price, R-509

\$35.00

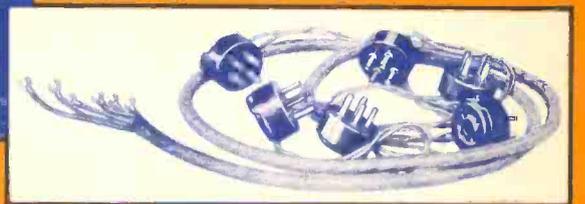


For Complete Set Testing

the R-512 is small, compact, handy for store or home service. It is furnished with two adapters, plugs into any tube socket of the set and tests all types of AC tubes. More than that, it tests "A" and "B" circuits, locates faults in sockets, wiring, open transformers. In short, tells your service man everything he wants to know in AC service. Saves his time and your expense. List price, R-512

\$35.00

Cable with AC Tube Adapters for instant installation on sets not wired for AC Tubes. For 5 to 8 tube sets. Price \$6.00 to \$8.00



AC TUBE TRANSFORMER

CHANGES DC WORRIES to AC SALES!

4

STERLING LEADERSHIP AGAIN DEMONSTRATED

the one satisfactory AC Power for RADIOLAS

They operate as a Single Unit

STERLING was first to replace batteries in Radiolas with permanent power from the AC light line. Trickle charged wet batteries, unscientific substitutes have come and gone, but at *no time* has Sterling Power Team leadership been doubted.

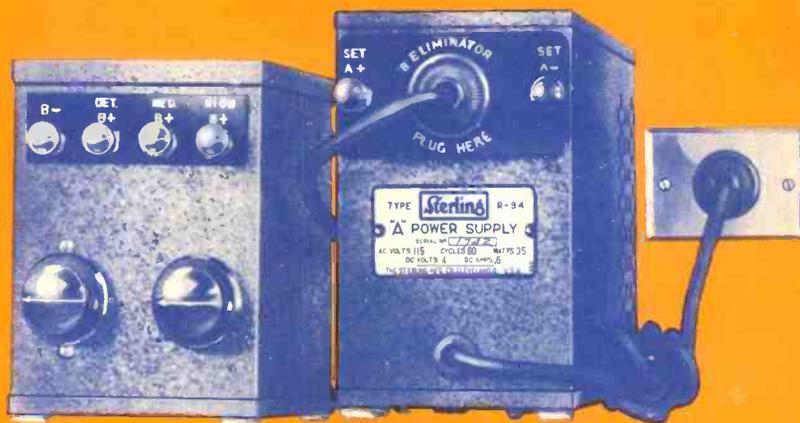
Hundreds of Radiola dealers recommend Sterling as the ideal power supply for trouble-free AC operation for Radiolas 20-25-28, Victor and Brunswick combinations, Best supers and other 4-volt sets.

The Sterling Power Team consists of an "A" and a "B" power supply which plug together and *operate as a single unit*, controlled from the single filament switch. The units may be purchased separately if desired, and with connector cable, or without.

Turn Service worries into SALES PROFITS

Now is the time of year when batteries in Radiolas are playing out. Every service call is an opportunity to sell this never ending power supply — power from the light socket — AC operation. Every owner is your prospect. Every set you Sterling equip will net you a handsome profit, and earn the gratitude of a delighted customer.

Mail this coupon to us **TODAY!**



Built to meet R.C.A. Standards

- for power regulation that is exactly suited to fine Radiola tone quality.
- for convenient single switch AC operation.
- for absence of service "grief."
- for 100% consumer satisfaction.

LIST PRICES

R-94 4 volt "A" without bulb	\$28.00
0.6 Tungar Bulb	4.00
R-41 "B" without bulb	22.00
UX 213 tube (UX-280 tube may be used) or R-94 with	5.00
R-81 "B" without tube	24.00
Raytheon B. H. Tube	4.50
Special Connector Cables (for 25 or 28 as ordered)	2.50



Sterling

4VOLT AC POWER-TEAM

THE STERLING MFG. CO.
2831-53 Prospect Ave., Cleveland, O.

Send immediately full details on:

..... "A-B-C" Tri-Power
for use with (Name and Model Receiver)

..... AC Tube Transformer

..... Radiola AC Power Team

..... Tube Testers for AC Tubes

Name City

Street State

My Jobber's Name

Great Things are on the Road for SONORA and SONORA Dealers

NEWs about Sonora is the high-spot of interest in every gathering of music merchants in the land.

The developments, it is true, are far reaching in their scope—they are fundamental—as to policies, as to product, as to people.

It is true that Sonora has a new product to be offered early in the Spring—far exceeding in performance any known recording device, either phonograph or radio.

It is true that Sonora has gathered new and most modern plants for the economical production of its new products.

It is true that Sonora's beautiful new building—in the heart of New York's famous musical center—is indicative of the proper place which Sonora will take in the industry.

It is true that new policies and new discounts made possible by new money and resources are planned to bring more profits to every Sonora dealer.

It is true that a wonderful new record is soon to be offered.

It is true that a wonderful aggregation of the most capable men in the industry will direct the destinies of Sonora, and they will be backed by ample capital, by new research-and production brains, and by a wholly new selling policy.

BUT it is also true that Sonora's present radios—7 great models—all modern A. C. products—give the dealer the greatest line of high grade radios offered to the market today.

It is also true that Sonora's line of Tonalic Phonographs gives him the highest grade of present day phonographs, set in the most beautiful cases ever offered.

The new plans . . . the new products . . . the new policies have fired the imagination of the music trades.

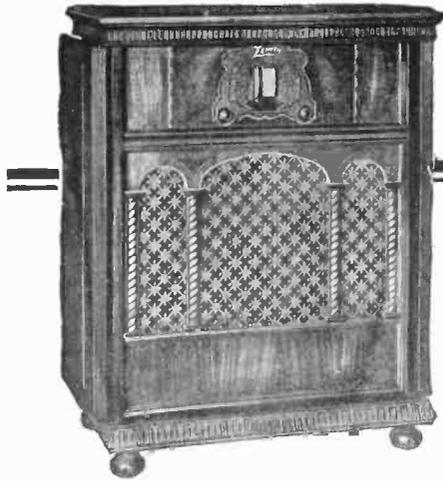
The new Sonora will most profoundly affect the business and the financial success of every dealer in the land. Your business will be affected. You cannot help that—neither can we.

To all prospective Sonora dealers, we have at the moment, only one thing to say. Our old dealers will get every possible advantage when the revolutionary new products are ready for delivery.

To be on the preferred list of dealers and to get the new products when ready early this Spring, get aboard right now. Learn our methods. See how our new organization works together. Enjoy our new discounts. Get yourself ready for the greatest forward step ever made in the reproduction and merchandising of music.

Sonora
CLEAR AS A BELL
RADIO-S-**PHONOGRAPHS**





MODEL 16-E
ALL ELECTRIC
8 TUBES



ENGLISH DE LUXE
ALL ELECTRIC
10 TUBES

Three different circuits—6, 8 and 10 tubes—battery or electric—some with antenna—some with loop—others without loop or antenna—16 models.

\$100 to \$2500

ZENITH All-Electric Radio enjoyed a spectacular success during the past year. The reason for this is plain—Zenith was ready for the sudden, overwhelming demand for All-Electric radio. Three years of steady development and research resulted in the most highly perfected line of electric instruments yet offered to the public. 1928 finds Zenith in the strongest position in its history—and Zenith will maintain the leadership it has won in the field of high grade radio.

ZENITH RADIO CORPORATION

*Licensed only for Radio amateur, experimental and broadcast reception
Western United States prices slightly higher.*

ZENITH
TRADE MARK REG.
→LONG DISTANCE←
TRADE MARK REG. **RADIO**

3620 IRON STREET, CHICAGO

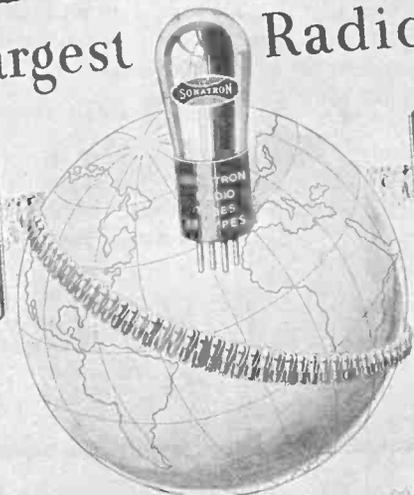
WORLD'S LARGEST MANUFACTURERS OF HIGH GRADE RADIO

This ad appears in the SATURDAY EVENING POST!
February 18th, 1928

THE SATURDAY EVENING POST

SONATRON

The World's Largest Radio Tube Line



SONATRON tubes are manufactured by a nation-wide organization—a huge factory supplying four strategic distributing centers

Every SONATRON Radio Tube is guaranteed to deliver 1,000 hours of service—the world's broadest guarantee

Commanding the World's Attention

33 DISTINCT TYPES

The SONATRON radio tube line covers every need in modern radio, including the latest tubes for AC electrical operation of receivers. We list below several general classifications; and any SONATRON dealer will give you full information.

AC TUBES

X226, V227, and 225A to replace 225AC

POWER TUBES

X171, X112, X171A, X112A, X210, 300A

RECTIFIERS

X280, X281, 213, and the gas-filled SH88

DRY CELL TUBES

199, X199, 199A

—and many others

SONATRON, resolving to bring a better tube service to the world of radio, pledged itself to a policy of progress which it has never relaxed. Today SONATRON, manufacturing 33 distinct types of tubes, commands the world's attention as the World's Largest Radio Tube Line!

SONATRON engineers, alert, resourceful, backed by a great organization, have time and again pioneered important tubes, often bringing them to the public months before other manufacturers! Every need in modern radio has been anticipated and promptly met. Through a vast army of dealers, SONATRON offers a tube service which a great

army of buyers has stamped with its approval.

Standard quality and long life make possible the remarkable SONATRON guarantee. Superlative methods of manufacture insure better-than-ordinary radio results—in tone, in volume, in distance-getting ability. Since tubes are the heart of your radio set, consider the importance of these things.

SONATRON Radio Tubes are sold by thousands of dealers, distributed by hundreds of jobbers, and endorsed by many radio manufacturers who use them as standard equipment! See your SONATRON dealer for the latest information in tubes—and mail the coupon below.

SONATRON TUBE COMPANY

16 Hudson Street, New York City
88 Eighth Ave., Newark, N. J.

108 W. Lake Street, Chicago
320 Lafayette Bldg., Detroit

Dealers! Jobbers! Manufacturers!

Write for the famous SONATRON Proposition! Ask us about SONATRON'S greater profit possibilities!

SONATRON TUBE COMPANY. (Address nearest office)

Gentlemen: Please send me the FREE book "How to take care of your Radio Tubes"

Name _____

Street Address or R. F. D. _____

City and State _____

Dealer, Jobbers and Manufacturers check here for the Sonatronic Proposition

FREE! Set owners! WRITE for your copy of this FREE BOOK: "How to take care of your Radio Tubes."



—one of a series of Post Ads to appear this spring!

Building ~ a great fund of consumer good will that will mean even greater profit for Sonatron dealers—write for the Sonatron proposition!

SONATRON TUBE COMPANY, 16 Hudson Street, NEW YORK CITY; 108 W. Lake Street, CHICAGO
88 Eighth Ave., NEWARK, N. J.; 320 Lafayette Bldg., DETROIT

Standards of Practice

1. To consider, first, the interests of the subscriber;
2. To subscribe to and work for truth and honesty in all departments;
3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive;
4. To refuse to publish "puffs," free reading notices or paid "write-ups"; to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?"
5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity;
6. To solicit subscriptions and advertising solely upon the merits of the publication;
7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements, subject to proper and authentic verification;
8. To co-operate with all organizations and individuals engaged in creative advertising work;
9. To avoid unfair competition;
10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.



Radio Retailing welcomed into the Associated Business Papers

THE Associated Business Papers, Inc., is an organization numbering among its members 122 trade, industrial and vocational publications—all leading magazines in their respective fields. All A. B. P. member-publications have pledged themselves to observe its rigid standards of practice shown above.

Radio Retailing has been invited by the Associated Business Papers to join its roster. Now this magazine is a member of both the Audit Bureau of Circulation and the Associated Business Papers.

Strict adherence to the highest standards of editorial, circulation and advertising practices has won for *Radio Retailing* not only membership in these two organizations but also

—the largest number of paid subscribers of any radio trade publication, and

—the largest gross advertising revenue of any radio trade publication.

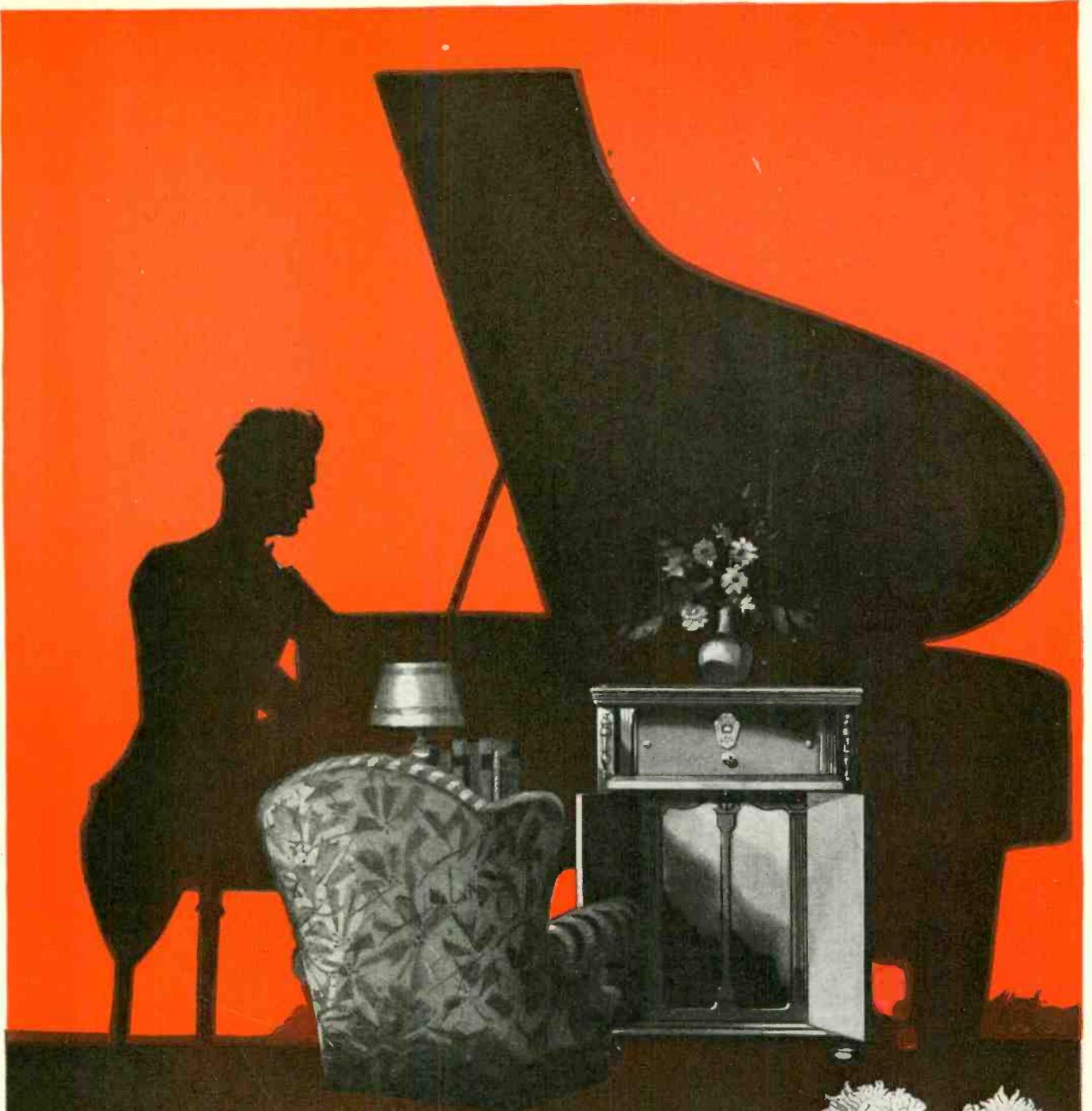
Radio Retailing truly merits the description—"The Business Magazine of the Radio Industry."



Radio Retailing

A McGraw-Hill Publication

Tenth Avenue at 36th Street, New York City

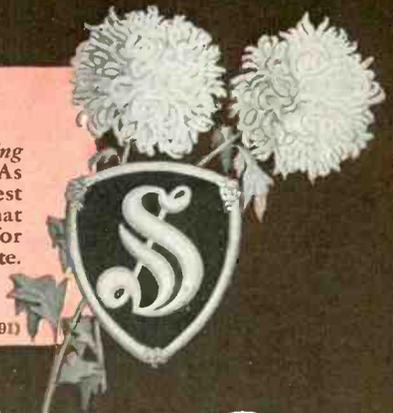


REFINEMENT

THE far-sighted dealers who joined Sparton in pioneering the field of all-electric radio now reap their reward. As the entire industry swings to AC reception, Sparton's "richest of radio voices" sets the Sparton dealers in positions that are envied by the entire trade. There is still room for others who can meet reasonable requirements. Write.

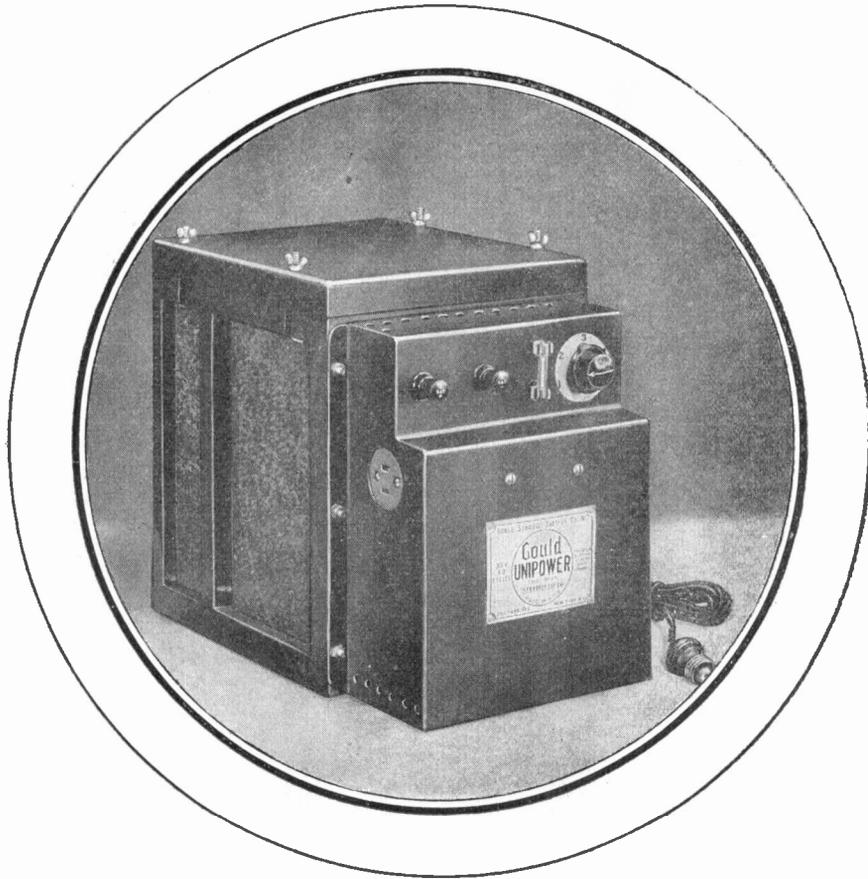
THE SPARKS-WITHINGTON CO., JACKSON, MICH.
Pioneers of Electric Radio without batteries of any kind

(191)



SPARTON RADIO

"The Pathfinder of the Air"



An Amazing Record of "A" Power Reliability

THE original Gould Unipower was the first complete radio "A" power unit in the market. Early experience proved to Gould engineers that no ordinary flat plate battery element could ever stand up under trickle charge conditions and the strenuous power demands of the modern set.

A New Invention

To meet these conditions, a new type of battery construction, first developed for submarines, was built into Unipower—the Gould Kathanode battery assembly (patented). In the Kathanode assembly the positive plate is protected by patented glass mats which preserve plates under trickle charge operation. With the Gould Kathanode Unipower, care is reduced to a minimum. Service expense has been practically eliminated. The record is amazing.

Out of the first 4000 Gould Kathanode Unipowers

placed in service only 4 have ever required attention—and these 4 cases were due to minor mechanical defects.

Your Protection

The new Gould Kathanode Unipower pays you a clean profit, safe from later service expense. Dealers everywhere say that it is the first real solution of the vexing "A" power problem. It will pay you too to investigate. Write direct today or get in touch with your nearest Gould jobber. Gould Storage Battery Co., Inc., Depew, N. Y.

1 1 1 1

IMPORTANT NOTE: Authorized Gould Unipower Service Stations located at strategic points are now equipped to repair the old type Gould Unipower with the new Kathanode elements at special reduced prices. Full details on request.

The new
KATHANODE

Unipower

A GOULD PRODUCT

Dubilier SOCKET POWER Condensers

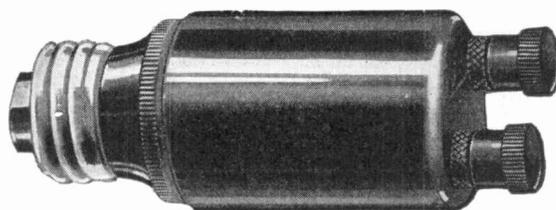


When the possibilities of light socket radio power first engaged the attention of leading electrical engineers, Dubilier's research laboratories were already at work on condensers suitable for experimental units. The development in power-supply devices during the past five years has borne marvelous results—for today the electrically operated receiver is a reality, and its popularity is constantly on the increase.

Dubilier is proud of its part in the success of more than one manufacturer's power unit, and of the confidence shown by amateur experimenters everywhere.

The now complete line of Dubilier power pack condensers meets every requirement in the building of sturdy, compact eliminators for any purpose. Dubilier's recognized high factor of safety insures a life far longer than that of the average condenser and safeguards both receiver and power unit.

Write for our special Socket Power Condenser Bulletin



Dubilier Light Socket Aerial provides the last link in complete light socket operation. Nationally advertised—adequately displayed—and sold for \$1.50 on a money-back guarantee to work satisfactorily.

DUBILIER CONDENSER CORP.
4377 Bronx Blvd., New York City



Dubilier

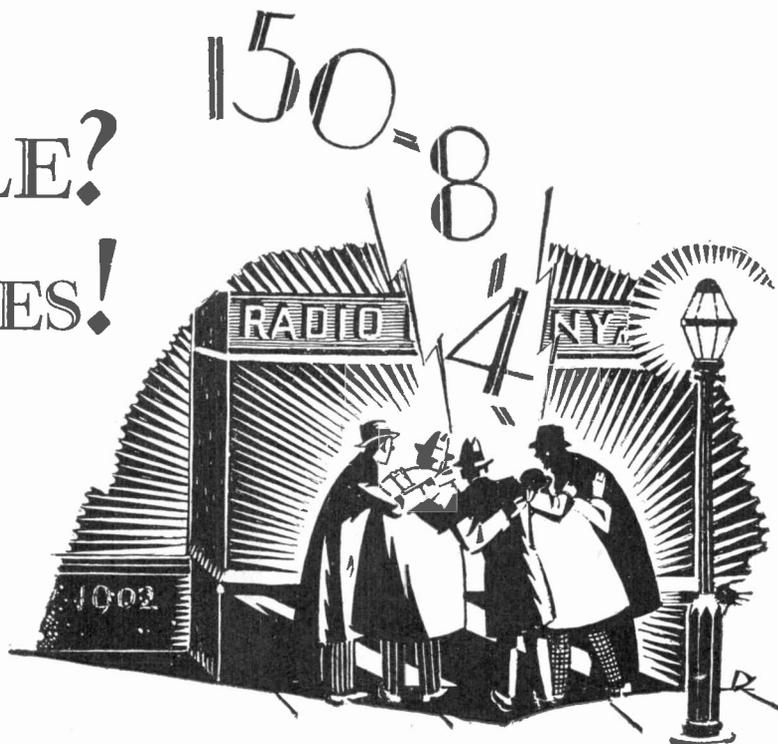
LIGHT-SOCKET AERIAL



IN A HUDDLE?

YES!

But it's not a football signal. They're trying to get a close look at the new
**WESTON TRIPLE-RANGE
A. C. VOLTMETER.**



THEY are all A.C. radio fans gathered before their favorite dealer's window. In the morning they will all go in and stampede his shop. And each one will secure a Weston Model 528 Portable Voltmeter—one of the new triple-ranges. They have all eagerly awaited its arrival ever since their new A. C. receivers were installed, and the necessary Weston voltmeter to go with it, was ordered.

And now here are the precious new instruments! They can see them snuggled there on the velvet trimming in the front of the window—trust the dealer to give them full prominence! How tantalizingly their silver, etched scales gleam in the reflected light from the street lamp! Never was

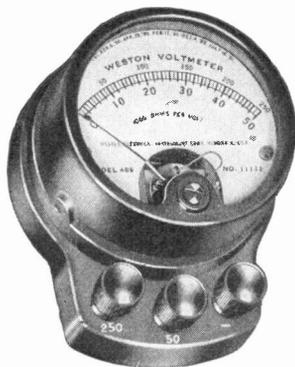
there such strong temptation to rush the line—just like football players. Only the most fragile of glass barriers! But they must wait 'til morning—and make a proper aerial attack through the doorway.

Such is the urgent, pressing need for an A.C. portable instrument, to measure the A. C. supply and tube voltages, when you own an A. C. receiver. And, of course, there has been nothing like a Weston, the peer of all instruments, since Weston established the world's standard of accuracy—back in '88.

From all over the country the requests have poured in—pleading for this very instrument. And now here it is. Write to us without delay and let us send you full particulars. Act now. Be the first to supply the demand for this eagerly awaited instrument in your community.

WESTON ELECTRICAL INSTRUMENT CORPORATION

25 Frelinghuysen Ave., Newark, N. J.

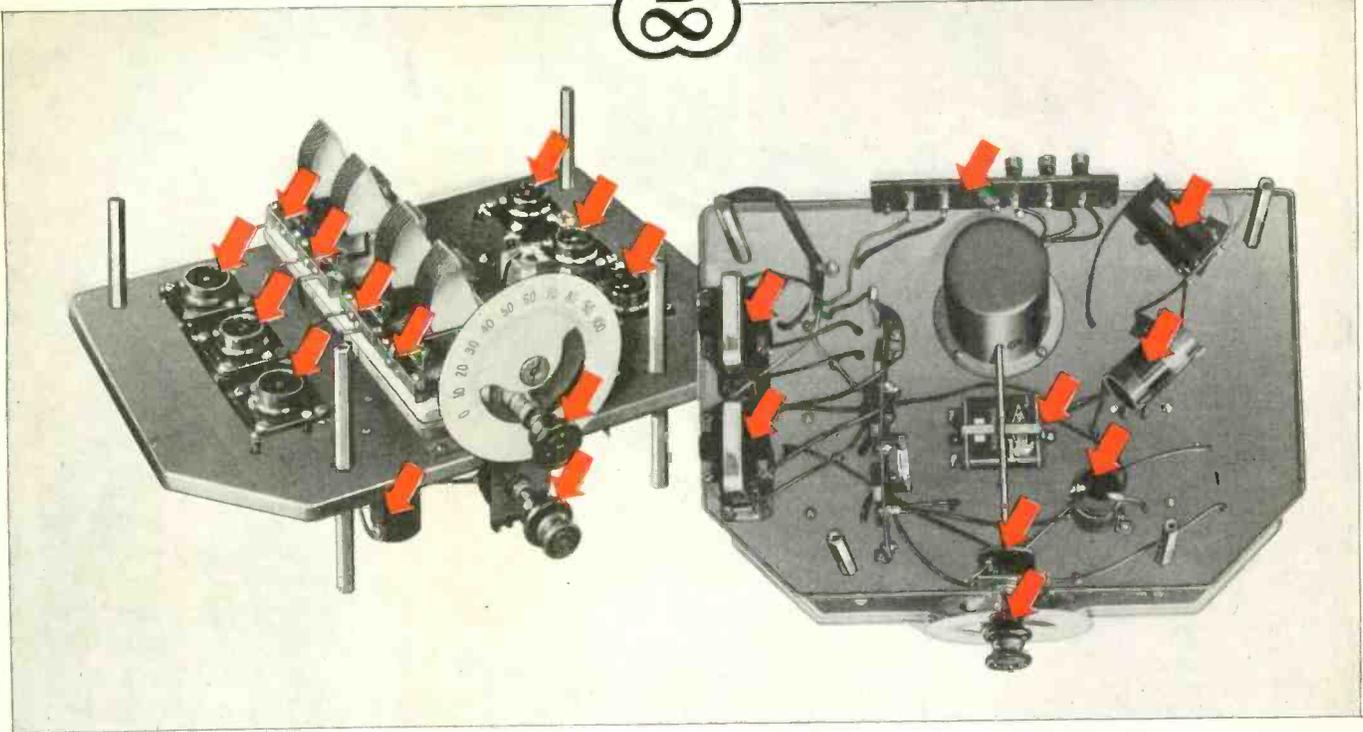


D. C. Model 489 Battery Eliminator Voltmeter — with self-contained resistance of 1000 ohms per volt—for testing the output of B-Eliminators. Also furnished with lower resistance for general D. C. testing requirements. Very popular models, and they are moderately priced.

Here is the new **A. C. Model 528** — small, compact, portable—for the A. C. set owners. And don't overlook your own requirements! In addition to the three-range instrument, double range combinations are furnished up to 600 volts. Also ammeters—1 to 30 amps.



WESTON RADIO INSTRUMENTS



Quality reception of Splitdorf Receivers is protected by Bakelite insulation

MORE than fifteen parts of the new Splitdorf Receiver are made of, or insulated with, Bakelite Materials. Radio Receiver design advances rapidly, but the superiority of Bakelite Materials for radio insulation continues unchallenged.

Sustained quality reception in both volume and tone is dependent upon unimpaired insulation. The permanence of Bakelite Materials and their high insulation value have brought about their adoption by practically all set manufacturers. In the Splitdorf Receiver Bakelite

Materials are used for more than fifteen parts, including those listed below:

Sockets—Terminal Strips—Terminal Strips for Power Pack—Coil Forms—Variometer Forms—Transformer Terminal Strip—Volume Control Form—Potentiometer Form Shield—Insulating Washers and Bushings—Deck Insulator Washers—Dial Light Socket—Coil Adjusting Strips—Fixed Condenser Strips—Audio Transformer Strips—Power Transformer Insulating Shield.

By making sure that the Receivers and Parts which you sell are insulated with Bakelite Materials, you go a long way toward assuring customer satisfaction.

Write for Booklet 39, "Bakelite in Radio."

BAKELITE CORPORATION

247 Park Avenue, New York, N. Y. Chicago Office: 635 West 22nd Street
 BAKELITE CORP. OF CANADA, LTD., 163 Dufferin Street, Toronto, Ontario, Canada

BAKELITE

REGISTERED

U. S. PAT. OFF.



THE MATERIAL OF A THOUSAND USES

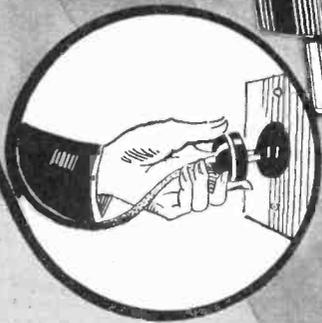
"The registered Trade Mark and Symbol shown above may be used only on products made from materials manufactured by Bakelite Corporation. Under the capital 'B' is the numerical sign for infinity, or unlimited quantity. It symbolizes the infinite number of present and future uses of Bakelite Corporation's products."

Cunningham

RADIO TUBES

*The AC way
is the modern
way*

C327



CX326



**New Cunningham
AC Tubes CX326 and C327**
are especially designed for use in the
modern AC house-current radio sets.
Stock these two types and sell them,
confident that they will improve recep-
tion with any type AC set.

E. T. CUNNINGHAM, INC.

New York

Chicago

San Francisco

Bremer-Tully

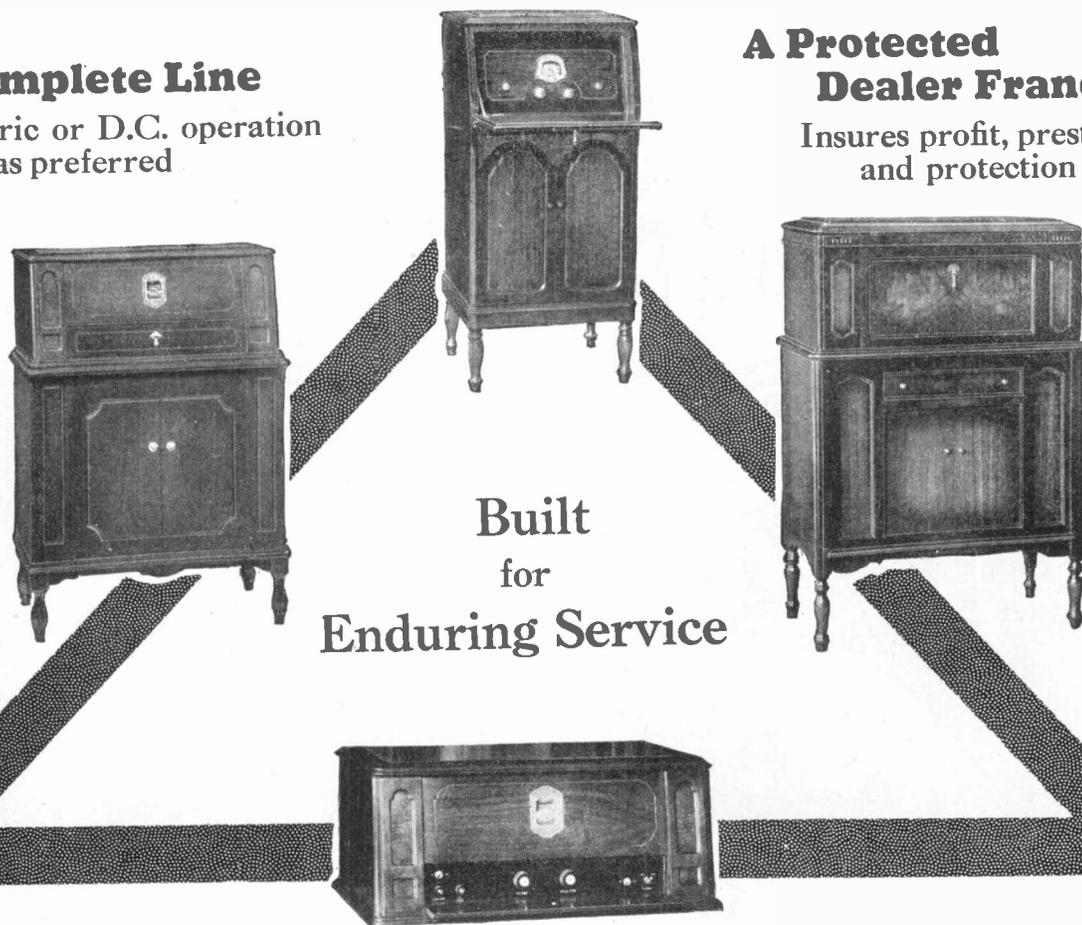
COUNTERPHASE RADIO

A Complete Line

A.C. Electric or D.C. operation
as preferred

A Protected Dealer Franchise

Insures profit, prestige
and protection



Built
for
Enduring Service

Odell, Texas.
Boys, I am proud of my
B-T Counterphase dealer
sign! No one has ever
beaten me in a demon-
stration yet and I go
up against all of them.
M. Radio Shop.

Indiana Harbor, Ind.
The B-T 6-35 Counter-
phase certainly can't be
beat for anywhere near
the price. Last Sunday
night in one hour, we
logged ten stations out-
side of Chicago, including
KOA Denver, while Chi-
cago stations were on.
M. K.

Columbia, Pa.
With the Counterphase-
Eight I put up in my
store, I have had no
trouble in tuning in any
station I tried for.
O. H. S.

Designed to give the greatest
satisfaction over the longest
period, Bremer-Tully Radio
offers greater economy than
any lower priced set.

Once sold it stays sold—it in-
sures the purchaser lasting sat-
isfaction and the dealer perma-
nent profit.

Every Bremer-Tully product
has been eminently successful—

has proved a good-will and
profit builder. *No name in
radio stands higher.*

Prove it to your own satisfac-
tion as others have by securing
the franchise for your com-
munity.

Letters from a few, representa-
tive of many more in our files,
are reproduced herewith.

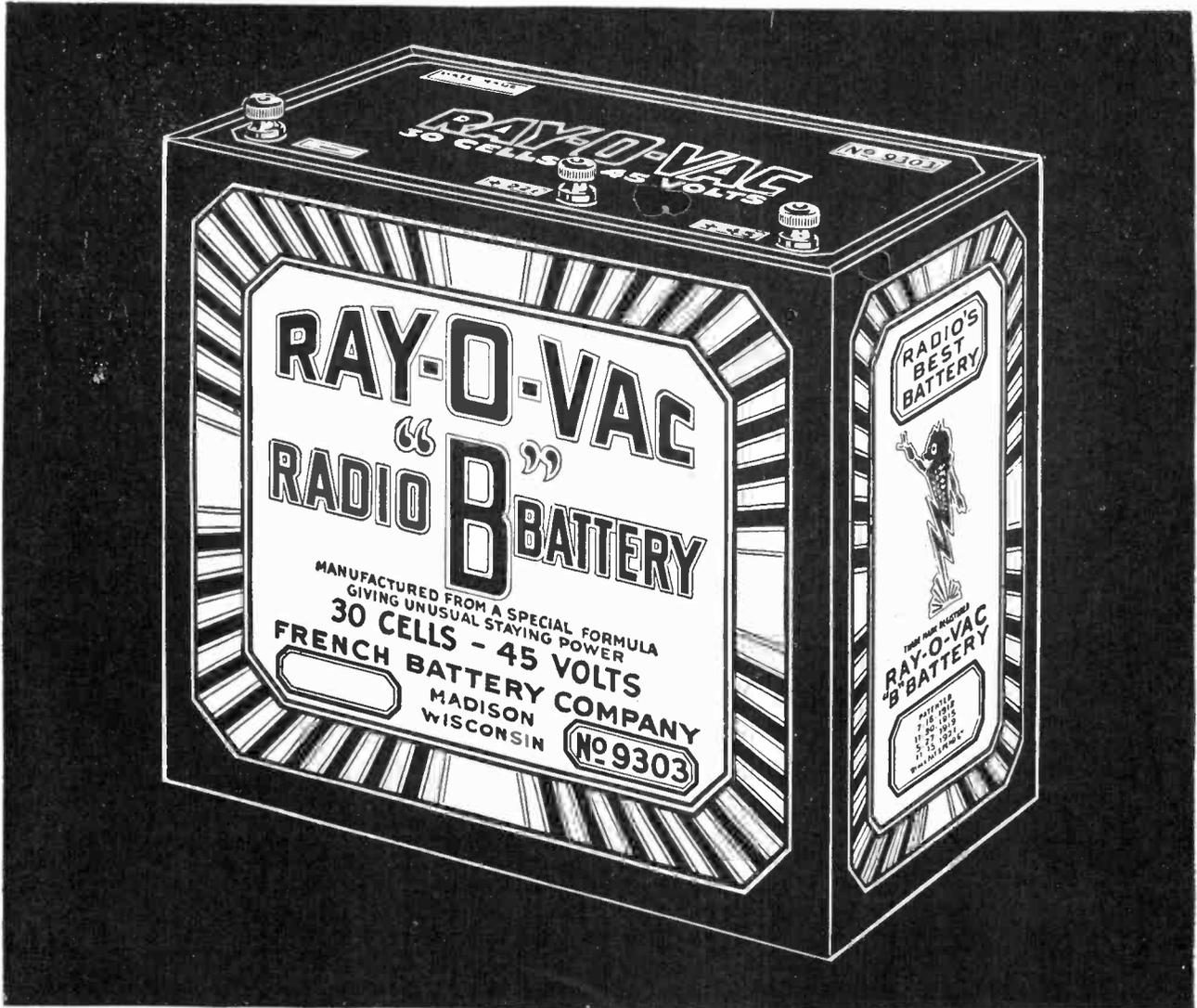
Atlanta, Ga.
Distant reception in this
territory is almost un-
heard of. Therefore, we
considered it very won-
derful when a Counter-
phase-Eight installed for
Mr. J. H. Branch turned
on at 12 o'clock noon
immediately picked up
Memphis so that the
music could be heard out
in the yard.
Immediately afterwards
W B O B Chattanooga,
WAPI Auburn, WJR De-
troit, and three other dis-
tant stations were heard.
A. S. Co.

Mishawaka, Ind.
Have sold three Counter-
phase 8-17 consoles—
they sure are a knock-
out and will out-perform
anything I ever have had
my hands on. Tone and
volume on distant sta-
tions is unbelievable.
Every B-T I have sold,
6's and 8's have received
Pacific Coast stations.
B. M.

*The Bremer-Tully dealer franchise is a valuable asset.
Write for details.*

Bremer-Tully Mfg. Company
520-532 So. Canal St. Chicago, Ill.

A radio program sponsored by Bremer-Tully
is broadcast by WGN each Tuesday at 7:30 p. m.



Is there Really a difference in radio "B" batteries?

THAT there is a difference, a very marked difference in "B" batteries, would be instantly apparent to you were you to remove the outer case of a Ray-O-Vac "B" and compare Ray-O-Vac construction with the construction of any other radio "B" battery.

In the Ray-O-Vac, you would see the individual battery cells neatly placed in separate pockets, while in others you would find the cells encased in a solid block of hardened pitch.

But what effect on performance has this difference in design? . . . Just this: The life of a battery is directly affected by temperature. You would not think, for example, of placing a battery on a hot stove. The heat increases the chemical action in the cells, wastes electrical energy and reduces the battery's life.

That hardened pitch you see in most "B" batteries was poured around the cells a seething, molten mass, requiring hours to cool. Unavoidably, this hot pitch steals a share of the battery's useful life!

Ray-O-Vac accomplished an unprecedented forward stride in "B" battery design when it perfected the patented Ray-O-Vac Cell-Pocket construction, eliminating the objectionable feature of a pitch covering!

Here, indeed, is a distinctly different and really better "B" battery to offer your customers. Thousands of dealers throughout the country are capitalizing on the Ray-O-Vac exclusive cell-pocket feature, building up a profitable repeat battery business through the better reception and longer serv-

ice that come with Ray-O-Vac construction.

Ray-O-Vac "B" batteries are backed by a strong national advertising campaign. Full pages in color in *The Saturday Evening Post* and *Country Gentleman* and extensive newspaper advertising are building up strong demand for Ray-O-Vac. Order from your jobber.

FRENCH BATTERY COMPANY
Madison, Wisconsin

Branches:
Minneapolis, Kansas City, Atlanta,
Dallas, Chicago, New York, Detroit,
Pittsburgh, Denver, Boston, Los Angeles

Also makers of Ray-O-Vac "A" and "C" Radio Batteries, Ray-O-Vac Flashlights and Batteries and Ray-O-Vac Ignition Batteries

RADIO IS BETTER WITH BATTERY POWER

3 things *necessary* to Successful Radio Merchandising in 1928

Full Natural
Tone Quality of
"Concert" Caliber

Charm and
Distinction
as Furniture

KELLOGG
A-C Radio
has them all!

True
A-C Tube
Operation

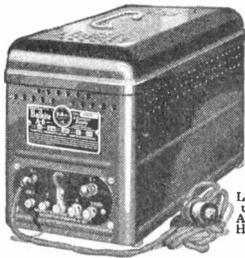
It stays sold and sells others

Increased production for 1928 enables us to offer real profit opportunities to distributors and dealers in new territories.

Applications are now being considered.

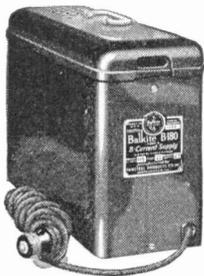
KELLOGG SWITCHBOARD & SUPPLY CO.
Dept. 54-72, Chicago

Your radio profit for the rest of the season must come from this accessory

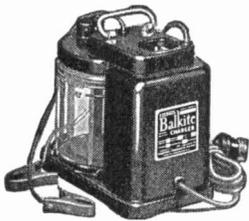


Licensed
under
Andrews-
Hammond
patent

Balkite "A" Contains no battery. The same as Balkite "AB" but for the "A" circuit only. Not a battery and charger but a perfected light socket "A" power supply. One of the most remarkable developments in the entire radio field. Price \$35.



Balkite "B" One of the longest lived devices in radio. The accepted, tried and proved light socket "B" power supply. The first Balkite "B," after five years is still rendering satisfactory service. Over 300,000 in use. Three models: "B"-W, 67-90 volts, \$22.50; "B"-135, 135 volts, \$35; "B"-180, 180 volts, \$42.50. Balkite now costs no more than the ordinary "B" eliminator.



Balkite Chargers

Standard for "A" batteries. Noiseless. Can be used during reception. Prices drastically reduced. Model "J,"* rates 2.5 and .5 amperes, for both rapid and trickle charging, \$17.50. Model "N,"* Trickle Charger, rate .5 and .8 amperes, \$9.50. Model "K," Trickle Charger, \$7.50.

*Special models for 25-40 cycles at slightly higher prices

Prices are higher West of the Rockies and in Canada

After the first of the year the best sellers in radio are accessories. Particularly radio power units.

This year, however, the market for radio power units has been greatly changed by the demand for AC sets. This demand has made most radio power units obsolete.

Most, but not all. The exception is Balkite Electric "AB." Containing no battery in any form, Balkite Electric "AB" converts any receiver into an AC set, without chargers, without "A" batteries, without "B" batteries, and operating only during reception. Instead of having been made obsolete by the demand for AC sets, it has been made more popular than ever before.

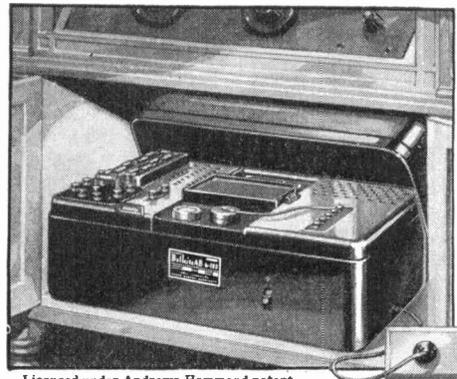
It is therefore to Bal-

kite Electric "AB" that you must look for your sales volume and profit for the rest of the season.

The demand for AC reception is so enormous that the volume of business Balkite Electric "AB" will bring you is entirely a question of how thoroughly you go after the market. Every owner of a good battery set is a prospect. Get before him the story that Balkite Electric "AB" will make his set a modern, up-to-date AC receiver, equal

in performance to any receiver on the market. Work out a systematic method of getting in touch with set owners, and put it into effect at once. It will produce sales and profits for you.

Ask your jobber.



Licensed under Andrews-Hammond patent

Balkite "AB" Contains no battery

A complete unit, replacing both "A" and "B" batteries and supplying radio current directly from the light socket. Contains no battery in any form. Operates only while the set is in use. Two models: "AB" 6-135,* 135 volts "B" current, \$64.50; "AB" 6-180, 180 volts, \$74.50.

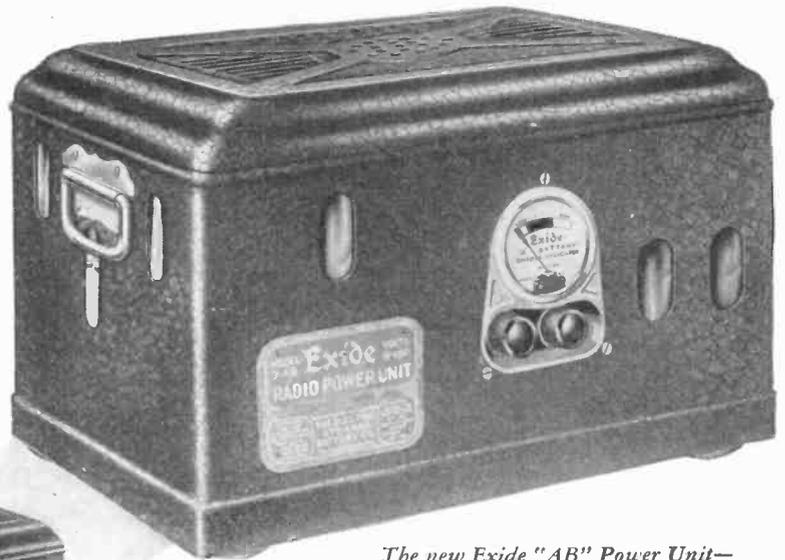
FANSTEEL PRODUCTS COMPANY, INC., NORTH CHICAGO, ILLINOIS

FANSTEEL

Balkite

Radio Power Units

Get the Business that this UNIT is made for



The new Exide "AB" Power Unit—
with socket power operation. "B"
voltage up to 180.



The new Exide "B"
Power Unit—ready
to supply vigorous,
sustained "B" pow-
er to any size set.



Exide "A" Power
Unit—in 6-volt
and 4-volt sizes.



Standard Exide 6-
volt "A" Battery—
also in 4-volt size.
Rugged—built in
one piece.

Exide

RADIO BATTERIES



Exide 48-volt "B"
Battery with glass
cells. 6000 milliam-
pere-hour capacity.
Also in 24-volt size.

*Read why the "Exide AB" Power Unit
appeals to your quality customers*

YOUR best business is with the real radio fans. They want the finest and are always willing to pay for it.

These are the people who will be instantly interested when you demonstrate the Exide super "AB" Power Unit. Exide has outdone itself in this remarkable achievement in socket power. This unit has plenty of power for any size set—three tubes or ten tubes. For really fine reception, there's nothing equal to it.

The Exide "AB" Unit is built on advanced storage battery principles—the latest development in Radio Power engineering—the product of Exide's forty years of experience in making dependable batteries. This simple, rugged and beautiful unit surges with steady, automatic power.

Our advertising has been pounding home these points. It has also told people about the rest of the profitable Exide line—the Exide "A" Power Unit, the Exide "B" Power Unit, the Exide "B" Battery, the Exide "A" Battery. Be sure your stock is ready when people come looking for the best.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia

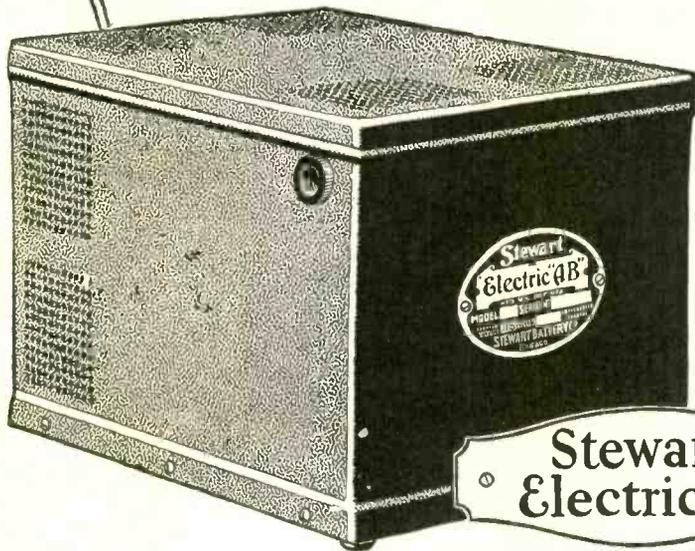
Exide Batteries of Canada, Limited, Toronto

Now - for all time

Electrify

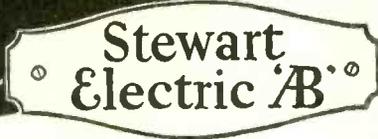
any Radio
with the famous

Stewart Electric 'AB'



and sell your Customers
**GUARANTEED
ALL-ELECTRIC
OPERATION**

The Stewart Electric "AB" is fully guaranteed in writing—it will give you all you can possibly demand in permanent Electric operation—with standard time-proven Tubes.



all Dry!

THE Stewart Electric "AB" gives a dependable and reliable D. C. current without batteries, acids, liquids, or special A. C. tubes in the set—an *all dry* unit. It operates standard tubes, inexpensive to replace, now used in sets most efficiently. It supplies an even, constant, hum-free power when you want it as long as you want it. Operates on and off from the radio set switch.

Sets equipped with Stewart Electric "AB" will prove by all tests to be the most satisfactory and quiet method of ALL-Electric Radio Operation.

Install Stewart Electric "AB's" in battery-operated sets of your old customers, thus converting them into ALL-ELECTRIC sets. No re-wiring or changes of tubes necessary for the installation of the Stewart Electric *All-Dry* unit.

not a battery
not an eliminator
not a socket power
not an AC tube



Stewart Electric B



Stewart Electric A

STEWART COMPANY
125 North Peoria Street
CHICAGO

STEWART COMPANY
125 North Peoria Street
Chicago, Illinois

Gentlemen:

Please send me, without obligation on my part, complete literature on the Stewart Electric "AB."

Name

Address

City

Jobber Dealer

THERE is no selling argument in your salesman's vocabulary stronger than—"Cabinet Work by ADLER-ROYAL."



This "Jewel Casket" cabinet, fashioned from the choicest burl walnut, and exquisitely finished has proven the season's popular choice. The front door panel opens down to form an attractive desk, and a lift top makes the chassis conveniently accessible. Height 39½ inches, width 30¾ inches, depth 14¾ inches.

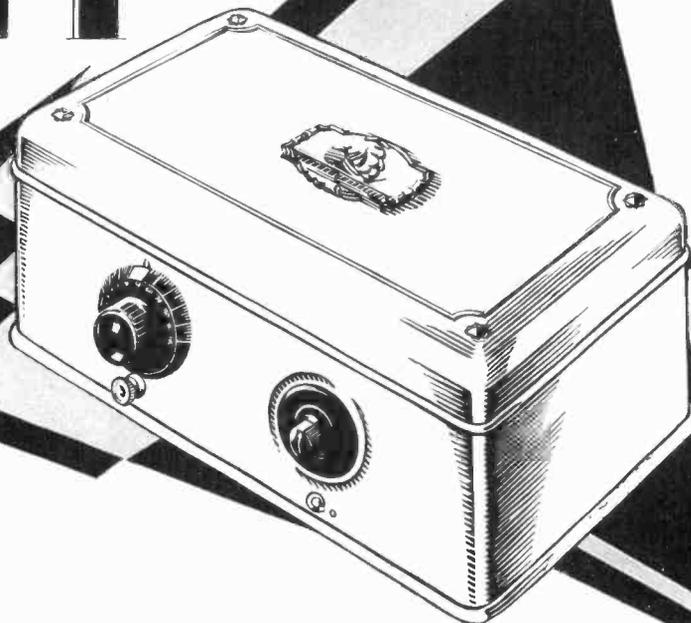
*Special Adler-Royal Console
for RADIOLA 17
for ATWATER KENT 37*

Designed by Adler-Royal craftsmen especially for A.C. Sets. The leaders say Adler-Royal cabinets contribute a noticeable sales advantage to the sets which they enclose. Give your dealers this sales help.

ADLER
Manufacturing Co.
Incorporated
LOUISVILLE  KENTUCKY

Your nearest R.C.A. or Atwater Kent Distributor can supply you, or write to us.

ATWATER KENT RADIO



Making history

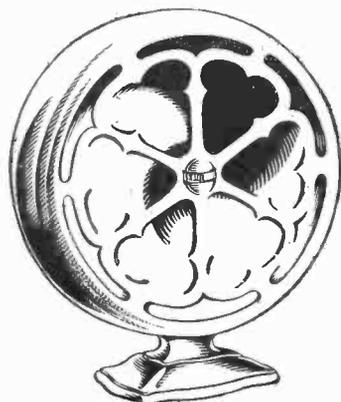
THE smashing radio hit of the year—the new Atwater Kent A. C. Sets.

People who went without radio until A. C. operation could be perfected are flocking in to buy the new Atwater Kent.

People who tired of caring for batteries are buying it to replace their old sets.

Sell them a *second* set

People who wanted a *second* set, for another



**Model E
Radio Speaker
\$24**

Radio's truest voice. All parts protected against moisture. Comes in a variety of beautiful color combinations.

Model 37 The astonishing price of the new, six-tube, FULL-VISION Dial, self-contained A. C. set includes everything except tubes and a speaker. No power accessories required—no batteries, no charger. For use only with 110-115 volt, 60-cycle, Alternating Current. Uses six A. C. tubes, and one rectifying tube.

\$88
without tubes

part of the house, so that different family groups could listen to different programs, are finding the new set exactly what they hoped for.

Here's a new market—the *second* set idea! It will pay Atwater Kent dealers everywhere to exploit it.

The price is so low that your customers can have two sets for what they may have expected to pay for one.

*Atwater Kent Radio Hour every Sunday night
from 23 Associated Stations*

ONE Dial Receivers listed under U. S. Patent 1,014,002
Prices slightly higher West of the Rockies

ATWATER KENT MFG. COMPANY
A. Atwater Kent, President
4733 Wissahickon Ave. Philadelphia, Pa.



Radio Retailing

The Business Magazine of the Radio Industry

McGraw-Hill Publishing Co., Inc.
JAMES H. MCGRAW, *President*
EDGAR KOBAK, *Vice-President*

EARL WHITEHORNE
Editorial Director
WILLIAM C. ALLEY
Managing Editor

Vol. 7

FEBRUARY, 1928

No. 2

Is "Wired Wireless" Dangerous Competition?

NO LONGER can the radio industry "laugh off" the approach of so-called "wired wireless," meaning the transmission of entertainment into the home over the electric light or telephone wires. Heralded and discussed for several years, this new development is now rapidly taking practical form. So far it has been conversation. In a short time, it will become actuality.

When it does become a widespread reality, it is going to hurt radio sales. It is definitely competitive to radio. So the radio industry, in self defense, must plan to meet it.

Radio men have been sitting back in their easy chairs, confident and complacent that no one else could bring the same service of entertainment into the home. But that situation is now definitely changed.

The telephone companies up to now have not been concerned with radio. The electric power companies are keenly interested because both A.C. sets and chargers bring them added load and revenue. But "wired wireless" purposes to bring both of these public utilities into the field of entertainment as competitors with radio.

ALREADY certain prominent operating companies are perfecting plans to offer to the communities they serve an entertainment program parallel to that which radio now brings. But it must be remembered that, so far as the electric power companies are concerned, alternating current space radio receivers are a definite and important source of revenue. Whether many of these companies will be willing, generally speaking, to discard that revenue and embark upon the untried venture of "wired wireless," remains to be seen. Undoubtedly, some companies will believe it more profitable to take up "wired wireless," while others will prefer to promote their A.C. revenue.

In any case, whether it be taken up by the telephone companies or the power companies in any given community, the service will be practically parallel to that offered by radio. But in one vitally important factor it will not be parallel. Such a service will be a complete monopoly. For the power company or the telephone company, as the case may be, will rent the receiving equipment to its customers. This will result in a radical curtailment of radio sales in those communities where "wired wireless" is put into practice.

Reports from several towns in the West and Middle

West where "wired wireless" has been tried out are not encouraging for radio. Radio sales have suffered, and suffered sharply, in those communities. What is happening there may be indicative of what may happen universally if the radio industry permits itself to be supplanted in the public interest.

UNLESS—the radio industry pulls itself together and mobilizes its forces to meet this real and apparently imminent competition.

SEVERAL things should be done to protect the radio industry in this situation:

First—Space broadcasting must be made so appealing and so essential to the American people that no competitive service can compare with it. To further that purpose, every manufacturer and association deriving sustenance from the sale of radio apparatus should contribute in some way to broadcasting, for a great part of radio's leadership will depend upon the unexcelled quality of its broadcast programs.

Second—The superiority of radio's service must be thoroughly impressed upon the public mind. Popular advertising by every radio manufacturer and trade association must be inaugurated and maintained. The American public must be told about the desirability of radio over every other means of home entertainment. Quality of programs, variety of choice, strength of signals, clarity of reception, the thrill of distance, ease of operation, diversification of service—music, news, sports, information, education, national events, politics—all must be interpreted as available through radio, and radio alone.

Third—A continuous supply of information—news, NOT publicity—must be directed to the newspapers of the nation, supplementing the advertising service.

Fourth—"Wired wireless" should become the subject of intensive study on the part of the radio industry. Let us see where and how it may be utilized to advantage and profit by those already engaged in the manufacture and sale of radio apparatus. Perhaps this new service can be developed into an expansion of the radio industry, as a supplementary service. For, after all, the basis of the radio industry is entertainment, and equipment evolves with progress.

Radio created and brought into the world a great service of home entertainment. The radio industry must maintain its leadership in this expanding field.

The 4 R's of



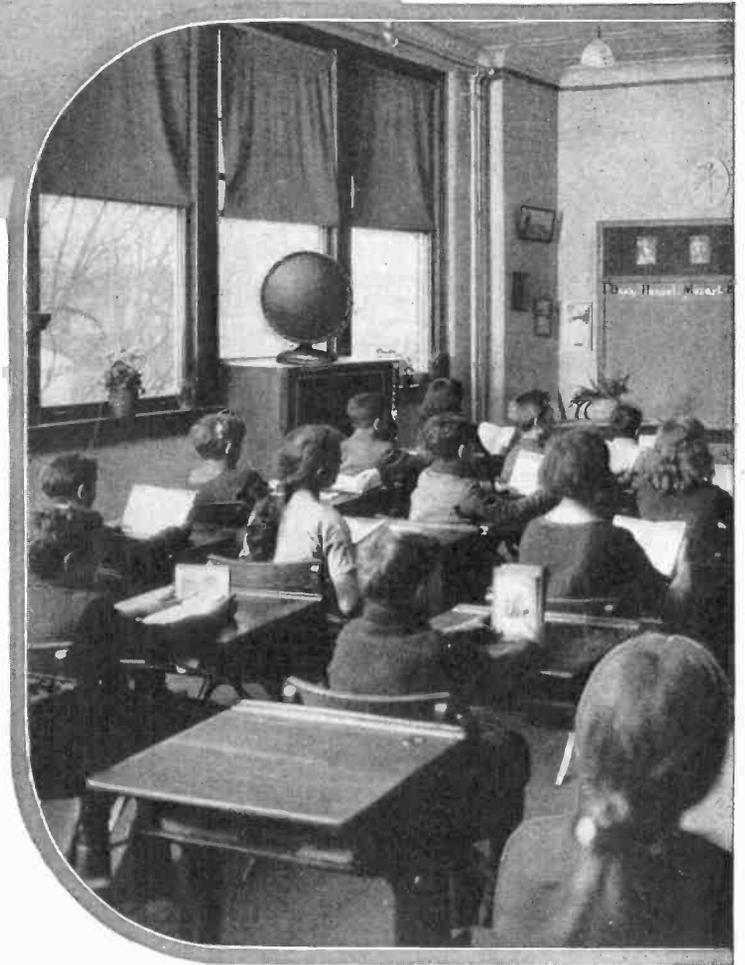
THE fourth R has been added to the time-honored three R's of education by the introduction of radio into the public schools. And this fourth R is proving to be an adjunct in every sense of the word to the already-existing methods of modern education.

Lectures in English, drama, art, debating, history and the sciences are being broadcast specially for the schools as a daily part of the class-room work while talks and recitals are serving both as inspirational and cultural supplements to these programs.

In Chicago, special courses are being taught in the city schools through station WMAQ. Music and penmanship have been taught in the schools of Oakland, Calif., from station KGO, and similar use of radio is being made in Los Angeles. In many other schools throughout the United States radio is used for musical entertainment purposes alone.

But perhaps the most outstanding instance of the introduction of radio into the public school educational system is the recent equipping of each of the 72 public schools in Atlanta, Ga., with a radio set and amplifiers. With this equipment 50,000 grammar and high-school students are thereby enabled to listen in daily to educational and cultural programs broadcast by their instructors and fellow students from the *Atlanta Journal* station, WSB. Furthermore each of the schools is allotted a certain number of days during the year to provide the program, thus offering the opportunity for all of the students, as well as the instructors, to participate in appearing before the microphone as well as listening in to the others. And the value of radio as a means of lending new interest in instruction, developing self-assertion on the part of students and stimulating healthful competition among the various school units has already proved itself to the Atlanta school authorities.

Here is an opportunity for accomplishing, at once, a public service and a tremendous advertising and mer-



chandising project. An opportunity which, regrettable as it is, lies dormant today in many cities and towns throughout the country.

WHAT was accomplished in Atlanta, Ga., can be carried out in any city or town in which there are public schools, nearby broadcasting stations—and a live-wire radio merchant who sees the usefulness and service of radio in a broad way and who can set himself up as the contact man between the local Board of Education and the nearest broadcaster.

Wednesdays and Fridays, and high schools on Tuesdays and Thursdays.

At the beginning of the school year, the supervisor of radio for the elementary schools and the supervisor of radio for the high schools outline the work for the year, giving each school a place on the radio program and notifying each principal far enough in advance so that he can have the details arranged in plenty of time. Then the details of the week's program are left largely up to the school authorities, subject to the approval of the radio supervisor and the superintendent of schools.

FOR the elementary school, the week's program is divided into three parts. On Monday, its program is for the fifth and sixth grades; on Wednesday for the third and fourth, and on Friday for the kindergarten department, the first and the second grades. This calls for careful selection of the topics to be delivered.

For the fifth and sixth grades, the programs are largely musical, consisting of piano, violin and other instrumental solos, songs, and selections by groups of students from the school presenting the program. Bird songs were the "hit" of one such program, while a talk by a sixth grade student on a trip to Europe and an essay by another on "What the Fifth and Sixth Grades Can Do to Help Their School" illustrate the sort of material that is used for this part of the radio programs.

The program for the third and fourth grades is composed of simple stories, such as "Blue Beads," "The Dustman," and the "House That Children Built," as well as songs by individuals and groups, such as the "Cradle Song," "Indian Lullaby" and the "March of the Wooden Soldiers." While the Friday programs for the kindergarten, first and second grades are given over almost entirely to suitable songs and stories. The students themselves take the leading part in the programs and the schools vie with each other to see who can turn out the best program for the year.

Naturally, the high schools are allowed more freedom of expression. The students are older and are capable of presenting a more varied and a more interesting program. For example, one radio program was given over to a short talk by the supervisor of radio for the high schools, on the general subject of "High School Work." A "Constitution Program" was arranged and presented by the students of the William Bass Junior High School, with talks by students on "The Constitution of the United States," "The Constitution of Georgia" and "The Constitution of Our High School." While a "Citizenship Program," arranged by the Technological High School broadcast addresses on "Who Is a Citizen of the United States—Georgia—Atlanta?," "The Privileges and Responsibilities of Citizenship" and "The Americanization of the Foreigner in Our Midst"—the latter by one of the leading social service workers in the city.

Some of the programs are arranged for special classes

in the high schools, such as the health science classes, the home economics classes and the history classes.

Some music is included in every program to give variety and stimulate an interest in and a liking for music on the part of the students. But the effort of the directors of radio work is to present each time a well-balanced program—one that will give some real educational material, provide a reasonable amount of entertainment, and, above all, permit the students to express themselves over the radio.

All of the programs are "put on the air" from the studio of WSB at the Atlanta-Biltmore Hotel. And the programs are put on at the same time—10:30 a.m.—each day of school. At 10 o'clock the teachers and students taking part in the radio program are excused from regular class duty, and go to the Atlanta-Biltmore Hotel ready to present their numbers. A few minutes before the appointed hour, radios are placed in the proper classrooms at each elementary or high school, as the case may be. Every room in each school is wired to receive the radio set. Thus it is a simple matter to suspend classes for the thirty-minute broadcast in the rooms of the

classes for which the program is intended.

The use of the radio has been worked out to a fine point in the Atlanta public school system, and those in charge believe that it has great possibilities, not only for direct instruction, but for the development of latent faculties in the children. If a student has any talent as a speaker, dramatist, musician or essayist, performing before the microphone brings out the best of that talent that is in him.

Not many students are taken from their work—usually only five or six—to present a radio program. The period is only 30 minutes, and does not interfere with the regular work. On the other hand, this work has resulted in the development of a fine "esprit de corps" in the case of the individual schools as well as an equally fine spirit of competition between the various schools.

Thus the use of radio programs has acted as a stimulant to the teacher, the student and the entire school alike. And, while those in charge of the work realize that only a start has been made, they are certain that the experiment has been a success.

THIS important advancement in modern education has been due to the vision and foresight of the Atlanta Board of Education and the Atlanta *Journal* broadcasting station. The opportunity to introduce this step into other schools, on the strength of what has been done in Atlanta and other cities, belongs to the radio merchant. It is another chance to further intrench radio as a necessity in contemporary life and it is the privilege of every radio retailer in the country to bring to the attention of local educational authorities the desirability, if not the actual necessity, of radio equipment as part of modern school facilities.

It Can Be Done

WHAT has been done in Atlanta, Ga., can be done in any city in which there are public schools, a nearby broadcasting station and a live radio merchant who foresees the usefulness and service of radio in educational work.



The Four WOLVES of Business Expense

Sales, Service, Occupancy and Administration

FOR the past three years this publication has repeatedly stressed the necessity of controlling your costs if you want to preserve your profits. A few have heeded, many have not, a great many *will not*.

1928 promises to be a year of extreme competition. The race may not always be to the swift, nor the battle to the strong, but it is a "cinch" that economical management gives you the "edge" over your competitor, especially in an era of strong competition.

According to R. G. Dun & Company, there were 23,146 commercial failures in the United States in 1927 as against

An Editorial by
S. J. RYAN

21,773 in 1926, 21,214 in 1925, 20,615 in 1924, and 18,718 in the boom year of 1923. 1927, therefore, had

the largest number in five years.

By far the greatest percentage of these failures was due to poor management or lack of capital—and as every merchant knows, *good* management never lacks capital. A great business economist has said that 1928 will be a year distinguished by the successful progress of the businesses which learn to control their costs and the failure of those that do not.

Watch out for the four wolves of business expense—Sales, Service, Occupancy and Administration.

Control Them or Face Failure

Can The Music



By C. L. DENNIS

*Formerly Manager, Merchandising Service Department,
Music Industries Chamber of Commerce*

IT IS unfortunate that the increasing importance of radio in the retail music trade has not reflected either its increase or its importance on the profit side of the music dealer's ledger. The music dealer has not made money out of radio, if we are to accept such evidence as is available.

In my humble opinion, this lack of profit is due to two important factors which affect the music merchant more than they do others who handle radio. These factors are:

1. Service expense.
2. Too many lines.

Of course, these same factors eat up profits for all who handle radio, just as other factors which subtract radio profits throughout all channels, also affect the music trade to a greater or lesser degree. It is the purpose of this article to set forth the reasons why service expense and the scatterfire of mixed lines appear to have decreased the profits of the music merchant to a greater extent than they have the profits of the electric shop or the radio store.

These reasons have become more and more evident during the years of development of radio as a factor in

music merchandising, during which years the writer has had an opportunity to observe the manner of handling radio in the music store, from a national viewpoint. Undoubtedly the time has come for the music dealer to face his radio problems squarely and find out how to make radio show black instead of red on his books at the end of the year. Few dealers who have segregated their costs and know the facts relative to their radio departments are able to show real profits, and altogether too many of them show losses.

In order to explain why this is so, we must consider the attitude of the music dealer toward radio, and his reluctance to approach the solution of its problems. Few other dealers are better equipped by experience and environment to handle the purely selling problems. The merchant who has sold pianos and phonographs knows the appeal of home entertainment; his store provides the proper atmosphere for demonstrations; he knows the problems of instalment selling. He has not prepared himself, however, to meet the service problems as well as he could, and he has not yet brought to bear his fullest ability upon the choice of merchandise and the concentration of merchandising effort that would make

Trade *Make Money* *Out of Radio?*

Lack of service knowledge and spreading of lines two factors which have held back profits—what music merchant must do to make radio pay

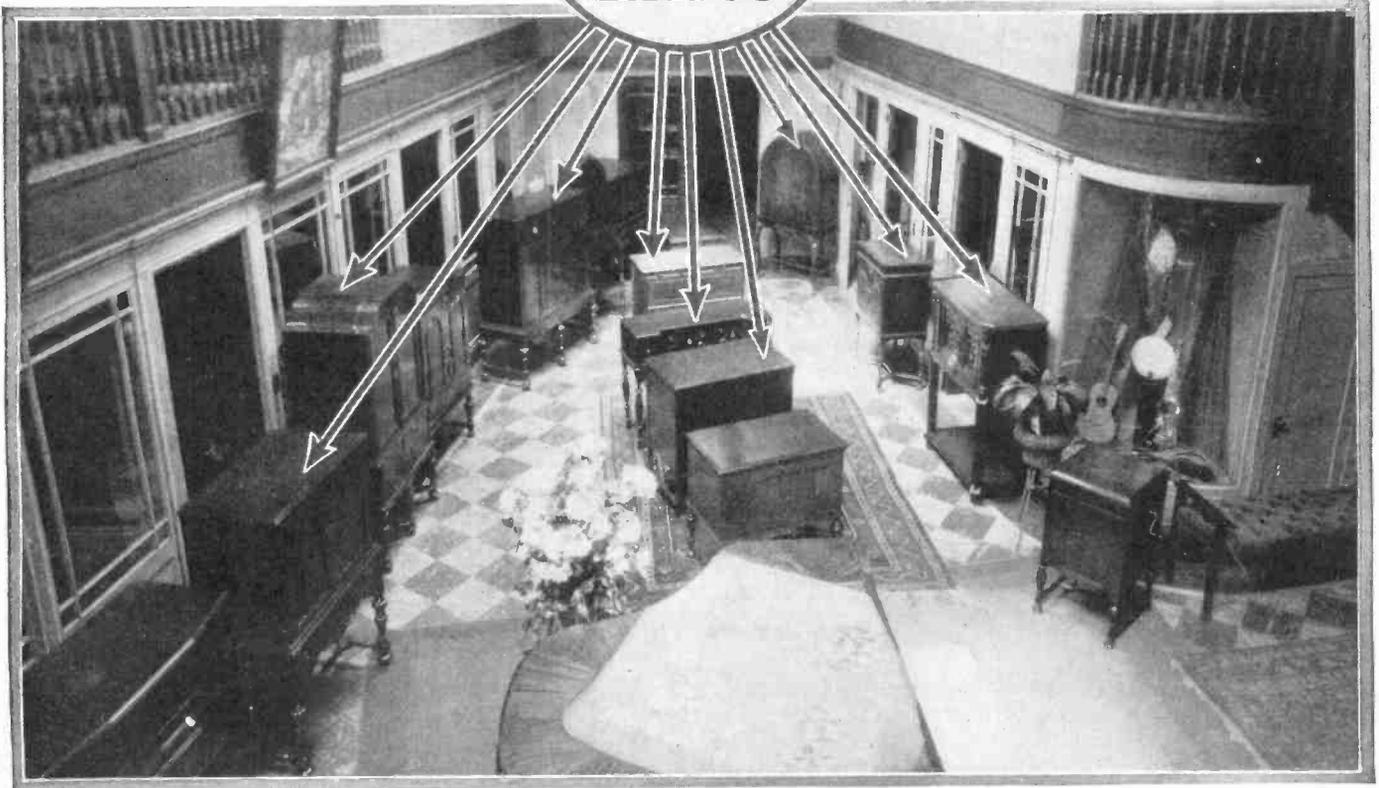
his radio sales pay better than they have in the past. This is due almost entirely to the reluctance on his part to accept radio as a major factor in his business.

For the most part, the music trade regarded radio as a baby laid upon its doorstep. In the beginning the older members of the trade looked upon it with varied feelings of distrust and repugnance. The younger members viewed it with more tolerance, some with enthusiasm. A very few opened their arms to give the new baby a cordial welcome. Where, five years ago, not more than 25 per cent of music dealers had accepted radio as part of their business, today we find about 90 per cent of them handling radio—many of them in a limited way, it is true. Now that nearly all music stores, as we know them, have accepted radio, on sufferance as it were, the problem is to make it pay. We may consider it settled that the music store now regards radio as an important part of its stock in trade, reluctantly perhaps, but finally. Outside of a few in the biggest cities, there are

scarcely any stores carrying pianos, phonographs or band instruments which have not adopted the new baby. True, he has kept many members of the family awake at night, but he has proved a hungry youngster and pushed himself to an important place near the head of the table. He has not been a paying guest. He has promising traits, however, and is now a member of the family, with great hopes for his future.

How thoroughly the music trade has accepted radio as a factor is indicated by the resolution passed by the National Association of Music Merchants in convention in Chicago last June, to the effect that "radio devices capable of receiving and transmitting music or musical sounds be regarded as musical instruments, and that any individual who is actively or legitimately engaged in the retail radio business at established retail warehouses, whether as owner, partner, or member of a firm or corporation or company, or as a manager of a department of such firm or company, may apply for

9
different
Lines



membership in the National Assn. of Music Merchants."

It is to be recalled that this association formerly had as its name, "Piano Merchants of America." Its membership represented the cream of the music trade of the country, and it still does. The stress that is laid upon the piano in the music trade is due to its basic position in music. It is the piano man who has elected himself as the guardian of the inner portals. Even now he challenges the value of radio to the music store. The piano man has been reluctant to take on allied lines of musical merchandise since time immemorial. He has not been cordial toward sheet music, or band instruments, or small goods. He was vigorous in his opposition to the phonograph, just as he has resisted the introduction of radio.

The "piano man" is a specialist. He may have sold sewing machines in bygone years, but he became a specialist three or four decades ago. You may not believe it, but the piano specialist actually did wear a high silk hat in those days. Yes, he did. Ask dad, he knows! Tradition is hard to kill. The piano man regarded first the phonograph, and then the radio, as interlopers. Later it came to pass that piano warerooms, with very few exceptions, all carried phonographs. The exclusive talking machine shop has become the exception, rather than the usual thing, during recent years. The piano and the phonograph came to be sold side by side in the music store. It is the piano man who has held out longest against innovations.

"DOES RADIO BELONG?"

RADIO burst into the picture very suddenly, and without apology or explanation. The music tradesman's first question was:

"Does it belong?"

Radio broadcasting, less than five years ago, did not have today's high-grade musical programs to commend its receiving sets to the music store, any more than the talking machine in its beginning had the voice of Caruso to set it above the level of a toy. Both were novelties, not to be tolerated in the dignified atmosphere of the piano warerooms. This is enough background to explain why the music dealer has not made as much money out of radio as he should, if, indeed, he has made any money out of it at all. He simply went at the handling of radio in a left-handed way, without any enthusiasm for the job. He did not have the incentive for pushing radio, it must be admitted, either in the margin of profit that he was used to, or in the immediate likelihood of its helping his other lines. For example, there is the challenging attitude of a friend of mine—"from Missouri"—who makes this demand:

"Show me the piano man who has made money out of radio!"

It's his own fault, perhaps, if he has not made money, because my friend hedged a little, and said:

"Well, of course, there's So-and-so, and George Blank, and perhaps three or four others." The names he

mentioned were those of music store proprietors who might be expected to show profits—they are natural money-makers who would be likely to make any business pay which they got into. I might have picked out a few names like my friend did, probably for the same reasons, had it been up to me to answer his demand for profit-makers in radio.

There is something significant in his reference to the "piano man" instead of the music store. The attitude of the old school piano man toward radio may furnish a definite reason why the music trade as a whole has not made money out of radio. He has looked upon it

until recently as an incidental thing, only to satisfy a certain few of his customers, and has not regarded it as important enough to command his thorough attention, either as to service or choice of stock. These two factors might be just as important to any other radio dealer as profit-eaters, as they are to the music dealer, but the latter has not looked upon them hitherto as vital to his scheme of things.

Few music dealers will be inclined to admit that their indifference to the special problem of service in their radio departments is responsible for losses, or that carelessness in choosing stock has had anything to do with it.

No, indeed! The average music merchant will have the ready answer that discounts are not large enough. He may be right. That is an old issue which is inherited from the phonograph field. The record tells us that bigger discounts were necessary to reward the dealer as his sales resistance increased. The manufacturer, however, is concerned chiefly with the dealer discount only to the extent that he wants to maintain an established value in the mind of the ultimate customer. The manufacturer wants his dealers to make money—but he does not want to hold up his advertised list prices as a mark for the price-cutter to shoot at. There will be questions of discounts as long as we have list prices which the sharp-shooting retailer can cut.

What then, can the music dealer do to create for himself a margin of profit in keeping with the volume of radio business which has become so great a part of his gross sales?

SERVICE AND CHOICE OF LINES

IT IS my opinion, formed after a close association and opportunity for observation in the music trade, over the entire period of development of the radio business, and throughout the entire country, that the answer to the music dealer's problem of radio profits lies in the careful supervision of the two important factors mentioned at the beginning of this article—service and choice of lines.

Let us take up first the service factor.

The piano man has had in past years the service problem of an instrument of sturdy construction, with its qualities built in, and not largely influenced by outside

Please turn to page 68

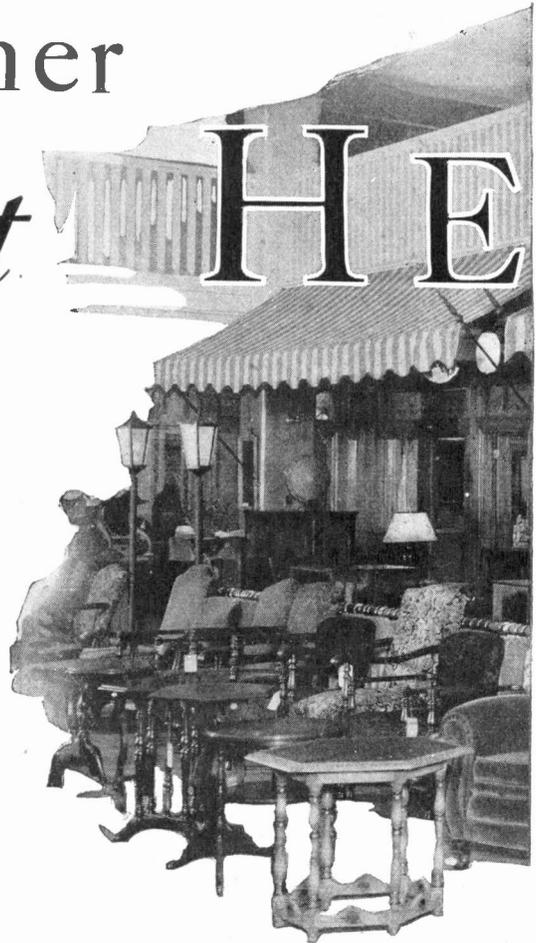
"Selling Radio Profitably Is a State of Mind,"

says C. L. Dennis, formerly of
the Music Industries Chamber of
Commerce.

"The music merchant," he says, "will make money out of radio as soon as he ACCEPTS it as one of the family. Not until his attitude, particularly the piano man's, changes from hostility to friendliness, will the music merchant become a successful radio merchant."

"Sell *the* Customer *What* HE

"Find out what is in the prospect's mind and sell him that," is the radio sales philosophy of this California store.



THERE are many methods of merchandising radio sets, but in the opinion of William Cross, manager of the radio department of the Jackson Furniture Company, Oakland, Calif., there is only one fundamentally correct way of merchandising them and that is on the basis of "selling the customer what the customer actually wants to buy." "What they want," he says, "can always be ascertained by adroit questioning early in the sales conversation."

Mr. Cross states that there are five main requirements which the customer looks for when he buys a radio set and lists them in the following order of their importance in the customer's mind. They are:

1. *Programs available.*
2. *Performance.*
3. *Reputation.*
4. *Service.*
5. *Cabinet beauty.*

"There are other points, of course," he continues, "as a basis upon which radio can be sold and has been sold, such as cut-price sales, but to my mind they are not the fundamental ones and only serve to confuse the customer and break down your merchandising structure in the long run.

"When selling a set on the basis of the programs available it does not pay, as in many other cases of selling, to make your statements too specific. The salesman would do unwisely to start out by praising the programs of a particular station. That might be just what the customer does not like. Ask the question 'What have you heard over the air recently which you liked,' and then follow up that in-

terest. It is surprising to find that the most unexpected people are buying radio sets in order to hear athletic contest reports, or to listen in on the symphony concert. It is not safe to judge by appearances."

One of the methods used to advertise the radio department of Jackson's is to give concerts by well known artists with whom the public is familiar either over the air or through phonograph records. These concerts are advertised in the newspapers and bring tremendous crowds, effectively stopping business in the rest of the store on some occasions. The artists on such events

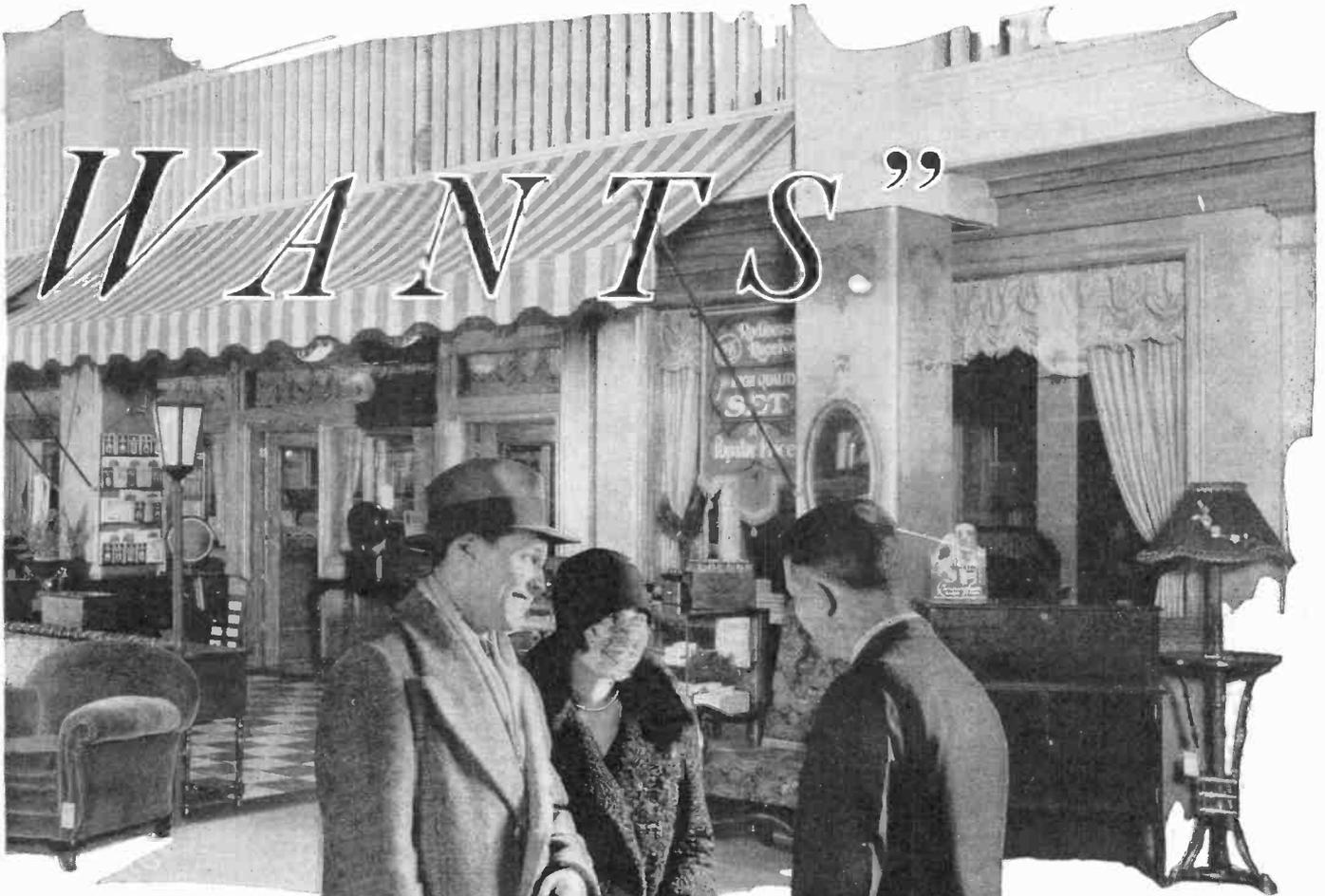
perform on the "piazza" of the radio department, under the awning, the audience occupying the conveniently placed chairs and davenports of the furniture section. The securing of this really worth while talent has helped to give Jackson's radio department the outstanding position which it holds in the East Bay district and it is felt has amply repaid its cost.

There Are Five Things

which a customer looks for most in a radio set, the Jackson Furniture Company believes. They are:

1. Programs available.
 2. Performance.
 3. Reputation.
 4. Service.
 5. Cabinet beauty.
-

"ALONG with programs available," continues Mr. Cross, "the customer is looking for performance because, they rightly argue, what good are fine programs if my set will not bring them in properly. Performance—and that means sensitivity, selectivity and tone quality—might not be so essential if all programs were first



class and within easy reach of every receiver. But, broadcasting has not yet reached the point where all programs within reach of any kind of a receiver are worth listening to and the customers know this.

"The next thing in importance in the customer's mind is quality—a standard set—and a store should never for a moment relax its policy on this score. The set must be absolutely reliable, not only from the standpoint of building up a reputation with the customer, but because any set which does not give satisfactory service is a trouble maker to the service department and runs up overhead enormously. The public soon discovers what they want and will not buy poor quality apparatus, with the result that any retailer who makes a mistake in purchasing is likely to find that a good share of his merchandise remains on his own shelves.

"The matter of courteous service is axiomatic—for indeed, the choice of a store from which radio is purchased is largely decided by the reputation for courteous service which it bears. If the customers are made to feel that they are treated generously throughout, they will respond by not asking unreasonable service and by promptness and friendliness in their business dealings."

THREE months' service is given free by the Jackson Furniture Co., but after that a charge is made for every call, although the charge in many cases is below actual cost and designed to make a friend for the store rather than a profit. The minimum charge is about \$1. A very careful record is kept of every detail of a service call because it is found that the customer is more apt to question this charge than any other transaction with the store. A standard form is used listing all

operations which the service man is likely to be called upon to perform. On this form he notes the hour of his arrival, and of his departure and exactly what service he performed, checking the materials he supplied. These forms are turned in each day and filed according to the serial numbers which they bear.

EACH customer, in the meantime has a card filed alphabetically in a card catalog on which is noted the number of each sheet bearing data on service calls. Should any complaint come in from a customer, it is just a moment's time therefore, to look up the card, and then the service record. In addition to the physical details of his visit, such as hour and materials purchased the service man has been instructed to note other details, such as the fact that the housewife was not at home, but that his work was overseen by a servant and so on. This makes it possible to settle all questions without the time and expense of checking up again with the man who performed the work. The record has been of complete satisfaction, both to the department and the customers.

The combination of radio cabinets with other home furnishings has given opportunity for field work of a special type. A corps of men is kept continuously busy following up the owners of new homes and other real estate and news tips which would indicate prospects for furniture. Many a tip for the radio department is secured in this way. And, of course, the salesmen in the main body of the store are instructed to bring up the matter of radio to their customers who are making a general purchase. Such customers are turned over to the trained salesmen of the radio department, however, when it comes to actual sales. For the best results, in the opinion of all concerned, are obtained when the radio department advises the customer on a radio set as a piece of furniture at the same time he is helping him select it as a musical instrument.

NO SALES have ever been held in the radio department, whatever else may be done in other departments of the store. This is the pitfall into which department store and furniture store departments are likely to fall, according to Mr. Cross. The fallacy of

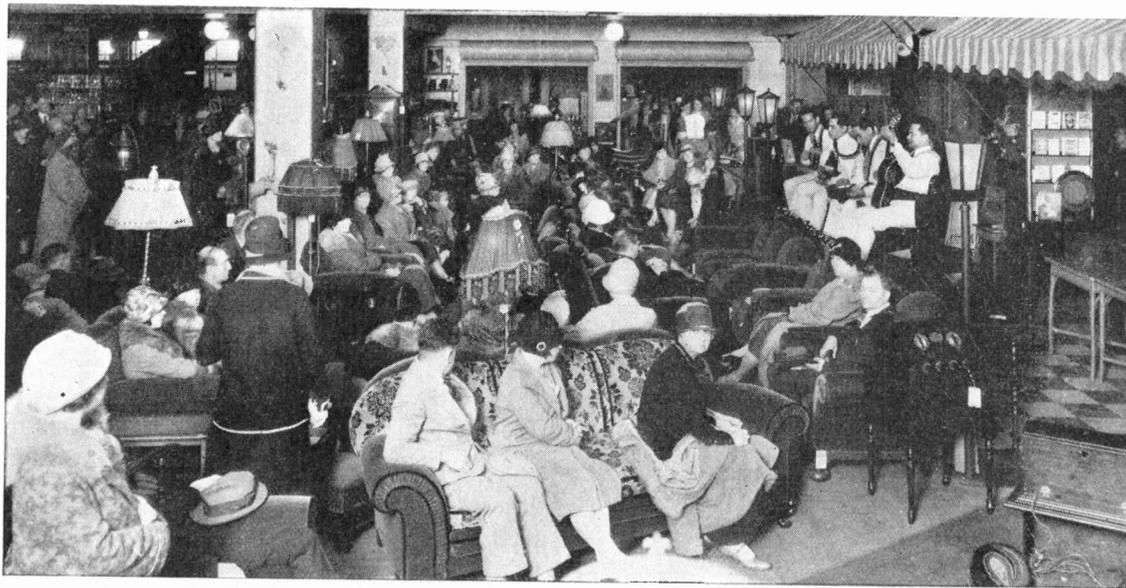
volume sales as an offset to cut prices is deeply imbedded in the department store consciousness, but however effective for other lines, it does not work with a standard article such as radio. The public's reaction to a sale in radio sets, is to question the price at which they were sold originally. Furthermore, they very often withhold buying in natural buying periods waiting for the announcement of reduced prices. Any radio merchant who indulges in sales is simply laying up trouble for himself.

Another principle of the radio department which has done much to establish its reputation with the public for courtesy and honest dealing and which is responsible above all else for cutting down the factor of "grief," is the rule not to oversell the product. "Tell the customer frankly what he can expect," says Mr. Cross.

"Tell him that tubes are an uncertain quantity, if such happens to be the case, and warn him that it is likely to cost him (naming the figure) for the upkeep of his set. There is no advantage in making a sale if the customer makes the purchase under a misapprehension as to what he can expect, either in programs, or in the expense of operation. On the other hand, no sale was ever lost by honesty. The customer respects the courtesy you are showing him in giving him all the information at your command—and when he makes the purchase he does it with his eyes open. There are no comebacks under such a policy."

THE department has adopted no set policy of time payments but has taken advantage of the store's system of charge accounts to adopt an elastic policy. While this sounds vague, it is really operated on very definitely understood principles. The foremost of these is to secure as large a down payment as possible. By allowing the customer to state his own terms, generally a very much more favorable contract to the store is arrived at than were some fixed policy adopted, designed to meet the needs of the least affluent purchaser. Customers usually pay up in from two to three month's time under these arrangements.

This again is giving the customer "what he wants" but in a way that is in keeping with good merchandising principles.

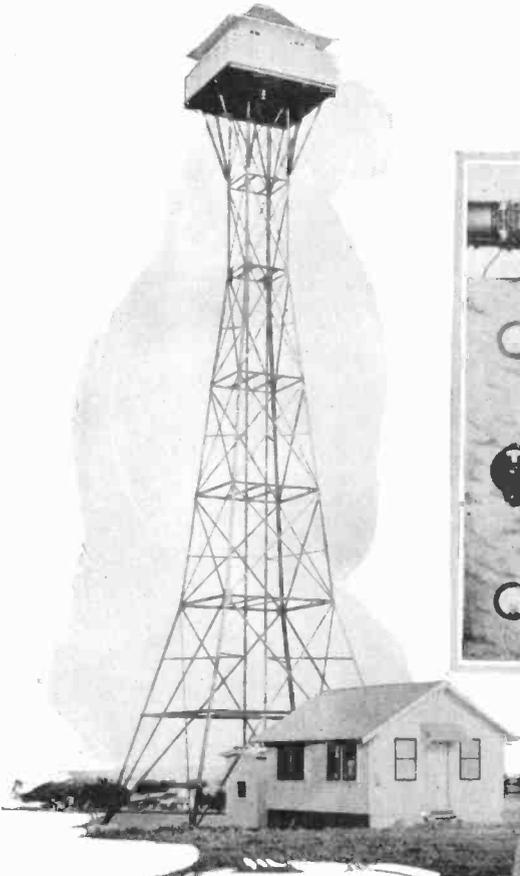


Artists are frequently employed to give concerts in the radio section of the Jackson Furniture Co.

News of RADIO Pictorially Told

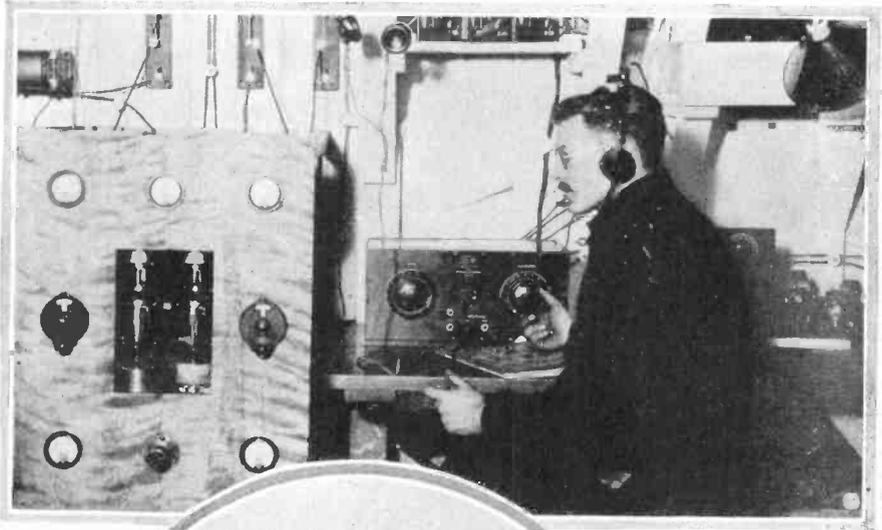
SHORT WAVES REACH ARCTIC CIRCLE (Below)

The radio set carried on the recent Putnam expedition to Baffin Land logged 310 stations. 204 United States stations on 40 meters. 85 on 20 meters, and 18 foreign broadcasters.



AERIAL LABORATORY

An experimental laboratory literally "in the clouds" is maintained by the Steimite Radio Company at Atchison, Kan. This permits experiments to be conducted without interference from earth disturbances.



RECEIVER DESIGNED FOR AIRPLANES (Left)

The Colorado Airways, Inc., Denver Col., have equipped all their planes with radio receivers designed especially for airplane reception by the All-American Radio Corporation.



RADIO AIDS FLOOD SUFFERERS

In the recent New England floods, radio played an important part in bringing aid to the sufferers. Photo shows WATT, the portable broadcasting station of the Edison Electric Illuminating Company, Boston in front of the Hartford High School, Hartford, Conn., where it maintained contact with the devastated regions.

PLAYS MUSIC ON RADIO TRANSMITTER



Prof. Leo Theremin, of the Physico-technical Institute, Leningrad, Russia, has perfected a radio transmitter on which he plays music by varying the capacity between his hands and the transmitter, thus producing the different tones required.

A New ITEM to



By JOHN W. GRIFFIN

IT IS only natural, now that pace of business has slackened a bit after Christmas, that the radio retailer turn his thoughts to new ways and means of increasing his revenue and profits. I believe that we are all especially fortunate this year in that we have had placed right in our lap, ready to sell and merchandise, an item with exceptional possibilities. It falls right in line with the sales trend established during the past six months, and which will continue for many months to come.

To introduce the year in a big way, a number of manufacturers have ready the new A.C. adaptor harness, a piece of merchandise which I predict will prove a winner in making new sales and new profits.

During the past six months I have been particularly impressed by the hundreds of requests, both in the store and through the mail, for a device which will allow the use of A.C. tubes in battery-operated sets. Up until this month we have had no such device. But now we have found it and in a simple, low priced, perfected form in the new A.C. adaptor harness.

Without question scores of dealers throughout the country have had many requests similar to those we have received at Haynes-Griffin. That there is a definite market for the new A.C. adaptor harnesses, the most hardened cynic must believe in justice to his business.

I feel certain that the more the individual dealer reflects upon the tremendous market for units of this type the more he will be convinced that no accessory yet offered has had equal possibilities. Hundreds of thousands of manufactured receivers, which use batteries, are in American homes. With the idea of A.C. tubes and batteryless operation gaining in popularity by leaps and bounds with the passing of each month, set owners, with battery operated receivers, have come to the idea of A.C. tube operation. As a set of batteries wears out, or as the tubes in the set end their useful life, it is only natural that the set owner should start to consider seriously means of doing away forever with the trouble and annoyance of constant battery replacement.

IN ADDITION to the hundreds of thousands of D.C. sets in use, about 2,000,000 kits of parts have been sold to home constructors during the past six years. It is safe to say that more than half of these home-built receivers are still in operation today. It stands to reason that these set builders are anxious to improve their outfits if it can be readily done at not too great an expense. In fact, our experience at Haynes-Griffin has been that the many people to whom we sold kits of parts in the past few years and who are perfectly satisfied with the

SELL *Old Customers*

set they built do not want to scrap their sets, but are, on the other hand, anxious to incorporate any improvement made possible by new developments in radio.

I should say that we average at least fifteen letters a month stating that the individual could ask for nothing better than the set or kit he purchased from us some time ago. Our correspondence on the subject carries a distinct note of customer satisfaction. There is, however, the invariable request for information as to the ways and means of improving the set—and most particularly of a simple and inexpensive way to electrify it so that no batteries are required.

That is just what thousands upon thousands of radio enthusiasts will be thinking of during the next twelve months. Newspapers will carry forceful publicity on the new A.C. adaptor harnesses and the way to install them. National advertising will be going full tilt, not only on the harness, but on A.C. tubes and their merits. The radio retailer has every big force and power in advertising and national publicity working for him. The value of all this sales effort is too great to estimate. But the dealer must lay certain simple foundations now if he expects to cash in to the full extent on the advertising and publicity which is being done for him.

I have given considerable thought to what I consider the simplest ways of retailing the new A.C. harnesses and adaptors. The interest right now is red hot. It will stay that way for some time but I predict that at no time will the interest be at greater height than during the immediate months up to September, 1928. To derive a real profit from this interest, the wise dealer will get into action at once.

How can the new A.C. adaptor harness be moved over the counter in the quickest manner and with a minimum amount of trouble? If the particular store advertises, well and good; much can be done through newspaper space. Even for the small dealer who feels that the size or nature of his activities does not warrant advertising, there are a number of things to be done which will prove of definite aid.

The first thing is to acquire a thorough understanding of the A.C. adaptor harness, and to have your salesmen know what it is all about. There may be some excuse for salesmen not understanding even the more obvious technical features of complete sets. But there can be no alibis for lack of thorough, sensible and sound selling knowledge on the new A.C. adaptor harness. It is an ex-

tremely simple device, and an hour or two spent reading any manufacturer's literature on the subject will give one a good sound knowledge of the whys and wherefors.

Start your campaign for the sale of A.C. adaptor harnesses by getting in touch with the particular manufacturer whose harness you favor and have him send plenty of literature to the store. Distribute this among the sales force. If you want to go a step further, have a manufacturer's representative call and demonstrate the harness to the salesmen. Let them ask all the questions they want to have answered.

That, I believe, is the first step, just as sound information is the best basis for the sale of any item, old or new.

One of the most important selling points for the salesman in the retail store is the simplicity of the A.C. adaptor harness. In selling the customer over the counter the salesman can stress two points: simplicity and A.C. tube operation, without batteries of any nature.

The sale of any single piece of radio apparatus, be it part, set or accessory, is invariably accomplished by one or two main questions. No doubt the principal inquiry about the new A.C. adaptor harness will be: "How much will it cost to make my set electric?"

Determine down to the last cent just what a complete harness will cost the customer. The great majority of battery-operated sets use either five or six tubes. As there is a difference only of about a dollar in the price of the five-tube harness as compared to the six-tube harness, let's figure the cost on the basis of six tubes.

To convert a set for A.C. operation will call, in some cases, for only the A.C. adaptor harness, the filament lighting transformer and the five or six A.C. tubes. In this case the customer already has a B power unit which will satisfactorily provide all the B voltages for the tubes.

Call this case, Number 1. Prices are approximate, of course.

Where customer has B power device equipment needed is:

1 A.C. adaptor harness (for 6-tube set)	\$10.00
1 Filament lighting transformer	9.00
4 26 type a.c. tubes at \$3.00	12.00
1 27 type detector a.c. tube	6.00
1 71 type power tube	3.50

Total cost to buyer \$40.50

Where the customer has a five tube set instead of six,

(Please turn to page 82)

A. C. HARNESSES
Permit Battery-Operated
Sets to Use the
NEW A.C. TUBES
Merchandise That
Fact to Every Set Owner

The JUNK Man, the SODA

Some odious comparisons brought to light by the recent trade survey made by the Department of Commerce in a number of American cities

Seattle

Type of Store	No. of Stores	No. of Employees	No. of Owners	Total	Average Salary per Employee	Average Inventory	Total Annual Sales	Average Sales per Store	Turn Over
Ice cream	203	442	211	653	\$1,067	\$925	\$2,681,300	\$13,208	14.3
Junk	12	48	11	59	1,573	12,841	433,100	36,091	2.8
Radio	27	70	29	99	1,267	5,644	703,500	26,055	4.6

TAKE the city of Seattle, for instance. Is it significant that the average Seattle junk man does \$10,000 a year more business than the average Seattle radio store? Or that the average Seattle radio man earns only \$200 a year, or about \$4 a week,

more than the average Seattle soda clerk? Do you suppose it takes almost as much scientific skill to make an ice cream soda as it does to repair a \$200 radio set? Something to ponder over, at least.

Syracuse

Type of Store	No. of Stores	No. of Employees	No. of Owners	Total	Average Salary per Employee	Average Inventory	Total Annual Sales	Average Sales per Store	Turn Over
Ice cream	124	128	140	268	\$984	\$704	\$1,143,600	\$9,222	13.1
Junk	5	7	7	14	857	5,980	216,100	43,222	7.2
Radio	6	9	7	16	1,222	3,900	126,600	21,100	5.3

BUT let's cross country back East and stop off at Syracuse. Maybe we'll find the junk man in his proper place here. No, we find the average junk man doing \$43,000 a year as compared to \$21,000 for the radio store. The junk business seems to be a profitable trade. In Syracuse, you see, five junkmen do \$216,000

a year, while six radio men do only \$126,000 a year. The inventory is about the same, but the junkman gets a turnover of 7.2, as compared to 5.3 for the radio store. Those junkmen must know something about merchandising. They carry a fairly large inventory, and they turn it over fast.

Chicago

Type of Store	No. of Stores	No. of Employees	No. of Owners	Total	Average Salary per Employee	Average Inventory	Total Annual Sales	Average Sales per Store	Turn Over
Ice cream	3,036	2,872	3,173	6,045	\$1,115	\$806	\$29,222,900	\$19,625	12.0
Junk	75	170	94	264	1,437	2,616	1,934,600	25,794	9.8
Radio	206	464	198	662	1,453	5,398	6,490,100	31,505	5.8

NOW here's where radio gets a little better break, but being the big city of Chicago, that would be expected. The average radio store's annual sales exceed both the ice cream store and the junkman, but we find the average junkman's employee (the one who drives the horse probably) is neck and neck in yearly salary with the average radio store employee. The junk-

man gets a turnover of 9.8, against 5.8 for the radio store. Now we're beginning to prove something. Two or three things, in fact. One is that the average radio store IS NOT DOING A BIG ENOUGH BUSINESS. People are very evidently buying more junk than radio. Can radio compete with a piece of junk for a place in the great American home? It's possible.

Berkeley, Cal.

Type of Store	No. of Stores	No. of Employees	No. of Owners	Total	Average Salary per Employee	Average Inventory	Total Annual Sales	Average Sales per Store	Turn Over
Ice cream	29	51	33	84	\$972	\$693	\$395,300	\$13,944	19.6
Radio	7	5	8	13	1,860	2,528	85,800	12,257	4.8

SO we continue our travels and arrive back in California. Berkeley, to be exact. A nice little town. Evidently wealthy. No junkmen and the ice cream business in good condition. Radio men being paid twice as much as the soda clerks and more nearly what they are worth. BUT, the climate being warm, the average Berkeley ice cream store does \$1,700 a year more than the average Berkeley radio store. And gets a turnover of 19.6, as against

4.8 for radio. True you can't keep a quart of ice cream as long as you can a radio set, but a radio set, kept too long on the shelf, is just as much of a total loss as a second-hand quart of ice cream. Think that over. Seventeen hundred dollars is a lot of ice cream sodas, about 8,500 to be exact, but it's only 10 radio sets. A little more effort—just a few additional sales a year—and the radio store COULD come out on top.

These figures prove beyond the shadow of a doubt that this the question is put squarely up to you. What are you doing

Clerk and the **R**ADIO Dealer

There are strange parallels to be found in the average business of junk men and radio merchants, and in the salaries of soda clerks and radio men

San Francisco

Type of Store	No. of Stores	No. of Employees	No. of Owners	Total	Average Salary per Employee	Average Inventory	Total Annual Sales	Average Sales per Store	Turn Over
Ice cream	544	1,163	590	1,753	\$1,111	\$769	\$7,579,800	\$13,933	17.7
Junk	17	65	25	90	898	3,388	495,300	29,488	8.6
Radio	43	106	46	152	1,411	6,297	1,737,300	40,402	6.4

LET'S see what's going on out in San Francisco. Being another big city, radio makes a better showing, the average radio man getting more money than either the junkman or the soda clerk, and the average radio store doing quite appreciably better than the junk man, but far behind the ice cream stores. The turnover for radio, as usual, is the lowest, being 6.4, as compared

to 8.6 for the junkman. Now we're proving another thing—that is, that the rate of turnover throughout the country, is too slow. The junkmen are turning their inventories faster than the radio stores. Does that mean that junkmen are better salesmen than radio men, or that there is more of a demand for junk? Probably neither, yet the facts speak for themselves.

Denver

Type of Store	No. of Stores	No. of Employees	No. of Owners	Total	Average Salary per Employee	Average Inventory	Total Annual Sales	Average Sales per Store	Turn Over
Ice cream	169	208	181	389	\$828	\$422	\$1,408,300	\$8,333	19.7
Junk	17	24	21	45	1,271	7,264	442,400	26,023	3.5
Radio	10	23	10	33	748	4,050	150,400	15,040	3.4

NOW Denver. Denver seems to be a bad town for radio, worse for ice cream, but fine for junk. Look at the figures. Radio man's average salary is only \$748 a year, lower than the soda clerk, and far lower than the junkman's assistant. The

average junkman does \$11,000 a year more than the average radio store, but this turnover is about the same 3.5, and nothing to be proud of in either case. And the palm goes to the junkman again in securing the same turnover on an appreciably larger inventory.

Kansas City

Type of Store	No. of Stores	No. of Employees	No. of Owners	Total	Average Salary per Employee	Average Inventory	Total Annual Sales	Average Sales per Store	Turn Over
Ice cream	241	434	238	672	\$737	\$486	\$2,375,600	\$9,857	20.2
Junk	25	41	26	67	954	2,624	253,800	10,152	3.8
Radio	9	31	6	37	1,013	2,633	292,300	32,476	12.3

WE'VE had to come all the way to Kansas City to find a group of real radio merchants. Nine stores get an average turnover of twelve times on inventories averaging \$2633, with average annual sales of \$32,000 each. Neither the Kansas City junkman nor the Kansas City ice cream store equal this record.

And the Kansas City radio store employee gets about \$60 a year more than the junkman's assistant. Not much more, that's true, but still, it is more. Altogether, Kansas City shows up best in this survey, at least insofar as its radio stores are concerned. But it's only one town out of seven.

Recapitulation in Totals

Type of Store	No. of Stores	Average Salary per Employee	Average Inventory	Average Annual Sales per Store	Average Turnover
Ice cream	4,531	\$970	\$681	\$12,226	16.6
Junk	161	1,244	5,582	30,634	6.06
Radio	333	1,250	4,093	24,484	6.25

NOW let's total some of these figures and see what they prove—first, and foremost, that the rate of turnover is far too low in proportion to the average inventory of the ordinary radio store. Small inventories are good, but not when the turnover does not exceed three or four times a year. Either inventories must be

increased and the turnover maintained, or the inventory maintained and the turnover speeded. Either way will give the desired result—larger volume—and neither can be attained without a radical increase in sales effort. And that is true of manufacturer and jobber, as well as retailer.

industry has neglected the welfare of its retail trade. Manufacturers, to help YOUR retailers sell YOUR products more profitably?

The guarantee and free-service coupons which the Three Schuster Stores issue with every set sold. The customer signs the coupon on the left and it is filed in the service department.

Coupons Cut

FREE

785 785 785 785

The Three Schuster Stores
 27th Street, Milwaukee, Wis. GUARANTEE

Sold to _____ Purchased _____ from _____
 3rd St. 12th St. Mitchell St.

Address _____ Instrument _____

We guarantee the above named instrument to be free from electrical and mechanical defects. Defects of this nature developing within one year from date of purchase will be repaired or replaced free of charge if returned in our service department. We assume no liability for sets that have been tampered with or abused by the purchaser or his agent.

We do not guarantee the life of the highest grade tubes or other accessories owing to the fact that we have no means of determining the amount or kind of usage the equipment has received. Vacuum tubes and batteries furnished by us are of standard make and tested quality.

ED. SCHUSTER & CO., Inc.

By _____

THREE SERVICE CALLS FREE

In order that you may become well served in the use and care of a radio, we offer three service calls free of charge if requested within 60 days of date of purchase. Coupons covering these service calls are attached to the sets. All further calls upon our service department for work on batteries or other accessories in the home of the customer are subject to a charge at our regular rates.

DO NOT DETACH SERVICE COUPONS

THREE SERVICE COUPON No. 1 (attached to sets)
 This coupon will be accepted as payment for one service call in lieu of our regular charge, within 60 days after date of purchase if attached to this guarantee. Request service call by this guarantee number.

THREE SERVICE COUPON No. 2 (attached to sets)
 This coupon will be accepted as payment for one service call in lieu of our regular charge, within 60 days after date of purchase if attached to this guarantee. Request service call by this guarantee number.

THREE SERVICE COUPON No. 3 (attached to sets)
 This coupon will be accepted as payment for one service call in lieu of our regular charge, within 60 days after date of purchase if attached to this guarantee. Request service call by this guarantee number.

Name _____ Address _____
 Instrument _____
 Call No. 1 Serviced _____
 Call No. 2 Serviced _____
 Call No. 3 Serviced _____

MANY radio merchants, both big and little, have tried the "free coupon" idea in their merchandising programs. Some of them have been successful with it and others have not found it worth while as a sales-boosting idea.

Ed. Schuster & Co., Inc., operating three stores in Milwaukee, Wis., adopted the idea of giving three coupons, each good for a free service call, with every set sold and it not only has cut down their free service calls 50 per cent but has resulted in greater satisfaction to their customers, according to A. J. Wolf, head of the radio department of this large mercantile establishment.

He states that during the fiscal year of 1925-26 his department averaged well over two free service calls per radio-set sale due to its year's free-service guarantee. Since September, 1926, it has averaged slightly more than one free service call per year. The answer is quite plain he says, "reducing the free-service time allowance to sixty days and using the three-coupon, free-service form."

"The secret of the success of this plan," Mr. Wolf continues, "is that while ordinarily only one coupon is used within the sixty-day period, the fact that three are furnished is a great confidence builder. However, if at any time a customer feels that he is entitled to a service call without charge, that call is promptly and cheerfully made, because our motto is 'the customer is always right.' But, the interesting thing is that these calls are seldom asked for under the 'coupon' plan."

Not only does the average customer limit his demands for free service to one call during the first 60 days of set ownership but arguments and misunderstandings have been practically eliminated.

"Free servicing is largely a matter of psychology in my opinion," says the man under whose directorship gross radio sales of the three Schuster stores exceeded \$140,000 from August, 1926, to August, 1927.

DURING the fiscal year of 1925-26 the Three Schuster Stores averaged well over two free-service calls per radio set. Since September, 1926, as a result of their free-service coupon system, the average has been slightly more than one free-service call per set.

The three Schuster Stores in Milwaukee, Wis., use a system of coupons which has cut their free-service calls in half and gives greater satisfaction to their customers

1st 30 days	50 SERVICE CALLS	OLD WAY Average 2.6 free service calls per customer Total service calls per customer 3
Next 30 days	20 SERVICE CALLS	
Balance of year	30 SERVICE CALLS	

The Three Schuster Stores found that out of every 100 service calls under the old plan, half of them came during the first 30 days after the purchase of the sets, 20 during the next 30 days and the remaining 30 calls over the balance

"The old plan was a more or less vague understanding that if it was our fault we would service without charge, otherwise the customer must pay. Continual controversy was the result. The new plan provides a liberal number of free service call coupons but limits their period of use to sixty days.

"Every radio dealer knows that 'the first sixty days are the hardest.' Ninety per cent of the constructional short-comings or operating inexperience shows up within that time. The present guarantee, therefore, protects the customer during his period of greatest need and protects the house against unreasonable and continuous demands for free service. To illustrate how it works out where the free service time limit has expired. Mrs. White has phoned for a service man:

"Certainly, Mrs. White, we'll have a man call this

By RAY V. SUTLIFFE

Service Calls 50%



1st 30 days	26 SERVICE CALLS	
Next 30 days	13 SERVICE CALLS	NEW WAY
Balance of year	11 SERVICE CALLS	Average 1.2 free service calls per customer
		Total service calls per customer 1.5

of the year. All of them were free. Under the new plan the total number of service calls were cut in half and for every 100 calls under the old method they now have 50. Furthermore, 11 out of the 50 calls are paid for by the customer.

afternoon. By the way, our records show that you have had the set over sixty days. You understand, of course, that we shall now be obliged to charge you \$1.25 for this visit according to the terms of our guarantee?

"Oh, yes, your man explained that to me when he installed the set."

"If the customer is hazy on this point it is cleared up before the conversation is ended," Wolf explained.

"But how do you account for the fact that your customers actually use but one of the free service coupons whereas, prior to the installation of this system, calls the first 60 days were practically double the present figures?" Mr. Wolf was asked.

"Human nature largely," he responded. "The owner knows that the coupons are limited in number and is inclined to hold two of them for a real emergency. This emergency, however, seldom materializes because the service man's first visit usually irons out permanently all the major difficulties.

"Here, let me explain," he continued. "This guarantee does not cover the life of batteries or tubes and the set must have been installed by us in order to make the guarantee valid. The installation charge, which in-

cludes the antenna, is five dollars. Ninety-five per cent of our first-time buyers take this service. Result—the initial installation is correctly made. This has been a great factor in reducing service calls."

THIS combined guarantee and free-service coupon form is in five parts separated by perforated lines. Each of these parts bears the same serial number.

When the set is sold the form at the extreme left is filled out and filed by the head service man, the second part headed "guarantee" is signed by the salesman and this form together with the three free-service coupons is left with the customer. The salesman explains at that time the terms of this guarantee and the free servicing arrangement. When the service man returns to the office with the coupon a brief history of the work done is obtainable. A record of this service call is then transferred to the original file form which was retained by the head of the service department.

Thus, in addition to cutting down the number of service calls, a complete history of every set is automatically maintained thereby eliminating practically all chance of controversy between the customer and the store.

Number of A.C. and D.C. Customers in Each State

State	Total Number of Domestic Lighting Customers Jan. 1, 1926	Number of Domestic Lighting Customers Using Alternating Current (By Voltages)										Number of Domestic Lighting Customers Using Direct Current (By Voltages)									
		100	104	105	108	110	112	113	114	115	118	120	125	127	220	110	115	120	125	220	225
United States	14,532,930	2,480	92,170	21,220	196,930	7,624,660	181,470	5,160	134,120	3,723,470	55,420	1,690,130	1,040	440	388,500	26,980	8,690	366,970	1,060	21,670	150
New England	1,318,700	760	67,300	1,470	187,700	796,480	16,990	4,680	118,200	204,100	26,840	109,740	160	560	3,500	450	1,780	1,210	280	260	
Middle Atlantic	3,461,300	760	22,570	540	409,600	2,180,890	12,760	3,840	316,510	178,840	26,840	368,440	770	80	191,240	230	1,670	355,100	80	6,880	150
South Atlantic	3,829,600	30	1,130	18,490	9,230	1,357,140	40,720	2,080	1,786,090	18,260	387,470	190,850	880	80	1,000	16,450	4,350	7,660	700	11,080	
East North Central	1,565,850	1,260	1,050	720	289,780	1,120,000	14,600	480	552,160	199,190	55,500	119,830	340	340	2,100	3,650	1,540	1,480	1,870	1,480	
West North Central	861,650	430	720	355,430	235,600	19,290	790	8,520	197,510	6,620	8,520	110	110	181,000	2,500	760	1,540	1,480	1,480	100	
Mountain	464,350			910,440					143,840	3,700											
Pacific	1,366,500																				
New England	152,000																				
Maine	63,200																				
New Hampshire	63,200																				
Vermont	59,600																				
Massachusetts	686,000																				
Rhode Island	95,500																				
Connecticut	262,400																				
Middle Atlantic	1,554,800																				
New York	1,459,000																				
New Jersey	1,247,500																				
Pennsylvania	760																				
South Atlantic	23,300																				
Delaware	180,700																				
Maryland	65,000																				
District of Columbia	127,200																				
Virginia	95,300																				
West Virginia	17,400																				
North Carolina	133,200																				
South Carolina	132,200																				
Georgia																					
Florida																					
East North Central	1,012,000																				
Ohio	435,000																				
Indiana	1,300,000																				
Illinois	723,000																				
Michigan	359,600																				
Wisconsin																					
West North Central	395,000																				
Minnesota	278,250																				
Iowa	427,900																				
Missouri	33,200																				
North Dakota	48,600																				
South Dakota	136,300																				
Nebraska	246,600																				
Kansas																					
East South Central	163,600																				
Kentucky	179,000																				
Tennessee	111,400																				
Alabama	44,500																				
Mississippi																					
West South Central	92,300																				
Arkansas	98,050																				
Louisiana	180,600																				
Oklahoma	490,300																				
Texas																					
Mountain	62,950																				
Montana	50,800																				
Idaho	27,400																				
Wyoming	150,800																				
Colorado	20,400																				
New Mexico	30,350																				
Arizona	107,600																				
Utah	15,650																				
Nevada																					
Pacific	266,500																				
Washington	145,300																				
Oregon																					
California	1,154,500																				

These data compiled by the ELECTRICAL WORLD

Some of the collection slips which Walter R. Engard, London, Ohio, has used with excellent results in collecting his accounts.

Not by a Jug Full!

In the State Department down at Washington one may see the original draft of the Declaration of Independence, but none of the signatures on this Heroic Document can anywhere near compare with your signature on a check—no sir, not by a jug full. Just a hint, you know.

Yours truly,

WALTER ENGARD,
London Radio Co.
London, Ohio.

Left: One collection slip which brought in returns from more than seventy-five per cent of the accounts to which it was sent.

An Honest Confession

SAY, folks, there isn't a darn bit of use to beat around the bush—honest confession, they say, is good for the soul and if there is any truth in that statement this confession is sure to be good for mine—business hasn't been what we had expected this Spring. We purchased heavily anticipating snappier sales but the backward weather put the brakes on. The result is we need CASH—there, that's a big load off my chest but it will explain the presence of the little attached slip.

WALTER ENGARD,
London Radio Co.
London, Ohio.

"I Don't Mean Maybe" This Is for Your Attention, Please

I HAVE a mighty heavy obligation to meet pretty darn shortly, and I am short on cash—I don't mean maybe! If I meet this obligation (and my creditor has set his right foot down and says "I must") there is but one thing for me to do; that is convert my accounts receivable into cash. It is a case of self-preservation. So here goes:

Every account on my books, large or small, must be converted into cash—not a single exception.

I know I can count on your co-operation and will look for a check from you covering the enclosed statement by early mail. I am going to greatly appreciate this favor as I have your many favors of the past.

Yours expectantly,
WALTER ENGARD,
London Radio Co.
London, Ohio.

"I'll Say I Do"

I'll say I do appreciate the favors you have shown me this month. I trust every purchase has proven satisfactory. Should anything have proven otherwise, I hope you will not hesitate to call it to my attention. Only by so doing can I hope to avert any mistake. I stand squarely back of the merchandise I sell and am ready at all times to make good if the goods did not.

WALTER ENGARD,
London Radio Co.
London, Ohio.

Collect

BUT do it With a Smile



SELLING on account seems to be a necessary part of almost any retail radio business but particularly is this true in agricultural districts where sales to farmers make up such a large portion of the transactions. When accounts are carried, payments, sooner or later, drop behind and something must be done to collect them.

Collections, however, can be made in a way which will not only get the money but which, more important still, will keep the customers in a happy frame of mind towards the store which they owe the money. Collections can be made in an offensive manner or they can be "made with a smile." Walter R. Engard, proprietor of a radio and auto accessory store in London, Ohio, a city located in the heart of an agricultural district, is one man who knows how to "collect with a smile."

He has put over many a collection plan that has brought real results and all of his "stunts" may be used with profit by any radio merchant, in any part of the country, with variations to suit the requirements of the individual cases.

THIS Ohio retail merchant has, for years, used personal ideas in his business with a kind of humor that speeds up old accounts that have slipped a few weeks or even months without creating the least bit of animosity or causing the loss of a customer.

He believes in making people pay while they are in a good humor; in other words, he uses "blarney" with the so-called hard-hearted collection of accounts due,

rather than depend upon the old cut and dried collection stunts year in and year out.

Mr. Engard claims that blarney is often tiresome but it never gets old when applied with a new dress; never fails to command attention and he uses it every day of his life with satisfying results from a business as well as a personal standpoint.

He uses his "blarney," for the most part, in the way of printed slips that are enclosed with each statement that he sends out; all have brought results in one way or another. One bit of blarney "paid its way" to the tune of more than a seventy-five per cent return.

THESE notices have struck the funny bones of several of his customers who had permitted their accounts to slide, and one man who came into the store in response to one of the slips, said that never again would he let his bill run over to the point where he had to be "kidded" into paying it but he asked Mr. Engard to mail him a copy of every such statement he sent out as he said he wanted a good laugh.

Other kinds of appeals have been used by this dealer to secure real cash when needed and one in particular headed "I Don't Mean Maybe," brought almost instant response from the eighty-five persons to whom it was addressed. This "blarney" contained a real kick and although it was rather rough in spots, produced results
(Please turn to page 82)

OPINIONS Divided on

Readers express variety of viewpoints as

Thinks Preliminary Survey Should Precede Canvass

Editor, *Radio Retailing*:

HAVE noted the article by John W. Griffin in your last issue on the subject of "Outside Selling." I am moved to give you an idea on this subject. We teach in our Radio Trade School that the "Doorbell Pusher" gets the business but the plan advised is nothing like the plan outlined by suggestion in Mr. Griffin's article.

Outside selling in radio, and in fact in any other business is a heart breaking business and the man who tries to go out and push doorbells looking for radio sales will be a wreck at the end of the first day. No man can stand the mental strain of constant rebuff and indifference. When he has at last found a prospect he is "dead" and is not able to conduct his campaign with skill and profit. He will be in a position to concede too much.

The man able to merchandise a radio set at the home of the prospect is too good a man to be "killed" by going from door to door and his very ability to do this work makes him all the more susceptible to the wearing down process of doorbell pushing. For this reason it is necessary to make a preliminary survey. To do this the merchant hires a suitable person, lady preferred, and employs her to get the advance information. A set of questions are given her and her only duty is to get the answers by some hook or crook. She has nothing else to worry about. She doesn't care whether she sells or not. In fact she is not to sell. All she has to do is to get the lay of the land.

If the questions are well prepared and she is wise enough to get the answers the salesman has a map of the whole situation and he and the merchant plans the attack with specific information as to the prospects of a sale and a profit. When this is planned the salesman goes direct to the field of battle and is fresh and posted on the points to be covered. There is no lost motion and no chance for a loss.

This is just a note and not intended to convey the whole plan but just to suggest the only way in which outside selling can be done safely, in our opinion. One who has been from door to door will readily appreciate the facts that I am mentioning here and will fully agree with our position.

We still maintain that the doorbell pusher gets the business any time he will go after it but he must go after it with some preparation and with a well thought out "line" and above all, an article that will deliver what he says it will.

While it may be true that he will have to sell the whole family and the neighbors he should be glad of the chance to reach so large an audience at one time and if he is not prepared to deliver the goods he should not be pushing doorbells at all.

FEDERATED RADIO TRADE SCHOOL,
A. M. Edwards, Director.

Detroit, Mich.

Has His Own Ideas About Specialty Selling

Editor, *Radio Retailing*:

I have read Mr. Griffin's article on specialty selling and have some comments to make. My concern is in a town of 25,000 which up until this year contained three other dealers in addition to ourselves.

Last year we succeeded in selling two out of every three sets that we managed to get into a home by any method. Many times we just insisted that we wanted to loan the customer a set. This year it is different as there now is a radio chain store here selling house to house in an attempt to get distribution of their sets.

We now find that our selling average has fallen so much that all dealers (except the chain store) have combined and advertised collectively that home demonstrations were discontinued in accordance with a new national policy of the RMA (this last being about the only way we could figure out to pass the buck to someone). Since the new ruling we have lost some business over the previous time but the two weeks after Christmas are always

slow. All dealers have decreased their overhead immensely and business is still as good as it should be at this time. The new plan is only three weeks old, however.

The writer has experimented with the various kinds of selling and has had the assistance of competitors in price and policy maintenance and has very definite ideas in regard to outside selling. They are about as follows. Canvassing is good but telephone canvassing is possibly better than the door-bell method. A set should no more be left in a man's home than a new automobile should be left in his garage for a weeks free use. Find your man and immediately start trying to sell him. Putting a set in his home usually helps but little—a local interference will ruin him. The old method of pushing a set in is as obsolete as the horse and buggy. Operate on the basis that people know radio.

MIDDLETON BATTERY & ELECTRIC CO.,
H. A. Middleton.

Sedalia, Mo.

Agrees Outside Selling Is Overdone

Editor, *Radio Retailing*:

MR. GRIFFIN'S article in *Radio Retailing* expresses my views on the radio question exactly.

In addition to your views I will say that this part of the country has other conditions to contend with. The manufacturers and the jobbers are so anxious to do business that they are selling to any one that wants to sell radios. Even the laborer sells from his house and a great many take their sets out and let the customer use it as long as a month without cost.

Another thing that is wrong with the business is that it is impossible to buy accessories that you can depend upon. It seems that the only object is to sell something regardless of how it works.

This is my fourth year selling radio and I have made some money but I believe that this year will be my last. I have never been in any business before that is in the condition that the radio business is in today.

HARRY E. WATTS.

Logansport, Ind.

Wants Better Manufacturer's Distribution and Service

Editor, *Radio Retailing*:

I HAVE READ the article, "Does outside selling pay," by Mr. Griffin in the January edition, and thought that I would give you my opinion about it.

I have been in the employ of the U. S. Government for the past ten years, my position being installing, repairing and maintaining radio transmitters and receivers of all types and descriptions on battleships and shore stations of this district. In my work, I mingle with 3,000 civilian employees, officers and enlisted men on the ships, very many of whom seek advice in reference to buying radio sets, and I venture to say that to date I have not made any enemies, which is saying a whole lot.

It is my belief that house to house canvassing with a well planned, well heralded specialty campaign would pay, if the salesmen doing this canvassing were honest and knew what their merchandise could do. I think the ignorance of their merchandise, more so than the dishonesty of salesmen, has hurt radio more than the a.c. tube and eliminators.

I have bought sets, eliminators and batteries of all descriptions for resale, and have had salesmen tell me the most ridiculous yarns imaginable. Furthermore I have often been called to look over sets installed by dealers, and am sorry to say that the dealers did not do their best in the installation.

Another objection which has kept me from becoming active in the radio field was "gyp row" in New York City. This objection I will endeavor to explain. I have often bought sets from reliable jobbers at net prices and sold them at list and my customers were perfectly satisfied until they saw the Saturday editions of the New York papers. You probably know that gyp row sells the

SPECIALTY SELLING

to "profitability" of outside sales campaigns

same sets for about 60 per cent less than I received. It was then necessary to explain that the gypers were giving batteries of poor grade and low capacity, a poor speaker and poor quality tubes. This condition has always been radio's greatest detriment and has made the people pessimistic in investing in radio sets of good quality.

I think the manufacturers could overcome this condition by having distributing and service stations of their own where they could give a demonstration of their sets and at the same time keep them out of the hands of the gyps. Due to the very fact that we now have the a.c. tube and A and B power units the service stations will be essential as the average so-called radio experts consisting of butchers, typists, clerks, drivers and others are a bit skeptical when playing with real juice.

These service and distributing stations could have sets on demonstration at the store and also by extensive advertising display their merchandise and sets at clubs and in homes. There is an aluminum concern that is selling aluminum ware whose methods are very efficient. They get a prospect to invite ten friends to a demonstration of their wares, even going through the trouble of cooking a meal. They sell to at least 50 per cent of the people visiting this demonstration. In addition to that they have some or all of these people invite their friends which gives them an endless chain to work with, and I think their methods are very good and could be used to advantage in the radio business, and would be means of selling the better grade sets.

CHARLES J. ADELMANN.

Brooklyn, N. Y.

Says Outside Sales Result in "95 Per Cent Complaints"

John W. Griffin,
41 West 43rd Street,
New York City.

YOUR article in January issue of *Radio Retailing* has always been my view and experience of outside selling of radio. But you have not made strong enough the point that out of sales made this way there are 95 per cent complaints and kicks for no reason whatever.

You have my vote.

The article in the same issue, of a dealer in Omaha, must be a dream of some kind, or be "Angel radios" that never have trouble, or his customers must all be radio experts.

ALBERT C. DIEGEL,
John Diegel & Sons.

Philadelphia, Pa.

Finds Mail Advertising Pays Better

Editor, *Radio Retailing*:

I HAVE READ with interest the article in *Radio Retailing* (Jan., 1928) on specialty selling and wish to give you an account of my experiences.

My business consists of an electrical store selling all kinds of electrical appliances, radio and electrical equipment. The city has a population of 2,000 with a surrounding territory of about 1,000 population.

Three years ago when I started selling radio I employed two men, one a man familiar with radio, to make a canvass and to sell radio. That season I sold and installed 22 sets of which 12 were store sales. The 10 sales made by the salesmen required 10 installations and 6 of them were time sales. The 12 store sales were 10 cash and 2 time-payments with 14 installations, and 2 losses. Average sale \$168.00, average commission on 10 sales \$19.00, total net of profit \$214.27 in gross sales of \$4,718.00.

In 1926-7 I employed one man and worked the rural district hard. Made 32 rural installations with the sale of 14 sets. Total sales for year 29 sets. Average sale \$136.00, average gross profit \$37.82, average commission on 14 sales \$16.80, total net profit on 29 sets \$98.00 on gross sales of \$4,944.00.

In 1927-8 I employed no salesmen. So far have spent \$62.00 for radio advertising, have sold 28 sets at an average of \$135.00 with an average gross profit of \$40.50. No commission paid and

on January 1 showed a net profit of \$412.00 on gross sales of \$3,780.00. Three sets sold on time, others cash.

My conclusions are as follows:

Service on sets sold outside the store is very heavy. Eats up profit.

Sets bought in store are bought here for reasons as follows:

1. Confidence in store.
2. Confidence in set.
3. Know they really want a radio.

Installation turnover very small; only two that did not result in sale.

Increases store traffic. People who buy things come in and talk about them while people who are sold things expect you to come to them. Results in sales of other things.

Direct mail campaign with series of 3 letters gets results at low cost. Is responsible for 50 per cent of this year's sales.

Notice how the net profit jumped this year, and I charged more overhead than previous years. Will be much interested to know the general opinion expressed by the dealers.

B. W. ENGSBERG,
Engsberg's Electrical Store.

Lake Mills, Wis.

Sales Expense Should Determine Specialty Selling Policies

John W. Griffin,
41 West 43rd Street,
New York City.

I HAVE just read your account of outside selling of radio. I agree with you that at present there is very little, if any, profit. We have been selling radio for about three and one-half years and have given it a fair trial. The trouble with the majority of radio dealers is they do not know just what per cent they are making from a radio sale. We should get a larger profit; forty per cent does not figure large enough when all expenses are deducted.

I hope to read more about this in *Radio Retailing* in the future.

WILLIAM C. HOEHL,
The Brunswick Phonograph Shop.

Port Chester, N. Y.

Specialty Selling Puts Dealer in Wrong Position

John W. Griffin,
41 West 43rd Street,
New York, N. Y.

I HAVE just finished reading your timely article on outside selling in the current issue of *Radio Retailing* and wish to go on record as thoroughly agreeing with your experiences and deductions. Your analysis of the situation will be found substantially the same by all radio dealers if they possess any amount of perception. I feel that you have been very conservative in your discourse of the subject and realize that there are a great many arguments pro and con that might be advanced but the main question is, why should the dealer take this method to merchandise his wares?

The least that can be said is that it establishes the wrong precedent and places the salesman and dealer in the underdog position. The public deduces that the dealer must be hard up for business or he would not resort to such methods and we all know that that is the truth; for if we were swamped with orders we would not care particularly about those that necessitate additional time and expense. We may lose some sales by not doing it but the chances are that the one that gets them will lose, too, so me for the store business.

Trusting that this will buoy your spirits up and so help you to disagree with the Editor, I beg to remain,

OWEN D. KILLOUGH,
Radio and Electric Company.

Lockland, Ohio

Practical WAYS to

Ten sales suggestions on how to reach the rural market—by a man who KNOWS the farming country

By
SAM PICKARD

Editor's note—Sam Pickard, youngest member of the Federal Radio Commission, was born and brought up in Kansas. Before his appointment to the Commission, he was head of the Radio Division of the Department of Agriculture, having charge of all programs of interest to the farmer which were sponsored by the Department.

Previous to that he was extension editor of the Kansas State Agricultural College, and aided in the formation of Station KSAC which, under Mr. Pickard's leadership, pioneered in programs of specific benefit to rural listeners.

His knowledge of the farmer's state of mind, therefore, is accurate and fundamental, having been acquired through a lifetime of experience with the farmer. What he says about selling radio to the farmer is practical common sense.

NEVER since the advent of radio has the time been more opportune than now for placing radio in the homes of farmers. The unusual combination of fair crops and fair prices which prevailed more or less



Member,
Federal Radio
Commission

generally last Fall should bring a large per cent of the great horde of potential farm buyers into the market.

Ten suggestions for securing this most attractive business are, in my opinion, the following:

Advance a Farm Set

Select one or more average-priced models of such design and construction as will assure good reliable results under the exacting requirements of farm usage. Feature these farm sets as an answer to the

farmer's question, "What shall I buy?" Stress the fact that it is designed specifically for farm use.

Payment Plan

The monthly plan is usually not satisfactory to the farm buyer. If he takes advantage of his credit it usually means a substantial payment down and the remainder in ninety days or six months, when the livestock or grain is marketed.

Demonstrations

The district school is an ideal place for bringing together an interested group of prospective buyers. The remarkable quality of a good radio is a revelation to many people who only know reception as they have heard it from inferior sets.

Farm Organization Meetings

The regular meetings of the Farm Bureau, Farmers' Union and Grange afford valuable opportunities for group demonstrations.



Use the local grain elevator manager as a salesman on commission

SELL *the Farmer*



Elevator Managers

The farmer who receives his grain check from the local elevator manager may not go from there to the music store to select a radio. Why not enlist the elevator manager as a salesman? He should be paid a small commission on sales made through his efforts.

The Local Ad

A list of current valuable farm features on the air, as a part of the local ad, should stimulate those who are missing such messages, to avail themselves of radio.

Contest

Prizes for and publication of the best letters on the subject, "How My Radio Pays a Profit," should successfully demonstrate the utility of a farm set.

Service

The dealer who maintains a sales and service truck covering his rural territory, at regular intervals, should be in a very strong position with the farmer trade.

Trial Installations

A radio installed on trial in a farm home has a good chance of remaining a permanent fixture. After a few days of satisfactory reception, of entertainment and utility programs, the farmer cannot help being convinced that radio, for him at least, is a good investment.

Follow the Harvest

In many sections the sales campaigns in country districts can be timed simultaneously with the harvest and marketing of important crops.



Demonstrate at schools and farmers' meetings

Radio Retailing

A McGraw-Hill Publication

FEBRUARY, 1928

Vol. 7, No. 2

Large MARKET

No Need to

Don't Dump D.C. Sets

"DUMPING," even when apparently justified by a flat market, is one of the most destructive practices known to merchandisers. At best it is a confidence-destroyer and a profit-killer.

Radio Retailing submits that immediate causes or future possibilities do not, and will not, justify selling battery operated sets, or eliminator equipped D.C. tube sets, at a sacrifice—now or later. Superficial thinking, not fundamentals, is causing this unwise action.

It is entirely possible that a profit-making demand could be created for these goods which are now being sacrificed and that a substantial market exists, and will continue to exist, for D.C. sets. Some of the factors influencing these deductions are as yet in a development state. They will assume a more important place in the picture, with respect to their effect on public demand and promotional policies, this spring and summer. Summarized, they are:

The public is interested primarily in a complete power operated set—not in the technical nature of the devices employed to obtain this end. This statement is based on recent accumulation of evidence from which we quote these examples:

A street survey, conducted in December by the *Chicago American*, disclosed the fact that 66 of the 78 persons interviewed thought that an electrical set was one which operated "direct from the light socket." Only fifteen per cent were of the opinion that such a set must be equipped with A.C. tubes. When asked specifically, "What is an A.C. set?" 24 stated that it was one using the new A.C. tubes. Sixty-three per cent claimed there was no difference between an A.C. set and an electric set. Five had no opinion.

A live and fearless dealer located in northern Illinois increased his business 40 per cent this past fall and winter by stressing simplification and improvements in time-tried principles. He found it unnecessary to swing to radical departures in set design. He experienced no difficulty in selling eliminator operated, D.C. receivers because he found, in this combination, all the talking points needed to close each deal. Result—an orderly movement of stock, a clear cut sales policy and an unconquered clientele.

In many localities, with unstable power supply, the A.C. sets do not function with satisfaction equal to D.C. sets. In those localities, therefore, a definite swing back to battery or eliminator operated receivers may be expected.

Definite action is being taken by the Midwest Radio Trade Association of Chicago and the Better Business Bureau, and projected for national adoption, to devise a code of terminologies designed to clarify in the public mind the confusion now existing as to the definition of

the words "electrified," "all electric," "A.C. operated" and similar technical descriptions widely and confusingly used in radio advertising, both by the dealer and manufacturer.

A market of at least ten million homes not now serviced by the lighting companies cannot be ignored. True, many of these prospects are unreachable or unable to buy a radio set. There remains, however, a possible actual market in excess of 4,000,000 families.

The facility with which earlier set models can be "electrified" by power units and A.C. harnesses is another element which cannot be ignored.

In the light of these facts, it is logical to assume that the D.C. set is still a perfectly sound article of merchandise for which there exists, or can readily be created, a demand sufficient not only to move existing stocks without resorting to price slashing, but also to provide a fair market for D.C. sets during the next year or two. There is no justification for disrupting that market.

* * *

Overproduction or a Healthy Shortage?

THE radio industry is young, as industries go, but it certainly is mature enough to have learned the folly of producing equipment faster than the market can absorb it.

In many industries, manufacturers have found it expedient to create a shortage of merchandise, rather than run the risk of overproduction with its consequent demoralization of price markets. It is high time that the radio trade thought seriously about the general adoption of such a policy. Let public demand be one jump ahead of the supply. Not until then will radio achieve any degree of stabilization.

* * *

A. C. Sets and Service

ALTHOUGH the A.C. set may be a step towards radio Utopia for the general public, it is far from this ideal state as far as the service man is concerned. Reports indicate that A.C. sets have complicated rather than simplified the service problem.

True, many sets are in use that so far have given perfect satisfaction, but there are also many others that have not, particularly as regards the life of the tubes.

The troubles that develop in an A.C. set are of an entirely different character than those which service men have encountered in battery-operated sets. Radio merchants should bear in mind that A.C. sets will require skilled servicing, and service men should have the circuits fully in mind and acquire a complete knowledge of the functions of all the components in order to be able to make quick, intelligent tests and repairs.

Exists for D.C. Sets Sacrifice Them

Market Disruption, Trade-ins
Healthy Shortage, A.C. Service,
Law Suits, Saturation,
and other things discussed by the
editors

Two Speakers Needed

THE use of two speakers, of complementary tonal characteristics, will as every dealer knows materially improve the quality and effective range of radio reception. Here is another equally worthy reason for advocating the use of two or more reproducers—and incidently increasing gross sales: When the sound waves come from only one source attention is focused on that source, just as one is impelled to follow the baton of an orchestra leader and lose, thereby, that opportunity for relaxation so necessary for the fullest enjoyment of the music itself. Two speakers, placed in opposite corners of the room, will overcome this tendency toward tense concentration on the source of the sound rather than on the program itself.

Use both arguments, wider range plus balanced distribution, the next time you set out to sell that second speaker.

* * *

Cheaper Than Law Suits

RESEARCH is cheaper than law suits. If half the money that has been spent in law suits and patent royalties in the past two years had been devoted to research work the independent radio industry would be years ahead of the position it now holds in engineering leadership. There are many excellent engineers available capable of research work provided they receive adequate compensation. There are also many basic principles of radio yet to be discovered. A well-equipped research laboratory and a competent engineering staff must be maintained if radio manufacturers hope to continue in the picture on a permanent basis.

* * *

Pianos and Phonographs Should Stay in the Home

THE growing tendency of many music houses to accept old pianos and phonographs in trade for radio sets, frequently at an excessive allowance, is a destructive practice. The resale market for these musical instruments is a limited one. The difference between the "asking allowance" and the market value of obsolete pianos and phonographs is too great to permit of an adequate gross margin on both the first transaction and subsequent sale.

"Furthermore," to quote E. A. Kieselhorst, president of the Kieselhorst Piano Company, St. Louis, a man of thirty-two years' experience in the music business, "this practice works a hardship on the original owner. He should keep his piano or his phonograph. They are bought and paid for, and, in their way, will contribute almost as much to the development of the home life as will the radio. I discourage parting with these valuable

instruments, and am able, generally, to convince the radio prospect that, in fairness to his family, he should forget this sacrificial trade-in idea of his and add, not subtract, from his inventory of enjoyment assets. If forced to name an allowance I quote the market price. But three out of four times the preceding argument wins out and the instrument stays in the home."

* * *

Fourteen Years Away

IT HAS been estimated by Radio Commissioner Caldwell that it will take fourteen years, or until 1942, to equip every American home with radio at the present rate of expansion. This without taking into consideration the replacement market or the number of new homes created every year.

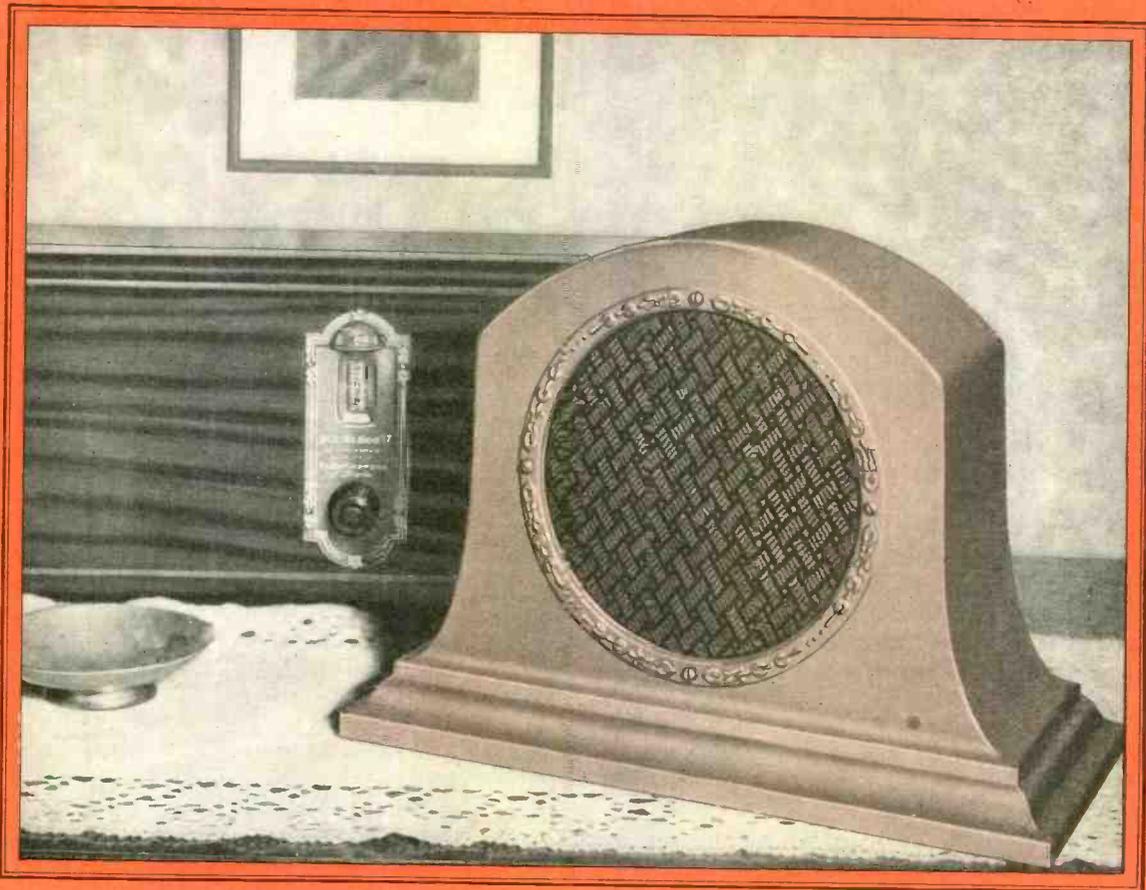
Radio, therefore, presents a market of unusual possibilities. The saturation picture may vary in individual towns, but the market is there, and as the saturation point is a nebulous mark which no one has ever caught up with, it is safe to assume that the market will always be there for those who go after it.

SELL 'EM AN A. C. SET



Copyright, Central Press Association

The reproducer
that is the
standard of
comparison in
the radio industry



RCA LOUDSPEAKER 100A. \$35 LIST.

This sign marks the leading



dealer in every community

RADIO CORPORATION OF AMERICA NEW YORK CHICAGO SAN FRANCISCO

RCA Loudspeaker

MADE BY THE MAKERS OF THE RADIOLA

The great advances in radio design are pioneered by RCA

**The Incomparable
SUPEE-HETERODYNE
to be had only in
RCA RADIOLAS**

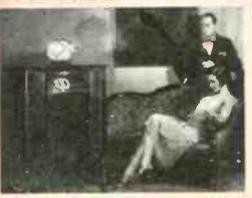
For the exacting requirements of congested broadcasting areas, the highly selective RCA Super-Heterodyne circuit is universally recognized as the best achievement in radio design.

The Super-Heterodyne has been developed exclusively by the Radio Corporation of America and its associated companies, General Electric and Westinghouse, and only in RCA Radiolas is possible to obtain it.

The incomparable RCA Super-Heterodyne, when operated directly from your domestic light current, is the most advanced development in radio.

A run of ten radiolas brings you your home—with amazing realism and tone perfection—the music of great symphony orchestras, the drama of famous operatic stars, light opera direct from the metropolitan houses, news of national events reported on the spot, the speeches of the great leaders of our time.

Special for purchase of articles
See page 10

RCA RADIOLA
MADE BY THE MAKERS OF THE RADIOTRON

The four great weeklies—Collier's, Liberty, Literary Digest and Saturday Evening Post—will carry page and double page RCA sales advertising through 1928.



This sign marks the leading dealer in every community



RCA RADIOLA 17 Equipped with Radiotrons \$157.50 LIST

RADIO CORPORATION OF AMERICA NEW YORK CHICAGO SAN FRANCISCO

RCA Radiola

MADE BY THE MAKERS OF THE RADIOTRON

Can the Music Trade Make Money Out of Radio? *Continued from page 40*

agencies or conditions, tuned up to a fine point of perfection before it left the factory, and kept that way in his warerooms. Both his natural pride and his sales appeal to his customers and to his customers' friends hinged upon the lasting qualities of the instrument he sold, and the little care required. His service on pianos went beyond delivery and proper conditioning in the customer's home, even to the extent of free tunings for a year. His guarantee was almost unlimited in its scope.

PROBLEMS OF SERVICE

WHAT happened when he tried to apply this service to radio? Both the installation and maintenance features of radio service were beyond anything he had hitherto attempted. Yet his idea has been to see the radio customer through in the same way he did the piano buyer. He gave away unthinkingly a greater service on radio than he ever had to on the piano, and that, too, without consideration of the fact that he had a smaller unit sale to charge the service to.

The phonograph man had somewhat the same problems with the exception that he previously had not even as much service to contend with—the phonograph was too nearly foolproof.

Along came radio, with its aerials, ground wires, battery connections, hook-ups, howls and static—to disturb the music man's whole idea of service to the customer. He was not able to figure his service charges like the electrical man who was used to handling service calls and charging for them, the same as he would for any small electrical job. The music merchant did not see his way clear to charge for such service, either did not think of it or did not dare to. Perhaps he did not know how to give service.

There have been a great many music dealers who have wasted their profits and the good will of their customers in incompetent service. It seems advisable for the music merchant to establish the best possible kind of service, or else let it alone. The latter course may not be possible, because the radio service man is a potential, if not an actual, competitor in the sale of sets.

In some figures published by *Radio Retailing* in October, 1925, the music stores showed a notably low percentage of service departments which paid for themselves, there being 50 per cent greater proportion of radio and electric shops which reported favorably in this respect than there were music stores.

Again, the radio and electric stores attributed more than twice as many sales to service, as did the music stores. Excepting only the department stores, which are probably not as much depended upon for service as any of the other stores selling radio, the music store realized less good will and consequently less sales from their service departments, according to the same figures.

Yet again, more of the music stores charged less money for service (a lower rate per hour), than any of the others, not excepting the department stores.

Quite evidently, the music store has a problem of management, to make its service department pay, either in terms of good will resulting in sales, or in direct revenue, or both. Yet the music store undertakes to give as long a period of "free service" as any other class of store selling radio, ranking close to the top in the percentage of stores giving one year's service without charge.

How is it practical, then, for the music merchant to reduce his service cost, or, putting it differently, to

increase his service revenue, so that this factor will not eat up his profits or his good will?

In order that we may consider the answer to this in its broader aspects, let us also include the other profit-eating factor to which the music dealer has directed too little attention—that of concentration on definite lines of radio sets. It is noteworthy that a larger number of manufacturers are giving more and more attention to the service problems of their dealers, hence the choice of lines is tied up closely with the service factor. It is important for the music dealer to concentrate his merchandising effort on certain well-defined lines in radio, just as it is important for him to concentrate on a "leader" in his piano lines, with a choice of medium-priced and popular-priced models of recognized values.

It is a matter of record that the dealer lost a substantial part of the gross revenue that might otherwise have been profit, through the scrapping of obsolete stock, or the competition of distress merchandise. Too many lines of unknown quality laid him open to unhappy results.

Now that these conditions are cleared up, to some extent at least, the music dealer can concentrate his merchandising efforts and his better business judgment on lines which assure the best returns, the least likelihood of an upset market, and the greatest co-operation of the manufacturer and jobber, both as to sales co-operation and the vital service factor.

WHAT ARE THE RULES OF PROCEDURE?

WHETHER he decides to handle his entire servicing problem in his own department or not, it is important that he establish a uniform basis for meeting the service demands of his customers. First of all he should have a basic installation charge, and once a set is installed, he should have an acknowledgment from the customer that it is working satisfactorily. The dealer's guarantee of free service should be limited as to time, possibly 30 days, after which a charge based on time and expense should be made.

One of the best suggestions for "free service," beyond the period given in the contract, may be found in *Radio Retailing* for December, in the article, "Come In and Ask Questions." While this applied to the radio specialty shop, it would fit most happily the music store problem. This is based upon the idea of "free service" in the store, in the way of advice to all comers, who may come into the store in response to a general invitation to "Come in and ask questions." The music store with this kind of service is in a position to maintain its good will, and at the same time to charge for outside calls.

To sum up the important steps for the music dealer to take, whether he decides to set up a complete service department, or whether he depends upon outside service, are these:

1. To determine whether he has concentrated his lines of merchandise to a degree consistent with the selling effort he will put forth.
2. To focus his selling effort upon the merchandise best suited to his facilities and service.
3. To define his relationship with the manufacturers and jobbers of the lines upon which he concentrates, so as to get the fullest benefit of their sales promotion and service helps.
4. To give radio the place it should command in his own promotion program, and set up his sales force and advertising schedule accordingly.
5. To establish a service policy in keeping with this program, and study more carefully the expenses of his service department with a view to making it pay its own way.

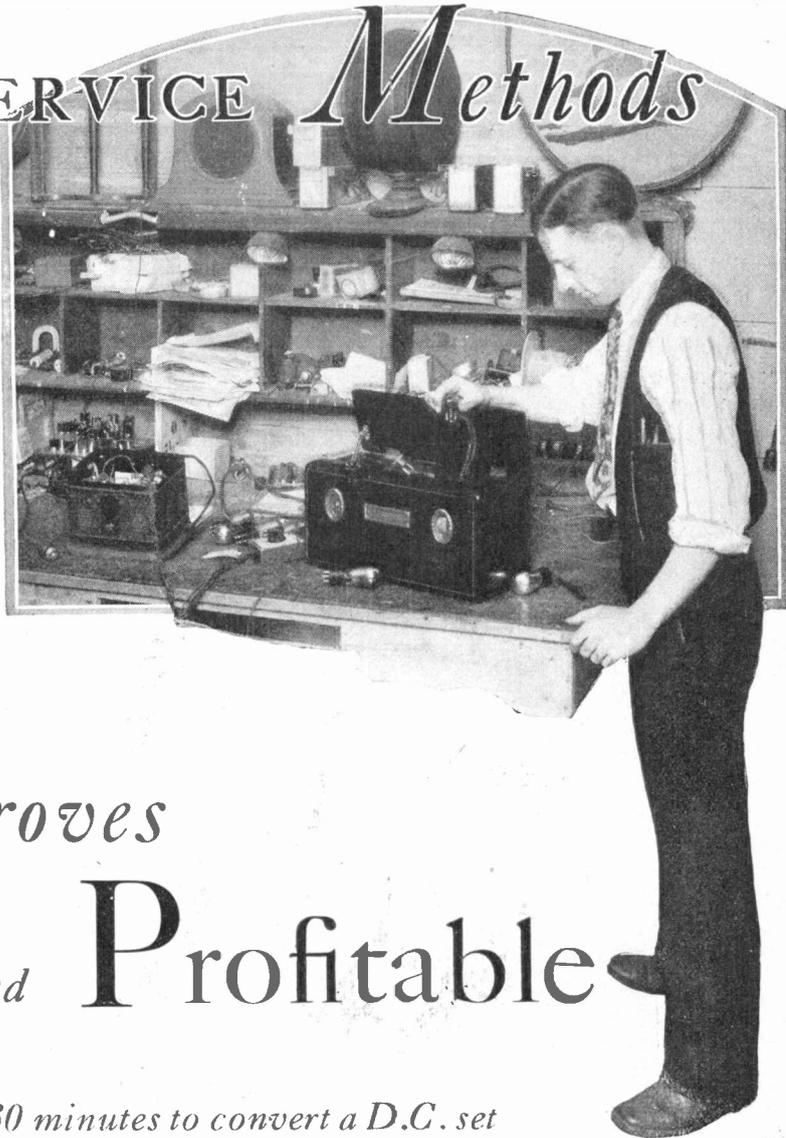
Practical SERVICE Methods

Conducted By
HENRY W. BAUKAT
Technical Editor

A.C.

Harness Proves Practical and Profitable

It takes less than 30 minutes to convert a D.C. set to one actuated by A.C. tubes. Result—a satisfied customer and another \$84 sale



RESPONDING to insistent requests from a substantial number of its dealers for a practical means of satisfying—conveniently and economically—the growing demand, from owners of D.C. tube sets, for A.C. tube operation, C. P. Hindringer, manager of the wholesale department of Lyon and Healy, Chicago, Ill., has been giving, since November, 1927, the “harness” method of adaptation practical consideration.

“To date,” he states, “I have distributed to key dealers 25 of these outfits. A large majority of these dealers, so far heard from, state that the idea works entirely satisfactorily and that there appears to be a good market for ‘changeover’ devices.

“Each assembly consists of a step-down transformer to supply filament current for the A.C. tubes, a B-power supply unit and a wiring harness. The latter has socket adaptors and a volume control regulator attached. The hook-up so far used is designed to change the Radiola 16 from a battery operated set to a line power, A.C. tube, receiver. Both our laboratory tests and the reports from our dealers indicate that this changeover not only can be effected by the average servicemen in less than half an

hour; that the resulting reception and performance of the rewired 16 equals that of the 17; but that there exists a worthwhile public demand for service of this nature.

“There are many other popular sets susceptible also to this treatment, and consequently to this merchandising opportunity, but as each set requires its own special wiring assembly I am led to cite specific cases in presenting my experience.”

THE advantage of stocking changeover items is well expressed in the language of one of these 25 dealers: “I am now in a position,” he declares, “to meet the requests, which have already come to me in noticeable numbers, for ‘something that will permit me to use the new A.C. tubes.’ I suggest the ‘special’ two-circuit power unit at \$47.50, the ‘harness’ as \$15, and the new tubes: four of the ‘26, type one ‘27 and one ‘71 type. One end of the wiring assembly is connected to the power unit. The socket adaptors, which come already wired to the harness, are inserted in the D.C. sockets, the A.C. tubes are then inserted in the other end of these

adaptors—and there you are. I make my regular dealer profit on a transaction that totals about \$84—less a market value allowance granted for the A-battery and a very small allowance for the old tubes.

C-Battery Detector for A.C. Operation

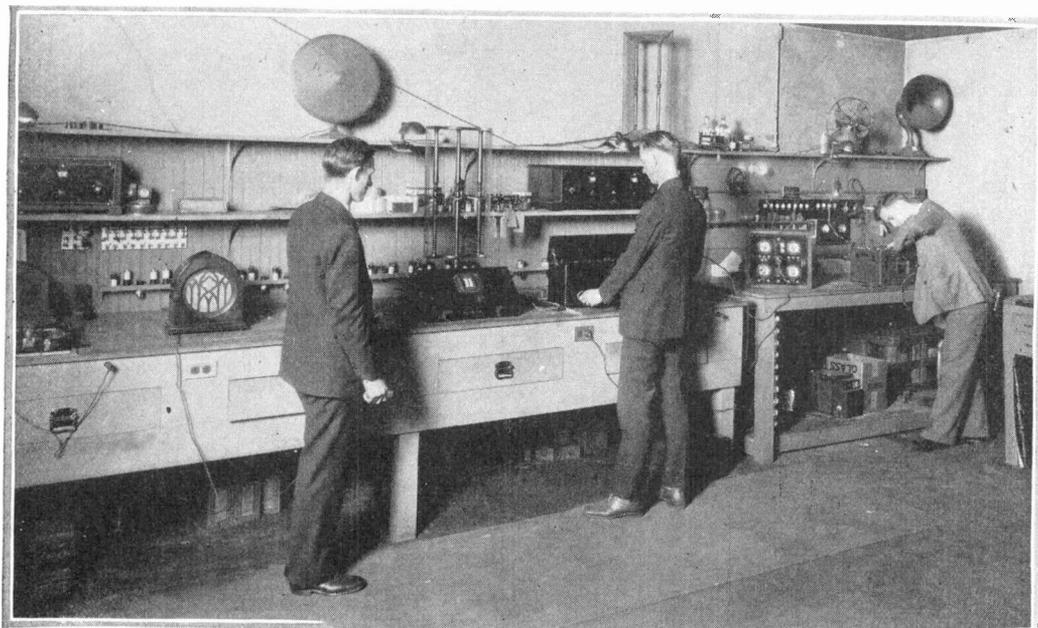
In some cases where the owner of an ordinary type receiver has converted it to a.c. operation by rewiring and changing over to the new tubes excellent operation has been obtained, but in others the hum from the line was decidedly noticeable. In cases where the hum was objectionable it was usually found that the source was in the detector circuit.

In the ordinary detector circuit a grid leak and con-

denser is used and this method does not seem to work well with some of the a.c. tubes. Much better results may be obtained by using the C-battery method of detection. In this method the return from the grid is placed on the negative lead with a small C-battery of from 1½ to 3 volts placed in series with the center tap.

In some receivers a different type of a.c. tube is used such as the heater type, while the others are of the high current low voltage type. Even with the special detector tube for a.c. operation improved results are often obtained by means of the C-battery method of detection.

The service man can easily install a small dry-cell C-battery and as very little current is taken from this battery it will last a long time. It has been found much easier in actual practice to obtain this voltage from a small dry cell rather than from the a.c. plate supply.



Efficiency in SERVICING

Desk sergeant, at phone all day to receive calls, is in touch with all men scattered at work

*By H. A. SPOKESFIELD
Kansas City Power & Light Co.*

RADIO service is the greatest branch of radio merchandising. Without it, there positively can be no real worthwhile success or continual growth and expansion. Great pride is felt in the success of the Radio Service Department of the Kansas City Power & Light Company, distributors of Kolster Radio. This department operates in co-operation with the Sales Department, and is in charge of a man well versed in the fine points of customers' satisfaction, as well as the technical part of the radio business.

A man is always on duty to take telephone calls for

service. This Desk Sergeant is always in touch with all the men on duty, and each man must call headquarters every half hour.

Two shifts of men are used, one group coming on at 8:30 a.m., and signing off at 6:30 p.m. and the second group coming on at 1:00 p.m. and signing off duty at 9:00 p.m. This gives each man sufficient time for rest and recreation, so that he is always fresh to tackle the job.

Men in the department are paid a wage that will draw and hold the higher caliber men in the radio service field,

Please turn to page 73

Audio and Filament-Supply TRANSFORMERS

INFORMATION concerning radio products, with the name and address of the manufacturer, is a feature of *Radio Retailing's* editorial service. These lists are published from time to time as market conditions warrant. This service is without charge of any kind to the manufacturers listed.

The first following list is of audio frequency transformers. By following the column headings, the list price, turn ratio, amount of B-current that can be safely used in the primary winding, as well as the primary inductance, can be at once determined. The weight and size are also given.

The second list is that of filament supply transformers which are so necessary for the new a.c. tubes. The standard type of these all operate from 110-volt, 60-cycle current. Special windings for other frequencies and voltages can always be had upon request at a slight additional charge. In some cases it will be noticed that transformer windings for power amplifiers are included. However, this list was intended solely for filament supply transformers and the inclusion of a few of the other types is merely incidental and is not representative.

Audio-Frequency Transformers

Name and Address of Manufacturer	Trade Name and Model Number	List Price*	Turn Ratio	Primary Current Limit in Milliamp.	Primary Inductance in Henrys	Dimensions in Inches L—W—H	Weight in Lb.—Oz.	Material of Core
Acme Apparatus Corp. 37 Osborn St., Cambridge, Mass.	Acme—A-2 MA-2	\$3.00	4.25-1	0.02	8	2½x2½x2½	1-0	Appolo Special Appolo Special
		6.00	5-1	30	30	3½x3½x2½	2-0	
Alden Manufacturing Co. 52 Willow St. Springfield, Mass.	Truphonic—30f 301-R 300-Output Amplification Set	5.00	1-1	20	38	2½x1½x2½	0-12	High Silicon steel (Special 1. ynamo)
		5.00	1-1	20	38	2½x1½x2½	0-12	
		5.00	1-1	30	38	2½x1½x2½	0-12	
		15.00	1-1	20	38 ea.	2½x1½x2½	2-4	
All-American Radio Corp. 4201 Belmont Ave. Chicago, Ill.	All-American—R-14 R-15 R-500	4.50	3-1	15	0.365	3x2x3½	1-0	Silicon steel Silicon steel Silicon steel
		4.50	5-1	15	0.338	3x2x3½	1-0	
		9.00	2.8-1	15	100	2½x2½x4	3-0	
American Specialty Co. 165 Holland Ave., Bridgeport, Conn.	Kelford—62-A	3.00	5-1	65	100	2½x2x3½	1-2	Cyl—0.80
American Transformer Co. 178 Emmet St. Newark, N. J.	Amer. Tran.—AF-6 AF-7 De Luxe De Luxe	5.00	5-1	\$12	†11 to 12	2½x2x3	0-13	Silicon steel Silicon steel High permeability alloy High permeability alloy
		5.00	3.5-1	10	†18	2½x2x3	0-13	
		10.00	3-1	5	†300	2½x2½x2½	1-6	
		10.00	4-1	7.5	†240	2½x2½x2½	1-6	
		†At 500 cycles. †At 60 cycles (no D.C.).	§Based on D.C. saturation.					
Anylite Electric Co. Wall St., Ft. Wayne, Ind.	King Cole—F-1 F-4 F-2	2.10	2-1			2½rd.x2½		Silicon steel
		2.25	5-1			2½rd.x2½		Silicon steel
		2.35	3.7-1			2½x2x2½		Silicon steel
Dongan Electric Mfg. Co. 2987 Franklin St. Detroit, Mich.	K K S S S H H H H	1.75	5-1	10	5	2½x1½x2½	0-12	Silicon steel Silicon steel Silicon steel Silicon steel Silicon steel Silicon steel Silicon steel Silicon steel Silicon steel
		1.75	3.5-1	10	5	2½x1½x2½	0-12	
		3.00	5-1	10	34	2½x2½x2½	1-0	
		3.00	5.5-1	10	45	2½x2½x2½	1-0	
		3.00	2-1	10	53	2½x2½x2½	1-0	
		4.50	5-1	16	52	3½x2½x3½	1-12	
		4.50	3.5-1	16	60	3½x2½x3½	1-12	
		4.50	2-1	16	76	3½x2½x3½	1-12	
		4.50	1-1	25	34	3½x2½x3½	1-12	
Federal Radio Corp. Buffalo, N. Y.	Super—65 65-A	8.00	5-1		11.1	3½x3½x2½	1-0	Silicon steel Silicon steel
		8.00	3-1		11.1	3½x3½x2½	1-0	
Ferranti, Inc. 130 W. 42nd St. New York, N. Y.	AF—4 OP—5 AF—4-e OP—7-c OP—1 OP—8-c AF—3 AF—3 AF—3-c AF—5	8.50	3.5-1	5	38	3x2½x3½	1-8	Ferro alloy Ferro alloy Ferro alloy Ferro alloy Ferro alloy Ferro alloy Ferro alloy Ferro alloy Ferro alloy Ferro alloy
		8.50	1-1	25	8	3x2½x3½	1-8	
		9.00	3.5-1	5	38	3x2½x3½	1-8	
		9.00	1.4-1	25	40	3x2½x3½	1-8	
		10.00	1-1	40	10	3x2½x3½	2-10	
		11.00	1.4-1	40	60	3x2½x3½	1-10	
		12.00	3.5-1	5	100	3x2½x3½	1-14	
		12.00	5-1	5	65	3x2½x3½	1-14	
		13.00	3.5-1	5	100	3x2½x3½	1-14	
		14.00	3.5-1	10	130	3x2½x3½	2-10	
		Ford Radio & Mica Corp. 111 Bleecker St. New York	10693 F.M.C. Supertran	2.50	3-0			
2.75	3-1, 5-1					2x2x3	0-12	
3.75	3-1, 5-1					2x2x3	1-0	
General Radio Co. 30 State St. Cambridge, Mass.	GR—285-H 285-D 441 Push-Pull Amplifier	6.00	6-1	12	†15	3½x2½x3½	1-8	Silicon steel Silicon steel Silicon steel Silicon steel
		6.00	2.7-1	12	†43	3½x2½x3½	1-8	
		*20.00	2.25-1	12	30	9x5½x5	5-8	
		†At 1,000 cycles. Note—Push-pull transformers are only sold as a complete amplifier and not separately.						
Halldorson Company 4745 N Western Ave., Chicago, Ill.	Halldorson—A Halldorson Overtone—B	4.00	4-1			2½x1½x2½	0-12	High grade silicon High grade silicon
		6.00	2.5-1			2½x2x2½	1-0	
Jefferson Electric Mfg. Co. 501 S. Green St. Chicago, Ill.	No. 370 Star Sealed Star Sealed Concertone Sealed	2.25	3-1	10	60	2½x2½x1½	0-10	High grade silicon High grade silicon High grade silicon Special alloy
		2.75	5-1	10	60	2½x2½x2½	1-0	
		2.75	3-1	10	60	2½x2½x2½	1-0	
		6.00	3-1	10	200	3½x2½x3½	2-4	
Karas Electric Co. 4040 N. Rockwell St., Chicago, Ill.	Karas Harmonik Karas—28	5.00	4-1	30	17.6	2½x2½x2½	1-4	High silicon steel High silicon steel
		8.00	3-1	30	28.5	3½x2x3½	1-10	
Kellogg Switchboard & Supply Co. 1066 W. Adams St., Chicago, Ill.	Kellogg—509 Output 508	4.00	1-1	40	25	3½x2½x3½	2-0	Silicon steel laminations Silicon steel laminations
		5.00	3.25-1	25	90	3½x2½x3½	2-0	
Modern Elec. Mfg. Co. 316 Mulberry St. Toledo, Ohio	Modern—M-3 M-1 M-2 M-4 M-5	8.00	Output	25		3½x3x4	3-12	4½ per cent silicon steel 4½ per cent silicon steel 4½ per cent silicon steel 4½ per cent silicon steel 4½ per cent silicon steel
		8.50	3-1	16		3½x3x4	3-12	
		8.00	4-1	16		3½x3x4	3-12	
		*20.00	3-1	16		3½x3x4	3-12	
		per pair	Output	25		3½x3x4	3-12	
Muter Co., Leslie F. 76th and Greenwood Ave. Chicago, Ill.	Muter—1500 1550 3300 3320 Output Filter—2700	2.00	3.5-1	10	150	2½x2½x2½	0-12	High silicon High silicon Special silicon Special silicon Special silicon
		2.25	5-1	10	95	2½x2½x2½	0-12	
		7.00	3.5-1	10	270	3½x2½x4	2-8	
		7.00	3-1	10	300	3½x2½x4	2-8	
		5.00	3-1	10	300	3½x2½x4	2-8	
			Choke	85	†120			

Audio-Frequency Transformers—Continued

Name and Address of Manufacturer	Trade Name and Model Number	List Price*	Turn Ratio	Primary Current Limit in Milliamp.	Primary Inductance in Henrys	Dimensions in Inches L—W—H	Weight in Lb.—Oz.	Material of Core
Pacent Electric Co., Inc. 91 7th Ave., New York	Pacent—27-A 27-B		3-1	10	150	3 1/2 x 2 1/2 x 3 1/2	2-9	Silicon steel
			1-1	40	10	3 1/2 x 2 1/2 x 3 1/2	2-9	Silicon steel
Paragon Electric Corp Upper Montclair, N. J.	Paragon—81	\$4.00	3.5-1	20		1 1/2 x 1 1/2 x 2 1/2	0-11	
Precise Mfg. Co. 254 Mill St., Rochester, N. Y.	Precise—480 480	5.00 5.00	2.5-1	20		3 1/2 x 3 x 2 1/2	1-6	Silicon steel
			5-1	20		3 1/2 x 3 x 2 1/2	1-8	Silicon steel
Premier Electric Co., Grace and Ravenswood Ave., Chicago, Ill.	Premier Hedgehog Premier Hedgehog Premier Hedgehog Premier Hedgehog "C-L-TITE" Hedgehog	3.50 3.50 3.50 4.50 5.00	1-3	30		2 x 1 1/2 x 1 1/2	0-8	Pure Norway iron wire
			1-4	30		2 x 1 1/2 x 1 1/2	0-8	Pure Norway iron wire
			1-5	30		2 x 1 1/2 x 1 1/2	0-8	Pure Norway iron wire
			1-10	30		3 x 1 1/2 x 1 1/2	0-9	Pure Norway iron wire
			All stage	30		2 1/2 x 2 1/2 x 2 1/2	0-10	Pure Norway iron wire
Ranger Coil Co., W. Davenport, N. Y.	Ranger Ranger Ranger Ranger	6.00 6.00 6.00 6.00	2-1		200	3 x 3 x 3	1-1	Solid milled core
			3-1		200	3 x 3 x 3	1-1	Solid milled core
			4-1		200	3 x 3 x 3	1-1	Solid milled core
			5-1		200	3 x 3 x 3	1-1	Solid milled core
Robertson Davis Co., Inc., 412 Orleans St., Chicago, Ill.	Meloformer	5.00	4-1	20	5	2 x 2 x 2 1/2	0-12	Cast alloy solid core
Samson Electric Co., Canton, Mass.	HW A 3 HW A 3 HW K 3 Symphonic Symphonic Type V Symphonic Push Pull	5.00 5.00 5.00 10.00 14.00 19.50*	2-1	50	44	2 1/2 x 2 1/2 x 3 1/2	1-5	Silicon steel
			3-1	60	18	2 1/2 x 2 1/2 x 3 1/2	1-5	Silicon steel
			6-1	95	9	2 1/2 x 2 1/2 x 3 1/2	1-5	Silicon steel
			3-1	60	69	2 1/2 x 2 1/2 x 3 1/2	1-6	Special alloy steel
			3-1	60	69	2 1/2 x 2 1/2 x 3 1/2	1-5	Special alloy steel
			3-1	60	69	2 1/2 x 2 1/2 x 3 1/2	1-5	Special alloy steel
Note—First item is an interstage transformer of the push pull type but is not sold in pairs.								
Scanlon Electric Mfg. Co., 1117 No. Franklin St., Chicago Ill.	Scanlan E 3 E 4 E 5 E 6 C 1 C 2 C 3 C 4 C 5 C 6 D 21 D 22 chest.	2.00 2.00 2.00 2.00 2.50 2.50 2.50 2.50 2.50 2.50 6.50 6.50 8.00	3-1			2 1/2 x 1 1/2 x 2 1/2	1-0	Silicon steel all models
			5-1			2 1/2 x 1 1/2 x 2 1/2	1-0	
			output trans.			2 1/2 x 1 1/2 x 2 1/2	1-0	
			output choke			2 1/2 x 1 1/2 x 2 1/2	1-0	
			1-1			2 1/2 x 1 1/2 x 2 1/2	1-4	
			2-1			2 1/2 x 1 1/2 x 2 1/2	1-4	
			3-1			2 1/2 x 1 1/2 x 2 1/2	1-4	
			5-1			2 1/2 x 1 1/2 x 2 1/2	1-4	
			output trans.			2 1/2 x 1 1/2 x 2 1/2	1-4	
			output choke			2 1/2 x 1 1/2 x 2 1/2	1-4	
			output trans.			3 1/2 x 3 x 3	3-8	
			output trans.			3 1/2 x 3 x 3	3-8	
			1-1 outp. trans.			4 1/2 x 3 1/2 x 2 1/2	3-12	
Silver-Marshall, Inc., 846 W. Jackson Blvd., Chicago, Ill.	S-M 220 S-M 245 S-M 246 S-M 243 S-M 220 S-M 230 S-M 231 S-M 231	6.00 7.00 7.00 7.00 8.00 10.00 10.00 10.00	3-1	10-15	90	2 1/2 x 2 1/2 x 3 1/2	2-4	4 per cent silicon steel
			3-1 6-1	10-15	90	2 1/2 x 2 1/2 x 3 1/2	2-6	4 per cent silicon steel
			1-1.89	100	26.5	2 1/2 x 2 1/2 x 3 1/2	2-4	4 per cent silicon steel
			1-.78	150	106	2 1/2 x 2 1/2 x 3 1/2	2-4	4 per cent silicon steel
			3-1	10-15	100	3 1/2 x 2 1/2 x 3 1/2	4-6	4 per cent silicon steel
			3-1 6-1	10-15	100	3 1/2 x 2 1/2 x 3 1/2	4-8	4 per cent silicon steel
			1-1.89	100	26.5	3 1/2 x 2 1/2 x 3 1/2	4-6	4 per cent silicon steel
			1-3.78	150	106	3 1/2 x 2 1/2 x 3 1/2	4-6	4 per cent silicon steel
Thordarson Elec. Mfg. Co., 500 W. Huron St.,	R-150 R-151 R-152 R 200	4.00 4.50 5.00 8.00	3.5-1		6	2 1/2 x 1 1/2 x 2 1/2	1-0	Apollo special silicon
			6-1		6	2 1/2 x 1 1/2 x 2 1/2	1-0	
			2-1		6	2 1/2 x 1 1/2 x 2 1/2	1-0	
			2-1		6	3 1/2 x 2 1/2 x 3	2-0	
Transformer Corp. of America, 1428 N. Orleans St., Chicago, Ill.	TCA 500 TCA 501 TCA 502 TCA 503 TCA 504 TCA 509 TCA 505 TCA 510 TCA 511 TCA 519 TCA 512 TCA 513 TCA 514-515	2.00 2.00 2.00 2.00 2.00 2.25 2.50 2.50 2.50 2.50 2.75 3.00 8.00*	output trans.			3 1/2 x 1 1/2 x 2	1-0	29 gauge high silicon
			1-1			3 1/2 x 1 1/2 x 2	1-0	29 gauge high silicon
			2-1			3 1/2 x 1 1/2 x 2	1-0	29 gauge high silicon
			3-1			3 1/2 x 1 1/2 x 2	1-0	29 gauge high silicon
			4-1			3 1/2 x 1 1/2 x 2	1-0	29 gauge high silicon
			output choke			3 1/2 x 1 1/2 x 2	1-0	29 gauge high silicon
			5-1			3 1/2 x 1 1/2 x 2	1-0	29 gauge high silicon
			output trans.			3 1/2 x 1 1/2 x 2 1/2	1-8	29 gauge high silicon
			1-1			3 1/2 x 1 1/2 x 2 1/2	1-8	29 gauge high silicon
			output choke			3 1/2 x 1 1/2 x 2 1/2	1-8	29 gauge high silicon
			2-1			3 1/2 x 1 1/2 x 2 1/2	1-8	29 gauge high silicon
			3.5-1			3 1/2 x 1 1/2 x 2 1/2	1-8	29 gauge high silicon
			push-pull:			3 1/2 x 1 1/2 x 2 1/2	1-8 ea.	29 gauge high silicon
			All above are of E & I laminations					

*Note—Push-pull, price per pair.

Filament Supply Transformers for A.C. Tubes

Name and Address of Manufacturer	Trade Name and Model Number	List Price	Primary Voltage and Frequency	Secondary Voltages (*Star if center tapped)	Maximum Secondary Output Current in Amperes	Overall Dimensions in Inches L—W—H	Weight in Pounds
Acme Apparatus Corp. 37 Osborn St., Cambridge, Mass.	Acme—AC-1 AC-2	\$6.00 7.50	110-60 110-60	*3-5	6-1	3 1/2 x 2 1/2 x 3 1/2	2 1/2
				1.5-2.5-5	6.3-1.75-1	3 1/2 x 2 1/2 x 3 1/2	2 1/2
American Specialty Co. 165 Holland Ave. Bridgeport, Conn.	Kelford—FS-1	7.50	110-60	*1.5-3-7	15	4 1/2 x 3 1/2 x 4 1/2	6
American Transformer Co. 178 Emmet St. Newark, N. J. ‡ Milliampers.	Amertran.—H-67 PF-280 PF-281	12.00 25.00 25.00	110-60 110-60 110-60	*1.5-2.5-5	8-5.25-2	5 x 4 x 4 1/2	9
				1.5-2.5-5.5-600	8-5.25-2-2-120‡	6 1/8 x 4 1/8 x 5 1/2	25
				1.5-2.5-7.5-7.5-750	8-5.25-3-3-120‡	6 1/8 x 4 x 1 1/2 5 1/2	25
Bremer Tully Mfg. Co. 520 S. Canal St., Chicago, Ill.	"A" Power Transformer—K-1	7.50	110-60	1.6-2.6-5.1	6-3-1	3 1/2 x 3 x 3 1/2	3
Dongan Electric Mfg. Co. 2987 Franklin St. Detroit, Mich.	Dongan—286 287 6514 6511 6515 4559 6510 6513 6512	2.50 2.50 4.25 4.25 4.75 5.00 5.25 5.25 5.75	110-60 110-60 110-60 110-60 110-60 110-60 110-60 110-60 110-60	7 1/2	1.25	2 1/2 x 2 1/2 x 3	1 1/2
				5	1	2 1/2 x 2 1/2 x 3	1 1/2
				1.5-2.5	4.2-1.75	4 x 3 x 2 1/2	2 1/2
				15	2.1	1 1/2 x 3 x 3	4 1/2
				1.5-2.5-5	4.2-1.75-0.5	3 1/2 x 3 x 2 1/2	5
				1 1/2	16	3 1/2 x 3 x 2 1/2	5
				Same as 6514 except with plug	outlet for B power unit		
				Same as 6511 except with plug	outlet for B power unit		
				Same as 6515 except with plug	outlet for B power unit		
						5 1/2 x 3 x 2 1/2	5
		4 x 3 x 2 1/2	5 1/2				

Filament-Supply Transformers—Concluded

Name and Address of Manufacturer	Trade Name and Model Number	List Price	Primary Voltage and Frequency	Secondary Voltages (*Star if center tapped)	Maximum Secondary Output Current in Amperes	Overall Dimensions in Inches L—W—H	Weight in Pounds
Dongan Electric Mfg. Co. (Continued)	820	\$6.00	110-60	3	8	4x3x2½	5
	4586	8.00	110-60	1½-2½-5	8.4-3.5-1	4½x3½x3	4½
	4587	8.00	110-60	1.5-2.5-7.5	8.4-3.5-2.5	4½x3½x3	4½
	5574	12.00	110-60	1.5-2.5-5-600	8.4-3.5-1-0.085	4½x4½x3½	11
	5560	14.00	110-60	1.5-2.5-5-5-600	8.4-3.5-1-2-0.085	4½x4½x3½	11
	5552 5553	20.00 22.00	110 60 110 60	Unit containing 5574 transf Unit containing 5560 transf	former and 2 chokes former and 2 chokes	6½x5½x3½ 6½x5½x3½	13½ 14
General Radio Co. 30 State St., Cambridge, Mass.	GR-440-A	10.00	110-60	2-3.5-5-7.5	10-5-2.5-2.5	4½x3½x4½	4½
Jefferson Electric Mfg. Co. 501-511 S. Green St. Chicago, Ill.	Jefferson-464-131	7.50	110-60	1.5-*2.5-*5	1	3½x3½x3½	2½
	464-141	7.50	110-60	*3-*5	8-1	3½x3½x3½	2½
	464-151	7.50	110-60	*15	3.5		
	464-132	9.25	110-25	1.5-*2.5-*5	7-2-1	3½x3½x3½	3
	464-142	9.25	110-25	*3-*5	8-1	3½x3½x3½	3
	464-152	9.25	110-25	*15	3.5		
	463-101	15.00	110-60	1.5-*2.5-*5	7-2-1	7½x5x4½	11
	463-102	18.75	110-25	1.5-*2.5-*5	7-2-1	7½x5x4½	13
Note—Last two are combination filament and B supply—includes	464-131 or	464-131 or	132, with	transformer for use with 80 ty	pe rectifier. (Chokes	not included.)	
Karas Electric Co. 4040 N. Rockwell St. Chicago, Ill.	A-C-Former-12	13.50	110-60	*2.5-*1.5-*6	3.5-8.4-1	4x3½x4	4½
	13	13.50	110-60	*2.5 and *5 or *7.5	14-2.5	4x3½x4	4½
Muter Co., Leslie F. 70th & Greenwood Ave. Chicago, Ill.	Muter-3600 Note—The 2-volt tap is for 1.5	8.50 voltage tubes	110-60 allowing dr	2-*3-*5 op in wiring. The 3-volt tap is	3.5-1 for 2.5 volt tubes allo	3½x2½x4 wing drop in	2 wiring.
National Co., Inc. 61 Sherman St., Malden, Mass.	National—F-226	10.00	110-60	1.5-2.5-*5	60 watts total	4x4x4½	5.7
Pacent Electric Co., Inc. 91-7th Ave., New York	Pacent-33	8.50	110-60	2-*3-*5	5-2-1	3½x3½x3½	2½
	32	18.00	110-60	500-*7½-*7½-*2-*3	0.12-1.25-1.25-5.25-3.5	4½x3½x5	8½
Paragon Electric Corp. Upper Montclair, N. J.	Paragon		110-60	*2.5-*1.5-*5	2-6-0.5	3½x3x3½	2½
Robertson-Davis Co., Inc. 412 Orleans St. Chicago, Ill.	Robertson-Davis-A-15	5.00	110-60	15	4	2½x2½x3½	2½
	S-4	5.00	110-60	4	15	2½x2½x3½	2½
	Q-4	5.00	110-60	*3	15	2½x2½x3½	2½
	R-5	5.00	110-60	*5-7.5	8-8	2½x2½x3½	2½
	A-20	8.00	110-60	15	6	3½x2½x3½	3½
	UX-10	9.00	110-60	*1.5-7.5-2.5-5	15-2-10-2.5	3½x2½x3½	3½
Samson Electric Co. Canton, Mass.	217	12.00	110-60	5-*7.5	20 watts total	6x4½x4½	
	463	14.50	110-60	1.5-2.5-5-*7.5	35 watts total	5½x4½x4½	
	Samson-259	17.50	110-25	1.5-2.5-5-*7.5	35 watts total	6½x4½x4½	
Silver-Marshall, Inc. 846 W. Jackson Blvd. Chicago, Ill.	S-M-247	5.00	110-60	1.5-2.5-5	4-4-1	2½x2½x3½	3
	325	8.00	110-60	1.5-2.5-5-*7.5	12-12-3-3	3½x2½x3½	5
Thordarson Elec. Mfg. Co. 500 W. Huron St. Chicago, Ill.	Van Horn Fil.—T-2370	5.00	110-60	1.25	15	3½x2½x3½	2½
	T-2180	5.00	110-60	*5	2	3½x2½x3½	2½
	McCullough Fil.—T-2504	7.50	110-60	*3	10	3½x3x3½	3½
	T-2230	7.50	110-60	7.5*	3	3½x3x3½	3½
	R.C.A. Fil.—T-2445	10.00	110-60	1.5-*2.5-*5	8-4-1	5½x2½x4½	6
	T-2382	10.00	110-60	*12	7		
	T-2383	15.00	110-60	*12	15		
Transformer Corp. of America. 1428 Orleans St. Chicago, Ill.	TCA-311	5.00	110-60	1.25	16	3½x3½x3½	3
	TCA-250	6.00	110-60	3	8.8	3½x3½x3½	3
	TCA-270	6.00	110-60	15	2.8	3½x3½x3½	3
	TCA-240	8.00	110-60	6	8.8	3½x3½x3½	3
	TCA-255	8.00	110-60	1.5-*2.5-*5	6.5-1.75-1	3½x3½x3½	3

Note—Also manufacture a power compact containing one transformer which delivers power for both the filament and plate, and two 30 henry chokes. These measures 6½x3½x5 in. and weighs 10½ lbs. These are furnished for any combination of a.c. tubes with any type of rectifying tubes.

Efficiency in Service (Continued from page 70)

and these men are constantly trained to do their job better. We take into consideration their personal appearance, courtesy, personality, promptness and technical efficiency. The number of men in this department is, of course, controlled by seasonal periods, but there is always kept a certain nucleus on which an efficient organization can be built within a short time.

Service men are paid a stipulated sum for their work, and in addition receive a specified sum for the use of their cars.

Frequently they take up the rôle of salesman while at their regular work, and a large number of accessories are sold by them, especially A and B socket-power units. Tube and battery sales are considered a part of their regular work. Through this policy of service, the majority of clients to whom sets are sold remain our customers when they need service. A rate of \$1.50 per hour is charged for service.

His arrangement puts our Service Department on a paying basis. In addition, we are always in an independent position when a situation arises, requiring

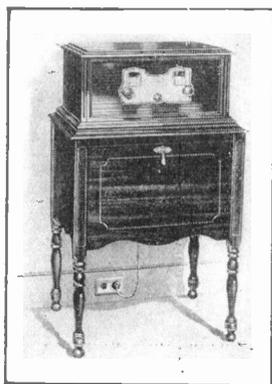
quick and diplomatic action, not to be forced to depend on outside sources, and most important of all, we keep in close contact with our customers, which is a very desirable thing to do. This has been accomplished by a well-equipped shop, having a bench which is properly outfitted (see the illustration at the head of this article) with sets and tubes where all lost motion is practically eliminated.

Here also is kept a complete record of any item sold which might require service. In the case of speakers, socket-power units and sets, a record card is made in the Sales Department, showing the sale number, date, name, address, make, model, serial number and any other information deemed necessary. This card is sent to the Service Department, where the date that free service expires is noted, after which it is filed. Data is entered on this card, and on the first call made after the expiration of free service, a card is left on the radio set, informing that all future calls will be charged for at the regular rate. This notification prevents any misunderstanding at a later date.



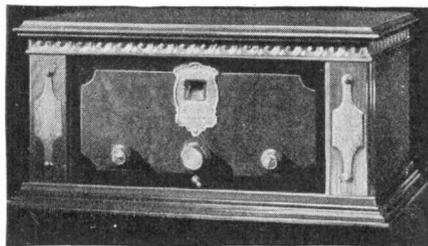
What's New in Radio and

This editorial section is prepared purely as a news service, to keep readers of "Radio Retailing" informed of new products.



New A.C. Sets

The Fada A.C. Special, A.C. Seven Table and A.C. Seven Console have just been added to the 1928 line of receivers made by F. A. D. Andrea, Inc., Jackson Ave., Orchard and Queen St., Long Island City, N. Y. Illustrated is the special table model which has an intended retail price of \$160. These sets are designed for use on 110 volt, 60 cycle lines but also have on them a toggle switch which permits the use of the receiver on as low as 90 volts in one position, and as high as 130 volts on another position. The heater or '27 type of tube is used throughout with the exception of the last audio stage where a '71 tube is used. The intended retail price of the table model is \$250, less tubes and floor cabinet. The Seven Console model retails for \$350, less tubes.—*Radio Retailing*, February, 1928.



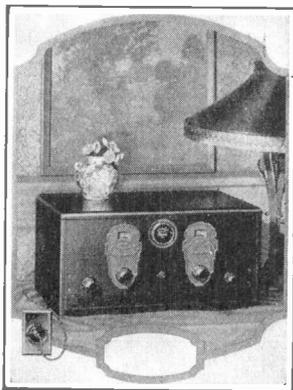
Five-Tube A.C. Receiver

An unusual feature of the new Model 37 A.C. operated Arborphone, made by the Consolidated Radio Corporation, Ann Arbor, Mich., is that it is sold to distributors and dealers without the B-power unit, thus providing an A.C. set for which the jobber or dealer can supply any B-power unit he wishes. The necessary C-voltage is automatically maintained and the set operates on from 90 to 180 volts. It is a five-tube set, using three '27 and two '26 tubes, with the A-power built in. The model 37 Series Arborphone, according to the manufacturer, has all the tone quality, selectivity, and distance-getting of the battery models, plus the convenience and economy of A.C. operation. The intended retail price, less tubes and B-power unit, is \$78.—*Radio Retailing*, February, 1928.

New Temple Powerola

This instrument incorporates a complete audio frequency system matched with an air column and a reproducing unit so as to give uniform sound output and is made by Temple, Inc., Chi-

cago, Ill. The power amplifier consists of a specially designed audio system using a standard '26 tube as one stage with a push pull stage of two '71A tubes. The rectifying system uses an '80 tube. The speaker unit consists of a very long Temple air column fitted with a specially matched Temple unit. This instrument is housed in an attractive walnut cabinet. It is designed for quality radio reproduction but can also be used as a complete phonograph unit by the addition of a conventional magnetic pickup. Price without tubes \$295. West of Rockies \$312. It is licensed under patents of Radio Corporation of America and associated companies. Price of complete set of tubes \$17. The new console model No. 85 cabinet has a compartment for A and B batteries or electrical equipment—size 12 in. x 23 in. x 12 in. Same walnut finish as model 65—Spanish design. Size of cabinet top 15 in. x 26 in. Height from floor 36 inches. Contains the same air column as the No. 18 Senior. Priced at \$85. West of Rockies, \$95.—*Radio Retailing*, February, 1928.

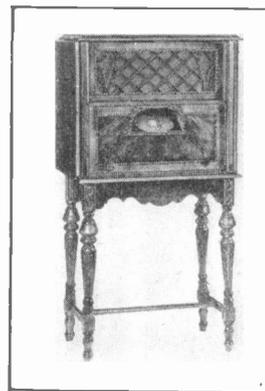


Electric Set with D.C. Tubes in Series

The Steinite Radio Company, 506 S. Wabash Ave., Chicago, Ill., announces its new model 990 electric set. This receiver has an illuminated two-dial control, three tuned stages of radio frequency and is encased in a solid Philippine mahogany cabinet, duco finished. It is built around the usual Steinite series-flament circuit, permitting the use of regular D.C. tubes instead of A.C. tubes and operated by means of a built-in rectifying unit. The intended retail price, less tubes, is \$85.—*Radio Retailing*, February, 1928.

Filament Control for Shielded Grid Tube

The Radiall Company, 50 Franklin St., New York City, maker of "Amperites" is now making a filament control known as No. 662 designed to be used with the new shielded grid tube. This unit will also handle the '20 type of tube on 6-volts. The intended retail price is \$1.10 complete with mounting.—*Radio Retailing*, February, 1928.

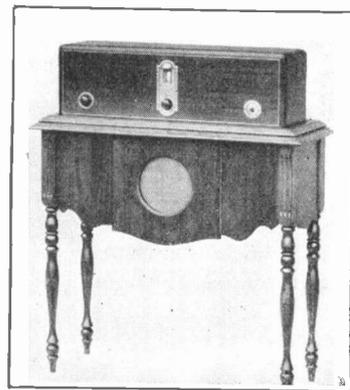


Six-Tube A.C. Set

The Zenith Radio Corporation, 3620 Iron Street, Chicago, Ill., now has ready for delivery a new six-tube model A.C. receiver. This set, model 18E, is completely electric, using A.C. tubes. It has the illuminated one-dial control and operates on 110-volt 60 cycle current. It is encased in a cabinet of walnut veneer with door panels of figured maple. Intended retail price, without tubes, \$272.—*Radio Retailing*, February, 1928.

Table with Speaker for Radiola 17

A table built especially for the Radiola 17 has been brought out by the Watsontown Table and Furniture Company, Watsontown, Pa. It is made of solid mahogany with a lacquer finish which matches the receiver in color and quality. The R. C. A. 100-A speaker is built-in. The table is 12 in. x 32½ in. and 30 in. high. There is a 3 in. moulding which keeps the set in perfect alignment. Intended retail price, including speaker, \$55.—*Radio Retailing*, February, 1928.



Six-Tube A.C. Set

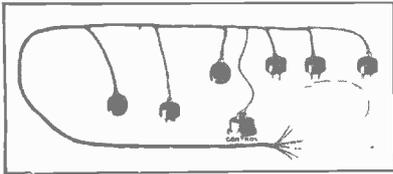
The Standardyne Radio Corporation, Worcester, Mass., is making five all-electric receivers. No. AC28 is a six-tube table model with a mahogany cabinet and operates direct from the electric light current. It has the one-dial control and measures 9½ in. high, 21 in. long and 13 in. wide. The intended retail price, less A.C. tubes, is \$99.50. No. AC951, a console model, is \$149.50; AC601, a console, is \$154.50; AC20, a console, is \$159.50 and AC16, a console, is \$209.50.—*Radio Retailing*, February, 1928.

Where to Buy It

News of the latest products gathered by the editors

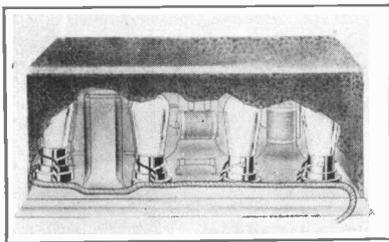


All announcements appearing on these pages are published without advertising considerations of any kind whatsoever.



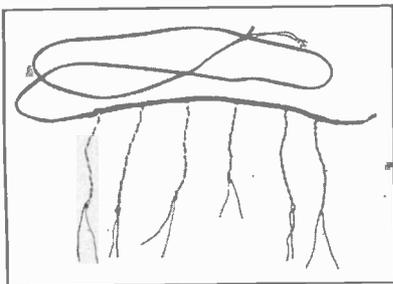
A.C. Adaptor Harness

An A.C. harness adaptor suitable for use with practically every standard five or six-tube D.C. filament receiver in changing it over to use A.C. tubes has been developed by the H. H. Eby Manufacturing Company, 4710 Stenton Avenue, Philadelphia, Pa. The only parts necessary to buy are the A.C. tubes and a filament supply transformer of standard make. The change can be made without molesting any of the wiring within the receiver.—*Radio Retailing*, February, 1928.



15-Volt Tube Harness

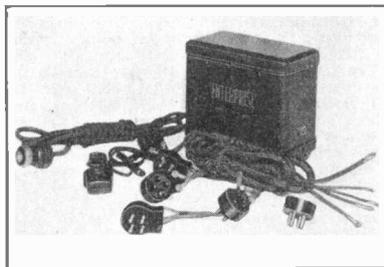
The Arcturus Radio Company, Newark, N. J., is placing on the market the illustrated harness assigned for use with all the well-known standard makes of battery operated receivers in order that they may be changed over to use the 15-volt A.C. Tubes made by this company. These tubes use the ordinary four-prong socket and differ from the regular tube base in that the two filament terminals have been brought out to the side of the tubes directly above the pins. Heavy screws have been securely threaded and anchored in the Bakelite base so that the harness connection may be directly made to these terminals. The tubes are \$5 each and the harness \$5.—*Radio Retailing*, February, 1928.



A.C. Adaptor Harness

The "Corwico A.C. Adaptor Harness" made by the Cornish Wire Company, 30 Church St., New York City, enables any one to convert a battery set into a house current receiver—without rewiring. The harness consists of a twisted cable of heavy flexible wire and the necessary number of adaptors to fit into the sockets of the battery set to be converted. The adaptors pick up the plate and grid con-

nections of the original circuit while the harness supplies the required new filament circuit. Connect the harness to any standard step-down transformer, insert the A.C. tubes into the adaptors and the old battery set is changed into an A.C. receiver eliminating all storage batteries or A power units. These harnesses are made in two types—one with adaptors attached for R.C.A. and other A.C. type tubes and one without adaptors for Arcturus A.C. tubes. Arcturus A.C. tubes are equipped for harness connections without the use of adaptors.—*Radio Retailing*, February, 1928.

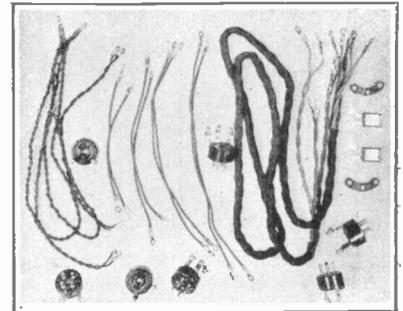
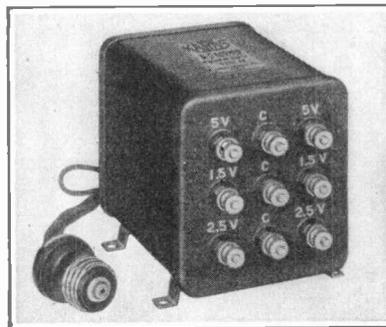


Converter Unit

Illustrated is the complete unit being made by the Enterprise Manufacturing Company of Pennsylvania, Philadelphia, Pa., for changing over any battery operated receiver so as to use the new A.C. tubes. The entire change is accomplished by inserting the adaptors at the end of the harnesses, in the sockets of the receiving set, and connecting the harness to the power unit which, in turn, is connected to the electric lighting system. The list price complete with unit, harness, and built-in volume control is \$32.50. If the harness is desired separately, this may be had for \$12.50. This unit supplies all the A and C power for the receiver. The unit measures 2 3/4 in. wide, 5 1/2 in. high, 6 1/2 in. long, and has a black semi-gloss elastic finish.—*Radio Retailing*, February, 1928.

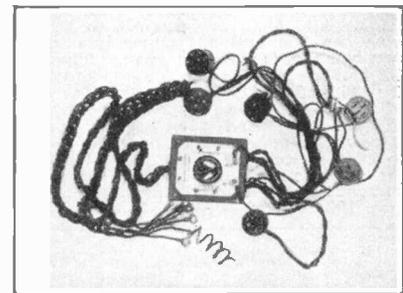
A.C. Tube Transformer

The Karas Electric Company, 4040 North Rockwell Street, Chicago, Ill., is making two types of transformers to be used with the new A.C. tubes. The first, type 12 supplies filament voltage for 12 tubes as follows: 8-1 1/2 volt type, 2-2 1/2 volt type, and 2-5 volt type. Type 13 transformer supplies filament voltage for 10 tubes as follows: 8-2 1/2 volt type, and 2-5 volt type or 2 of the '10 type. The intended retail price of these transformers is \$13.50 each. The transformer is approximately 3 1/2 in. square and is also recommended to be used with the new harness system of wiring being made by other manufacturers.—*Radio Retailing*, February, 1928.



Harness and Adaptors for A.C. Tubes

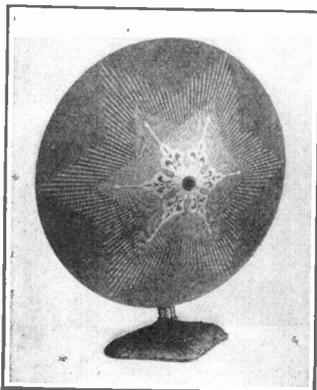
The Alden Manufacturing Company, Springfield, Mass., is making the illustrated A.C. Connectoralds for converting battery sets to A.C. operation. These consist of several models, including one with two filament connections coming out of the top, plus one Y tap connection to ground. On the connection on top of the adapter is placed a Y tap resistor for the power tube. The Connectorald for the radio frequency sockets has little slots into which can be inserted resistors to go in series with the grid of the tubes to prevent oscillation. The harness is built for practically any type of existing circuit. The locator ring at the top of each connectorald is a patented device which greatly facilitates guiding the tube prongs into the sockets. All of the various parts may be bought complete as a kit or separately as desired.—*Radio Retailing*, February, 1928.



Harness and Volume Control for A.C. Tubes

The illustrated harness is being made by Harold J. Power, Inc., Medford, Mass., and is designed to be used in changing over battery-type receivers for the new A.C. tubes. Several types of cables and control boxes are made. The latter includes the necessary biasing, resistances, by-pass condensers and mid-tap resistances. A kit package is also made for the use of the expert radio fan who desires to do his own rewiring of the receiver. This package contains the necessary fundamental parts for making the changes. A wiring diagram is included in each kit. The kits are made up suitable for four, five, six, and seven tube receivers, and are priced accordingly, \$7.25, \$7.50, \$8.00, and \$9.00. The harnesses as illustrated above are as follows: For Atwater Kent Model 35, \$15; For Crosley Band Box No. 601, \$15; For Kolster Model 6, \$15; For Fada Model R-6, \$20; For 5 tube Universal Cable, \$14.50; For 6 tube Tuned Radio Frequency Universal Cable, \$15; For 7 tube Universal Cable, \$16. These are complete with adaptors, condensers, and resistors. — *Radio Retailing*, February, 1928.

What's New in Radio and Where to Buy It

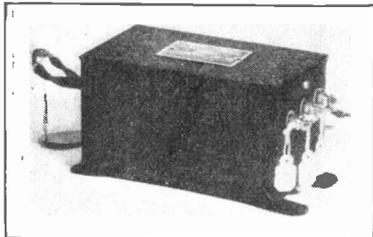


Cone Speaker

The illustrated cone speaker is being made by A. H. Grebe & Co., 109 West 57th Street, New York City. It features "butterfly" armature springs in its driving unit, and although small in size, it is claimed that reproduction such as is usually heard only through the use of more expensive speakers, is obtainable. This natural speaker, type 1750, has many of the characteristics of the larger type 20-20 speaker. The cone itself is 16½ in. in diameter and is constructed in a twenty degree angle of selected paper to avoid rattle and paper resonances. The intended retail price is \$17.50.—*Radio Retailing*, February, 1928.

Transformers for 15 Volt A. C. Tubes

All styles of transformers are being made by the Dongan Electric Manufacturing Co., 2987 Franklin St., Detroit, Michigan, for use with the new a.c. tubes. No. 6513 illustrated is designed for the Arcturus 15-volt tubes and will supply 6 of these tubes. This lists at \$5.25. No. 6512 is designed to be used with the 226 and 227 types in conjunction with a '71 power tube. This lists for \$5.75. No. 6510 is for use only with the '26 and '27 types and lists for \$5.25. All three of these types are equipped with a cord and plug outlet for the B-power supply and also a cap for the control switch. Models are also made for all combinations of a.c. tubes and power tubes.—*Radio Retailing*, February, 1928.



Output Filter and Other Products

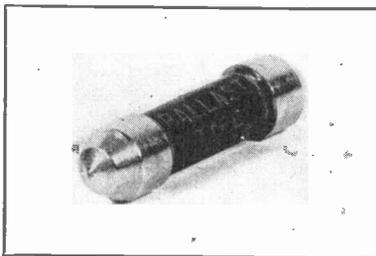
An output filter known as the "Clarifier" is being made by Leslie F. Muter, 76th Street and Greenwood Ave., Chicago, Ill. This filter is designed to improve the tone qualities of the receiving set and also to protect the speaker coils from the d.c. current. It contains a dual choke coil and large capacity filter condenser and may be attached in a few moments without disturbing the set. The retail price is \$5.

Other new products being made by the above company are: a flexible lead-in insulator to be used under windows, retail price of 25 cents; audio-frequency transformers which list at \$7 each; heavy duty grid leaks and special re-

sistance ranging from ½ megohm to 10 megohms and having a retail price of 50 cents each. Also moulded bakelite fixed condensers which are said to be moisture proof and come in all popular sizes. Automatic filament controls are also being made which list at 50 cents. By-pass and filter condensers, as well as choke coils and the various components for power units can be had. Battery lugs and radio-frequency choke coils complete the new lines.—*Radio Retailing*, February, 1928.

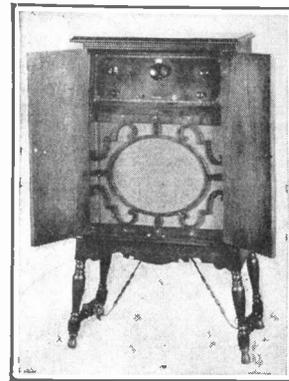
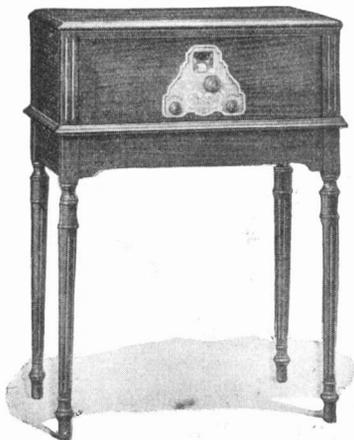
Filament Control for A.C. Tubes

To prolong the life of alternating current tubes, which are extremely critical as to filament voltage, the Daven Radio Corporation, Newark, N. J., has developed the "Daven AC 26 and 27 Ballast." These ballasts are so designed that they compensate for any voltage or current fluctuations, due to inaccuracy in transformer windings, line surge, or overload, that is likely to prove ruinous to alternating current filaments. Used with any standard filament transformer, normally delivering 2.5 volts for type '27 A.C. tubes, the AC-27 ballast, operating with a 20 volt line variation, gives a total variation of .17 of a volt. The minimum is 2.225 volts, and the maximum 2.4 volts—the best operating range of '27 type tubes, according to RCA specifications. The AC-26 ballast, operating from a transformer normally delivering 2 volts, and with a 20 volt line overload, gives a total variation of .16 of a volt on Type '26 tubes. The minimum is 1.3, and the maximum 1.46 volts.—*Radio Retailing*, February, 1928.



Six-Tube A.C. Receiver

The illustrated spinet desk model receiver is made by the Howard Radio Company, 451 East Ohio Street, Chicago, Ill. It uses A.C. tubes and has the on-dial control. The 135 AC chassis and power unit are set in a walnut cabinet. The intended retail price, less speaker, is \$279.50. Other Howard models include No. 675, six-tube console of burled walnut, with 86 in. air column horn, \$675 complete; No. 495, console with 135 AC chassis, complete with air column horn, \$495; and table model, with 135 AC chassis, \$279.50, less speaker.—*Radio Retailing*, February, 1928.

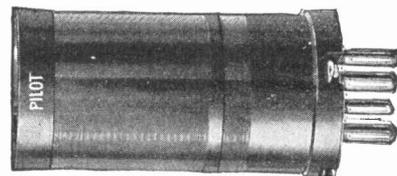


Six-Tube A.C. Set

The Day-Fan Electric Company, Dayton, Ohio, is placing on the market a new table model called the "Day-Fan Six Junior A.C." receiver. This set uses six Kellogg tubes and one Raytheon tube in the power supply. It comes either in the chassis form with metal panel for installation in a console cabinet, or in the pressed steel cabinet such as is used for the Day-Fan Six Junior battery set. The intended retail price, less tubes and speaker, is \$95. The illustrated A.C. receiver is also made by this company. It has six tubes and there is space in the Spanish design cabinet for the Day-Fan B and C-power supply. The intended retail price, including speaker, is \$220. B and C-power supply for 60 cycle current, in container, \$45, extra.—*Radio Retailing*, February, 1928.

R. F. Transformer with Plug-in Base

The Pilot Electric Manufacturing Co., Inc., 323 Berry St., Brooklyn, N. Y., is placing on the market the illustrated plug-in, space-wound radio-frequency transformer. This is fitted with pins for the X type of socket. Several different types are made so that when used with a .00035 mfd. condenser, wave lengths of from 190 to 30,000 meters may be covered. The retail price per coil is \$1.—*Radio Retailing*, February, 1928.



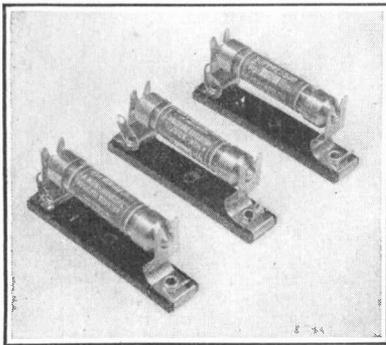
New Fixed Resistor

The International Resistance Company, Philadelphia, Pa., announces a new type of fixed resistor which is made expressly for the manufacturing trade. This type of unit is identical electrically to Durham Metallized standard resistors, the difference being that it is made with metal insert ends and in a manner which effects some economy in price.—*Radio Retailing*, February, 1928.

Metal Rectifier Tubes

The Interstate Electric Company of St. Louis, Mo., is making a 2-amp. dry metallic rectifier in a heavy nicked tube with a standard Edison base to fit the socket of any bulb type rectifier now on the market. This unit can be used on any bulb type of charger or trickle charger on a 6-volt storage battery.—*Radio Retailing*, February, 1928.

Latest Products Gathered by the Editors



Grid Circuit Resistances

Resistances of 500, 600, and 700 ohms designed for use in grid circuits for suppressing oscillation are being made by the Langbein-Kaufman Radio Company, 62 Franklin Street, New Haven, Conn. These come complete with mountings and have an intended retail price of \$1. If the mounting is not desired, the price of the resistance is 75 cents. These suppressors may also be used in the antenna circuit where a blocking tube is desired. They are particularly adaptable in that position as they are non-inductive.

Another item of interest is that this company is now in a position to supply equalizers for shielded grid tubes. They come in sizes of 15, and 5 ohms, which are the sizes recommended by the makers of these tubes. Equalizers are also available to operate one, two, three, or four shielded grid tubes in parallel.—*Radio Retailing*, February, 1928.



Cone Speaker

Supercraft Products Corporation, 225 West 46th Street, New York City, the radio division of the Edward B. Marks Music Company, is placing on the market a cone speaker. According to the manufacturer a special process allows the application of oil painting to the cone's surface without affecting the tone quality. The base is of hammered Spanish brass, antique finish. The speaker may also be had on a pedestal with bronze finish. An adjustable armature is used in the unit and the cone is twenty inches in diameter. Intended retail price \$19.50.—*Radio Retailing*, February, 1928.

Condenser Block and Tone Clarifier

In keeping with the trend towards higher power amplification, the Dubilier Condenser Corporation of 4377 Bronx Boulevard, New York City, now announces the Type PL 700 power condenser unit, designed not only for the Thordarson 210 push-pull amplifier and power supply unit, but also for the other assemblies utilizing one or two '16-B or

'81 filament type rectifiers, and one or two '10 or even the '50 power tubes.

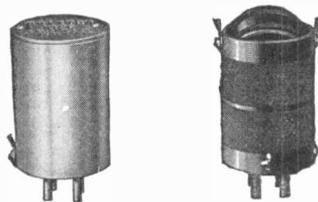
There are high working voltage rating sections around the choke coil sections, and in addition a 4 mfd. capacitor for use with either an '74 glow tube or the Raytheon R regulator tube. The terminals, conveniently placed at the top of the metal case, are Common, 2 mfd. 1,000-volt, 2 mfd. 600 volt, 2 mfd. 600-volt, 4 mfd. 400-volt, and 1 mfd. 200-volt. The intended retail price is \$17.50.

The "Dubilier Tone Clarifier," another new product, is in the form of a neat metal case with four binding posts. It contains a special choke coil and a 4 mfd. condenser of 400-volt rating. When employed as an output filter or speaker filter coupler, the output from the receiver or amplifier is connected to two binding posts, and the speaker to the other two binding posts. When employed as an external filter section, such as for additional filtering for the detector plate circuit in reducing hum to an absolute minimum as well as overcoming a most common cause of motor-boating, only three binding posts are used. In this manner there is introduced a high-grade choke coil in series with the plate supply, with a 4 mfd. condenser between the plus B and the minus B, for extreme filtering. The intended retail price is \$7.50.—*Radio Retailing*, February, 1928.



Coils and Transformers

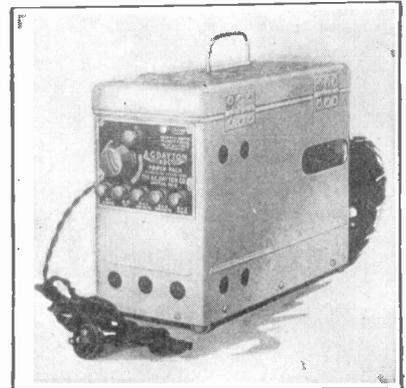
Plug-in oscillator coils, plug-in radio frequency impedance units for use with the new shielded grid tubes and intermediate transformers are being made by the Mississippi Valley Radio Co., 914 Pine St., St. Louis, Mo. The shielded plug-in radio frequency impedance unit is designed for use in a 7-tube super-heterodyne circuit employing the new shielded grid tube. These come packed in matched sets of three having a peak frequency of 338 kilocycles. The intended retail price is \$7.50 per unit. Intermediate transformers come in sets of four retailing for \$18, while the oscillator coils are \$2 each.—*Radio Retailing*, February, 1928.



Block Condensers

The Polymet Manufacturing Corp., 599 Broadway, New York City, has placed on the market condensers in block form to be used in connection with various types of poly units and amplifiers. These blocks contain the correct total capacity tapped in the proper places for the most popular of these circuits.

It is not necessary to know the capacities nor the voltages which these condensers must be operated under, as a block of condensers can be supplied for any desired circuit.—*Radio Retailing*, February, 1928.

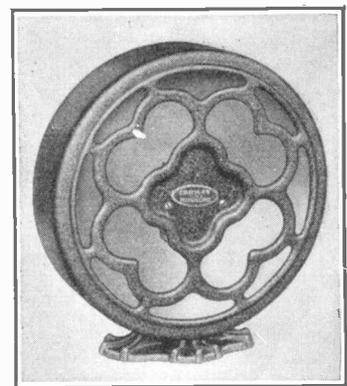


ABC-Power Pack

The A. C. Dayton Company, Dayton, Ohio, is putting on the market the illustrated ABC-power pack which is intended for use on 110 volt, 60 cycle current. The A-supply delivers 2-amp. at 6 volts. The B-unit delivers 45 volts, 90 volts and 135 to 150 volts. The 90-volt terminal will deliver 30 milliamperes and the 135 to 150-volt terminal will deliver from 15 to 20 milliamperes. The C-supply receives its voltage from a drop taken in the B-section. The Kuprox rectifier is used on the A-supply, and either a '13 or '80 type tube in the B & C-supply. The unit is encased in aluminum. The overall dimensions are 9 1/2 in. x 5 1/2 in. x 12 in. The intended retail price is \$90.—*Radio Retailing*, February, 1928.

Cone Speaker

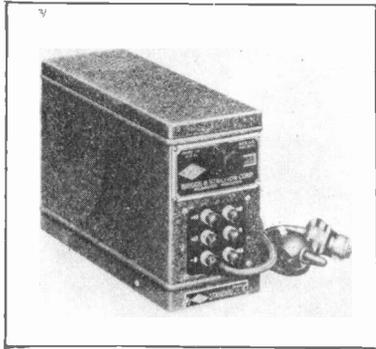
A new model musicone has just been placed on the market by the Crosley Radio Corporation, Cincinnati, Ohio. This 12 in. speaker, type D, is finished in the same frosted crystalline brown that is used on the cabinets of the Bandbox receivers. A baffle board is used, in conjunction with the speaker, thereby allowing, it is claimed, low notes to be brought out clearly at the time high notes are reproduced. This speaker is adapted particularly for use with the '80 and '10 type tubes. Intended retail price, \$15.—*Radio Retailing*, February, 1928.



Light-Socket Antenna

Swan-Haverstick, Inc., Trenton, N. J., has added to its line of radio products a light-socket antenna. This is arranged so that it screws directly into the outlet and connections for the antenna are made by means of binding posts at one end. Intended retail price is \$1.—*Radio Retailing*, February, 1928.

What's New in Radio and Where to Buy It



Power Units

The illustrated B-power unit is being made by Briggs and Stratton Corp., Milwaukee, Wisconsin. This unit uses the new Raytheon type BH tube which is guaranteed for 1,000 hrs. at a load of 125 milliamperes at 300 volts pressure. Voltages obtainable are 22, 45, intermediate and high. A switch is provided in the cord which goes to the unit. Intended retail price, \$35.

An A-power supply is also being made which includes an automatic relay that controls the B-power when plugged into the A-power unit. A 2½ amp. charger is incorporated which replaces the amount of current used up when the A-power unit is disconnected. All operations are automatic and under control of the filament switch on the receiving set. The retail price is \$40.—*Radio Retailing*, February, 1928.

A-Power Unit

The Valley Electric Company, 4515 Shaw Ave., St. Louis, Mo., is placing on the market a new type of A-power unit using the "Marathon" rectifier. This unit operates only when the set is in use, and it has been equipped with a 4 ft. pendant switch which makes it possible to control the entire set from the unit. A receptacle is provided at the back of the A-power unit for the B-power unit. The intended retail price is \$39.50.—*Radio Retailing*, February, 1928.



ABC Unit for A. C. Tubes

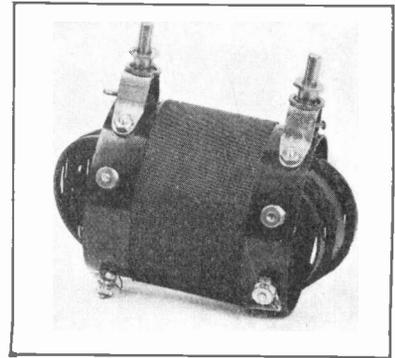
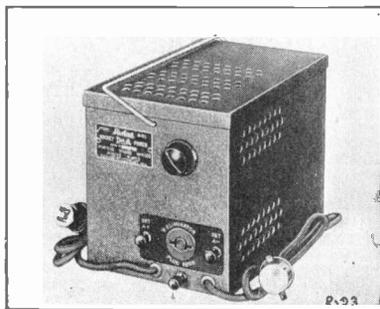
The Acme Electric & Mfg. Co., Cleveland, Ohio, has recently developed an ABC unit, which can be furnished either to the radio set manufacturer in kit form or to the radio jobber and dealer mounted in a steel container. This unit is built in two models—one to operate with the Arcturus tubes and the other model to be used with the new Radio Corp. or Cunningham A.C. tubes. The A

supply when used with the Arcturus tubes, delivers 15 volts and for RCA tubes a voltage of 1½-2½ and 5 volts is furnished. The five-volt winding is designed for ½ ampere load, so a '71-A tube should be used in the last stage of the receiver. The 2½ volt winding will carry one '27 and the 1½ volt winding will carry 5 '26 tubes. Provision has been made for taking taps off of the primary of the transformer to take care of either a High or Low line voltage. The B-power taps may be varied if the requirements of the set are not met with. This is done by moving the taps on the resistor strips inside the unit up or down on the resistor strip. A C voltage of 45 volts is furnished in this unit. This voltage exists between the center tap of the 5-volt winding and the Neg. B terminal. This power unit has 6 taps—uses the '80 full wave filament type tube on the B side and will deliver 40 milliamperes at 180 volts. A cable connector or harness with the proper adapters to make a quick and easy change-over is also furnished with this ABC power unit. The steel container in which this unit is mounted is finished in a brown crystalline lacquer and the dimensions of the unit are as follows: 7½ in. high, 11 in. long and 5 in. wide and the shipping weight is 15 lbs. It is designed to operate on 50-60 cycles at 110 volts, but also may be had in any other frequency upon request.—*Radio Retailing*, February, 1928.



Socket Power Unit

"Dri-A" is the name of the socket power unit the Sterling Manufacturing Company, 2831 Prospect Avenue, Cleveland, Ohio, has just placed on the market. This unit features the dry condenser construction, doing away with acid, water and liquids of every kind. The "R-93 Dri-A" uses as its rectifier a 3-ampere full wave Tungar bulb which is guaranteed for 1,000 hours' use by the manufacturer, although tests show that its average life is two or three times that. This unit is no larger than an A-battery and fits into a console, leaving plenty of room for the B-power unit. The intended retail price is \$39.50, including Tungar bulb.—*Radio Retailing*, February, 1928.



Double Rotor Coil

The Uncle Sam Electric Corporation, Plainfield, N. J., has placed on the market the illustrated double rotor coil. One rotor coil is tapped in the middle and furnished with connections so that either a double short coil or a single long one can be used. It is also possible to purchase the stators and rotors separately if desired. The intended retail price is between \$2.50 and \$3.50.—*Radio Retailing*, February, 1928.

Dynamic Speaker

The Jensen Radio Manufacturing Company, 112 9th St., Oakland, Calif., is making a dynamic speaker with a free floating cone. It will be marketed through the Camfield Radio Manufacturing Co., 35 East Wacker Drive, Chicago, Ill. This speaker can be connected directly to any radio set and is also adaptable for use with power amplifiers and may be subjected to the output of a '10 power tube.

Type E-44 is a cabinet speaker finished in dark brown mahogany with a height of 14 in., width of 16 in. and depth of 12 in. The shipping weight is 34 lbs. Retail price \$65. Type L-4 is the unit only, which is the same as that used in the cabinet speaker and may be readily installed in any type of a cabinet. The unit is 10½ in. high, 10 in. wide and 8½ in. deep. The shipping weight is 24 lbs. Retail price, \$47.50.—*Radio Retailing*, February, 1928.



Wired Radio Units

Wired radio units each known as "Redi-Blox" have been made by the Pilot Electric Mfg. Co., Inc., 323 Berry St., Brooklyn, N. Y. These units are made for radio frequency detection, and audio frequency. Any combination of these may be formed to suit the needs of the user. The units are completely wired and come mounted on a Bakelite base being equipped with binding posts.—*Radio Retailing*, February, 1928.

What the Trade is Talking About

Chicago Acts to Clarify Radio Advertising Phraseology and Practices

Midwest and Better Business Bureau co-operate and produce code of ethics. National adoption a possibility

STEPS which may point the way for nation-wide action toward clarifying the confusion which now exists in radio merchandising nomenclature were taken when the Midwest Radio Trade Association and the Chicago Better Business Bureau met at the Hotel LaSalle, Chicago, on January 11. These organizations ratified a series of rules defining radio terms and practices, eliminating the ambiguity which has previously existed.

This action was precipitated by an address on ethical radio advertising delivered by Flint Grinnell, local manager of the Chicago Better Business Bureau, to this central states group of dealers at the Chicago Electric Club on November 25.

Discussion of paragraphs H, I and J, under the section "Trade Terms," of the Radio Code purporting to define respectively the correct trade usage of the expressions: "Electric," "Electrified," and "A. C. Set," occupied much of the time of this gathering. These definitions were finally passed, by a two-thirds vote. The vote approving their adoption was made on a motion presented by Ray Sutcliffe, western editor of *Radio Retailing*.

FOR NATIONAL ADOPTION

It is the intention of Mr. Grinnell, who is also chairman of the Standards Committee, National Better Business Commission, to present this code, for universal adoption and usage, to this body within the next month.

Steps also have been taken to place these standards before the Federated Radio Trade Association, which holds its next convention in Milwaukee, Feb. 14-15, and the Radio Manufacturers Association for discussion with the view of securing their adoption by these representative organizations.

An abstract of the Better Business Radio Code Recently Adopted for Chicago District and Now Being Urged for Nationwide Acceptance follows:

SECTION ONE—TRADE PRACTICE

A. "Hammer" Advertising—Disparaging statements about competitors' goods are frowned on.

B. Bait—"Baiting" also is condemned. Advertised merchandise should be on display, well stocked and willingly sold at the prices and terms offered.

C. Illustrations and Layouts—Inaccurate or misleading illustrations which show merchandise in false and exaggerated proportions shall not be used.

D. Guarantees—Shall be specific and well qualified as to their exact nature.

SECTION TWO—CLAIMS AND "PUFFERY"

A. Unrestricted Statements—The use of superlatives such as "Greatest," "Astonishing" should be avoided. Cannot be proven, of little value, lend themselves to misuse and encourage counter claims of greater proportion.

B. Distance and Selectivity—These should be based on the average performance, not the exceptional.

C. Tone and Volume—Should be conservatively stated.

D. One Adjustment—Should mean that the set has one and one only. Three rheostats and one dial equals four adjustments. However may be featured as a "One Dial Set."

E. Wholesale—Should be used only by firms engaging in wholesale business. Not by a retailer who presumes to offer special buying privileges to customers at wholesale prices.

SECTION THREE—TERMS

A. Make Your Own Terms—Are seldom accurate and should be abandoned.

B. No Money Down—Should be literally true.

C. Terms Appeal—When this lead is used the price quoted should be the total cost to the customer provided the advertisement does not state that an additional carrying charge will be added. "No Charge for Credit," etc. should not be used when discounts are given for cash.

D. Complete—This quotation should include installation and interest charges. Equipment should be itemized.

SECTION FOUR—TRADE TERMINOLOGIES

A. Eliminator—A vague and negative expression. Use carefully and specify what is meant. The term "No Eliminator" should not be used in describing set equipped with any type of power unit containing a transformer, rectifier, etc.

B. Light Socket Operation—Understood as those sets in which the current flows from the wall socket to the set, direct or through a power supply unit. If the latter contains a charger this should be plainly stated.

C. No Batteries—Not to be used with a set equipped with accessories having current storage facilities of any nature.

D. Standard Equipment—Should be further qualified by stating the names or brand of such accessories.

E. Scientific Tests—Avoid when the differentiation in performance of the products cannot be detected by the normal human ear.

F. Cone Speaker—Understood as referring only to speakers which incorporate a cone type unit and diaphragm in their mechanism.

G. Trade Names—Highly unethical to plagiarize established trade marks and names.

H. Electric—Such terms as "Electric" and "All-Electric" should not be used to describe sets equipped with such accessories as batteries and chargers. They shall apply to those sets only which have all the devices necessary to utilize the lighting current built into the set, as a part of the original equipment. Such terms should not be used to describe sets which were originally built to operate with batteries but which are now equipped with power units. The type of tubes used should be specified.

I. Electrified—Such terms as "Electrified," "Completely Electrified" and "Electrically Equipped" should be followed by an explanation of the manner in which this is accomplished. Such terms may be used properly to describe a set which was originally manufactured to operate with batteries, but which is now equipped with a current supply unit.

J. A. C. Set—The unqualified use of the term "A. C. Set" is confusing to the public

Promoted Again



"Jack" Frost has won another promotion. Effective March first, Major Herbert H. Frost leaves his post of general sales manager of E. T. Cunningham, Inc., to become Vice-President in charge of merchandising of Federal-Brandes, Inc. According to an announcement made by Rudolph Spreckels, chairman of the board of Federal-Brandes, the appointment of Major Frost as vice-president is the first step in a program of development designed to make Federal-Brandes second to none in the radio industry.

and should be used only when the manner of obtaining alternating current reception is stated.

K. Tubes—In no instance should tubes, intended for current rectification, be counted among those comprising the set. Ex. A five tube set having a power unit containing two rectifying tubes may not be termed properly a 7-tube set.

SECTION FIVE—PRICES

A. List—Usually suggested for use as a basis on which to figure discounts. Quoting a list price in advertising should be abandoned unless it refers to the price at which it regularly retails.

B. Comparative Prices—Should not be in excess of the prevailing prices of similar merchandise, in the same condition within the local retail market. Price of new merchandise not to be used as basis of comparison of used goods.

C. Discontinued Models—Should always be qualified as such.

D. Formerly Priced—Shall be interpreted as meaning the last price from which the merchandise was marked down in that store.

SECTION SIX—MATERIAL AND EQUIPMENT

A. Woods—Cabinet woods should be described in accordance with the "Name the Woods" policy recommended by the Federal Trade Commission.

B. Miscellaneous Equipment—Such devices as wave-traps, howl arrestors, lightning arrestors, static eliminators, etc. operating with varying degrees of success and satisfaction under different climatic conditions. The performance of such accessories should be commented on from the usual rather than the exceptional results. Static may be decreased, but seldom totally eliminated, according to a consensus of expert opinion. It is therefore considered inaccurate to advertise a device as a "static eliminator."

C. Batteries—Defines methods of rating storage batteries. Intermittent discharge method should not be used.

CHAS. FRESHMAN CO., INC., New York City, has added Paul S. Weil to its staff in the position of advertising and sales promotion manager. Mr. Weil is well known in the advertising business, having been connected with Frank Kiernan & Company and Albert Frank & Company, both in New York City.

THE RADIO CORPORATION OF AMERICA at a meeting held on January 20, declared a dividend of one and three quarters per cent for the first quarter of the year 1928. The dividend is payable April 1, 1928, to stockholders of record of the "A" Preferred stock as of March 1, 1928.

Third Annual I.R.E. Convention

The Third Annual Convention of the Institute of Radio Engineers located at 37 West 39th Street, New York City, was held on January 9, 10 and 11. The convention was declared very successful in that between seven to eight hundred delegates attended, which was over twice the attendance of last year. The morning of the first day was taken up with routine matters and registration and the presentation of the Morris Liebmann Memorial Prize to A. Hoyt Taylor.

W. D. Terrell also presented a paper on the transactions and results of the 1927 International Radiotelegraph Conference. At noon buses took the delegates through the new Holland Vehicular tunnel to Whippany, N. J., where the Bell Telephone Laboratories experimental station 3XN was inspected. From here the party went to Bound Brook, N. J., where broadcasting station WJZ was looked over. In the evening Dr. J. H. Dellinger delivered a paper on the method of obtaining standard radio frequency at any place by the use of the sidereal second as a basis.

Dr. F. K. Vreeland delivered a paper on distortionless reception of a modulated wave and its relation to selectivity, including description and demonstration of an amplifier giving uniform amplification over the band width and sharp cut-off at the edges of the band, a band selector having an approximately rectangular frequency characteristic. Then a paper was delivered by E. H. Loftin and S. Y. White on a combined detector and audio-frequency amplifier coupled by resistances and operated at low battery potentials, together with an arrangement for preventing overloading the detector.

Tuesday morning was spent in an inspection of Roxy's Theatre. This was followed by a demonstration and lecture on talking moving pictures by the Electrical Research Products Corporation. Most of the delegates then stayed to witness the regular performance until it was time to go to the studios of the Radio Corporation of America to witness another demonstration of talking moving pictures.

The Polymet Manufacturing Company's

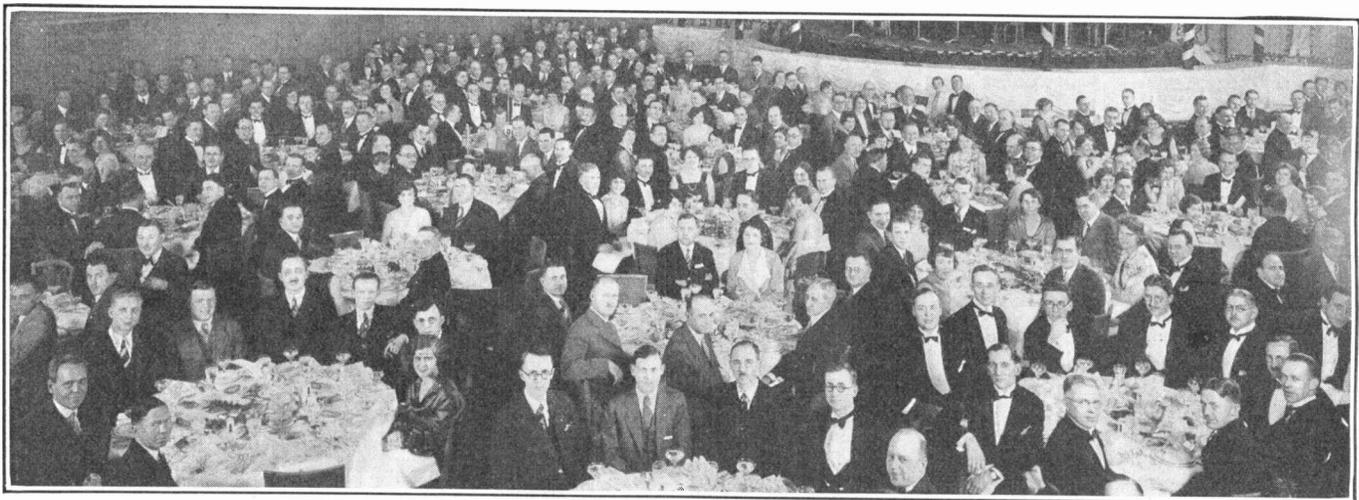
plant was open all day for inspection and a folder entitled "Practical Points on the Manufacture and Use of Filter Condensers" was distributed to the visiting delegates. This company has additional folders which will gladly be sent to any of those interested enough to write for them. In the evening Captain R. H. Ranger delivered a paper on the "Transmission of Photographs by Radio" together with a demonstration.

Wednesday morning the studios of the National Broadcasting Company were inspected and in the afternoon the F. A. D. Andrea plant, which is located at Long Island City, was also looked over. On the return trip a stop was made in Brooklyn at the plant of the Aerovox Wireless Corporation. Here luncheon was served and additional talks were given on talking moving pictures. In the afternoon Lincoln Walsh delivered a paper on "A Direct Capacity Bridge for Vacuum Tube Measurements"; Harold A. Wheeler followed with "Measurements of Vacuum Tube Capacities by a Transformer Balance." Then E. P. Hoch spoke on vacuum tube capacity measurements, after which L. A. Hazeltine spoke on "Neutralizing in Radio Frequency Amplifiers." J. C. Wanner finished with a paper on "Some Characteristics and Applications of Four Element Tubes." After this the delegates proceeded to the Paramount News Bureau where they were told of the latest methods regarding collecting and disseminating news. In the evening the Annual Dinner was held at the Hotel Roosevelt which wound up the Convention.

H. T. MELHUISE, formerly manager of sales administration of the Radio Corporation of America, has joined the staff of the National Electrical Manufacturers Association as director of the radio division, according to Alfred E. Waller, Managing Director of NEMA. Mr. Melhuise has also resigned as a member of the Board of Directors of the Radio Manufacturers Association on which he served for nearly two years.

ERNEST KAUER, OF THE C. E. MFG. COMPANY, Providence, R. I., has recently been elected to the Board of Directors of the Radio Protective Association.

Institute of Radio Engineers Third Annual Banquet



The Institute of Radio Engineers wound up its third annual convention with a dinner at the Hotel Roosevelt, New York, on Wednesday evening, January 11, 1928. About seven

hundred delegates attended the three-day convention. A number of tours of inspection were made, taking in various points of radio interest in the metropolitan district.

F.R.T.A. Annual Meeting in Milwaukee Feb. 14

The annual meeting of the Federated Radio Trades Association will take place at the Hotel Schroeder, Milwaukee, Wis., on February 14 and 15.

Michael Ert, president of the Wisconsin Radio Trade Association will introduce the delegates and visitors on Tuesday morning, the 14th, and will be followed by Harold J. Wrape, president of the F.R.T.A., who will deliver the main address of the morning. The rest of the forenoon will be occupied by reports from the various committees, covering the following subjects: finance, legislation, education, membership, publicity, trade relations, radio shows, resolutions and broadcasting.

In the afternoon of the first day, addresses will be given by L. S. Baker, managing director of the National Broadcasting Association; Bond P. Geddes, executive secretary of the R.M.A., who will talk on "Radio Dealer, Jobber and Manufacturer Relations;" L. B. F. Raycroft, chairman, radio section, N.E.M.A., and by H. A. Bellows, managing director of radio station WCCO and former Federal Radio Commissioner, who will speak on "Future Broadcasting Trends." Through the courtesy of the Wisconsin Radio Trade Association, the visitors will be entertained at a theater party and dance during the evening.

At the opening meeting, on Wednesday, the 15th, John M. Redell of the Midwest Radio Trade Association, will give the report of the Executive Committee. Following this, the attending radio dealers', jobbers' and manufacturers' representatives will hold separate and joint meetings to discuss their individual and combined problems. In the afternoon, Sam Pickard, Federal Radio Commissioner, will address the meeting on "The Federal Radio Commission Plan for Better Radio Reception," and Richard M. McClure, secretary, Business Secretaries' Forum, Chicago, will talk on "Trade Associations." The usual business session and election of directors and officers for 1928 will follow. The annual dinner will be held in the evening with the members of the Wisconsin Radio Trade Association as hosts.

THE HAZELTINE CORPORATION, Jersey City, N. J., has filed action against two prominent radio manufacturers alleging infringement of its radio patent No. 1,648,808. A permanent injunction restraining the defendants from further infringement is asked. Similar action has already been brought by the plaintiff corporation under the same patent against two other large radio manufacturers.

THE FEDERAL RADIO COMMISSION'S annual report for the fiscal year ended June 30, 1927, is available upon application to the Superintendent of Documents, United States Government Printing Office, Washington, D. C. Copies are 5c. each.

THE RADIO PROTECTIVE ASSOCIATION LABORATORIES, INC., at a meeting recently held in New York, elected the following officers: president, Arthur D. Lord, De Forest Radio Company, Newark, N. J.; vice president, Louis Mandel, Metro Electric Company, Chicago, Ill.; and treasurer, E. A. Tracy, Northern Mfg. Company, Newark, N. J. Walter A. Russ has been made secretary and patent counsel of the Laboratories with offices at 331 Madison Avenue, New York City.

Radio Conventions and Shows

Jan. 31-Feb. 11: South Florida Dealers Association, South Florida Fair, Tampa, Fla.

February 14-15: Federated Radio Trade Association Convention, Milwaukee, Wis.

June 11-15: R.M.A. Convention and Trade Show, Hotel Stevens, Chicago.

June 11-16: N.E.M.A. Annual Meeting, The Homestead, Hot Springs, Va.

Home Television Demonstrated at G.E. Schenectady Plant

The first demonstration of television broadcasting was given recently by the Radio Corporation of America and the General Electric Company at Schenectady, N. Y. At three different points in that city, groups of engineers, scientists and newspaper men standing before the first "home television sets" ever to be demonstrated, saw the moving images and heard the voices of a man and a woman transmitted from the research laboratories of the General Electric Company several miles away.

In this instance the transmission of the moving object was made on 37.8 meters wavelength while the voice was simultaneously sent through the air on 379.5 meters, the normal wavelength of WGY. The receiver which Dr. Alexanderson used differs from the ordinary short wave receiver in that it converts the electro-magnetic wave into light instead of sound and the light becomes an image corresponding in movement to the action of the artist at the transmitting end.

The first home television set is of very simple construction, not unlike the familiar

phonograph cabinet in size and exterior appearance. It was developed by Dr. E. F. W. Alexanderson, consulting engineer of the Radio Corporation of America and the General Electric Company and his assistants in the laboratory at Schenectady.

St. Louis Association Active

The St. Louis Radio Trade Association has started a campaign for new members according to President Robert W. Bennett and in order to promote membership among the employees of member companies, it is encouraging the "associate" form of membership, requesting all firms to send in applications for their salesmen, service men and credit managers.

The association also has gone on record as being opposed to direct advertising in radio announcements and is asking its members not to include direct advertising in their station announcements. A formula has been drawn up by President Bennett, William P. Mackle, secretary of the association, and Harold J. Wrape, president of the Federated Radio Trade Association, and the fifty members who sponsor programs have agreed to abide by this decision.

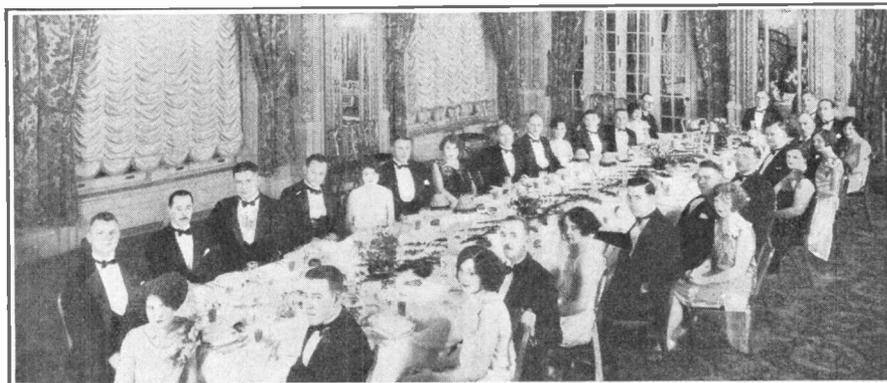
At a recent meeting Ray V. Sutcliffe, western editor of *Radio Retailing*, addressed the group on the subject of "Future Prospects in View of Present Conditions." Mr. Sutcliffe also talked on the value of associations to radio tradesmen.

McGraw Award Presented to W. W. Freeman

The James H. McGraw Award for cooperation in the electrical industry was presented to W. Winans Freeman, chairman of the Union Gas & Electric Company, Cincinnati, and vice-president of the Columbia Gas & Electric Company, New York City, at a dinner recently given in his honor at the Hotel Roosevelt, New York City. Mr. Freeman was awarded the medal this year in recognition of his eight years of service as president of the Society for Electrical Development.

PARAGON ELECTRIC CORPORATION, Upper Montclair, N. J., has discontinued the manufacture of radio receivers but will continue to make electrical specialties and intricate telephone and telegraph apparatus, according to a statement from P. Petroff, general manager.

Gross-Brennan, Inc., Third Annual Banquet



Thirty-one members of the Gross-Brennan organization gathered at the Hotel Astor recently for their annual banquet. Ben Gross gave an interesting talk on "Organization Development" and H. A. Brennan spoke on "Our Ideals of the Past—Our Aims and Ideals for 1928." After the dinner, the guests were entertained by several Broadway artists, and dancing, until the wee sma' hours of the morning, followed.

A New Item to Sell Old Customers

Continued from page 53

simply subtract \$1 plus the price of one '26 type A.C. tube from the total above.

Undoubtedly a good portion of business on the A.C. adaptor harness will come from radio owners who are operating their sets throughout from batteries. In this case the buyer will want the price of complete equipment, including that listed under Number 1 plus a good B power device. With this average price \$32.50, added to the cost already outlined above, the total cost to buyer is \$73, for a six-tube set, with the same subtraction as Case No. 1 for a five-tube set. With the B-supply units on a declining price market, this figure will be proportionately reduced, of course, depending upon the price of the B-supply unit.

There is one more group of buyers which I consider worth while and important. This consists of the confirmed radio builders, those who prefer to build a unit such as a B power supply for themselves. In this case, the complete price includes:

1 A.C. adaptor harness, 6-tube model.....	\$10.00
1 Filament lighting transformer.....	9.00
4 26 type A.C. tubes at \$3.00.....	12.00
1 27 type a.c. detector tube.....	6.00
1 71 type power tube.....	3.50
1 Set of parts for B eliminator.....	27.50
Total cost to buyer.....	\$68.00

I feel certain that these three main prices, with the five-tube prices secured by a simple subtraction, will answer the question of cost for nine out of ten customers.

With a small card posted at two or three convenient points in the store the salesman can quickly answer all questions relating to price. I strongly recommend the idea of having this information quickly available, for nothing ruins the chances of a sale quicker than the salesman's running around the store asking the price of this and that and then totalling the list to arrive at a complete price. It leads the customer to believe that the call for a new item has been so small that nobody has taken the time to figure complete prices.

WE KNOW now what we are selling and how to use it, as well as how much it costs. Now what can we do to bring in the prospects? My first suggestion

along this line is a simple one. Take a battery-operated set and equip it in your own store with one of the new A.C. adaptor harnesses. Then bring the complete A.C. outfit to a prominent part of the store and place it in operation, with a sign reading something like this:

This Battery Operated Set Made Completely Electric
with the
New A.C. Adaptor Harness, using A.C. Tubes
Easily Done and Costs Little
Ask for Details

The dealer will also find that the new A.C. adaptor harness lends itself admirably to effective window displays. On one side of the window, for instance, can be placed a battery operated set with the storage A battery and the B batteries spread about the floor near it. A charger and a bottle of distilled water add a bit more confusion and are perfectly in order. Over this outfit may be placed a card such as: "The Old Way—with Batteries and Charger."

On the other side of the window is the same model, but one equipped with the new A.C. adaptor harness and a B-power supply. No chargers or liquids needed here. Over this display place a card such as: "The Same Set—But Operated the New Way, using the New A.C. Tubes."

Over the center of the entire window may be suspended a larger card featuring the new A.C. adaptor harness, with the message that "Your Own Set Can Be Similarly Converted at Slight Cost. The New A.C. Harness Does It."

For the dealer who believes in making full use of his window on a really good piece of merchandise such as the A.C. harness, I suggest, the size of the window permitting, a living demonstration of the simplicity of the harness itself. A set operating from batteries can be taken and converted step by step with the new A.C. harness, showing the onlookers, with the aid of signs, that there is nothing complicated about the job.

Don't neglect the A.C. tube itself, for it is high in favor and has had lots of publicity and advertising. The same thing should be borne in mind for the entire merchandising campaign on the A.C. harness. While the harness is essential, of course, the fact that it permits the A.C. tubes to be used in any set is the real merchandising point.

Collect—But Do It With a Smile

Continued from page 59

from a certain class of customers who really need a dig to separate them from their money.

Engard has used many other interesting plans and ideas in his business and it seem to be his slant on human nature that makes the big appeal to his customers and brings results.

A plan he used recently should prove interesting as well as effective for others. He secured several notes from his bank and to the several customers who owed accounts of some size and had owed them for a long time, he sent a note, filled in with the amount due and with a request that it be signed and returned at once so that he could realize upon his accounts to cover an

invoice that would be due on the first of the month.

Only one note was returned, signed—all of the others came in and either paid their accounts in full or paid enough on account to cover the total needed. One man said he came because he did not want any notes around when he had the money to pay his account. He was not offended at the plan, merely saying that he did not like to sign notes.

This Ohio dealer has used registered letters to speed up collections and also has made use of the special delivery stamp at times, but he says that the "blarney slips" have produced the best results and he will use them as needed, every time in preference to the usual method of cleaning up the accounts that somehow or other, seem to run higher and longer than they should, for the good of his business.

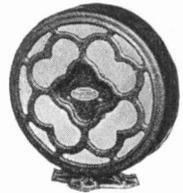
The radio leadership of 1928

NOW
\$90

180 volts on the output tube plate!
Gigantic *UNDISTORTED* volume from the Bandbox!

Power! Power! POWER! A feature of the Crosley AC Bandbox that lifts it head and shoulders above competition! 170 to 185 volts on the plate of the power output tube!

Comparative checkings of competitive radios show interesting figures. Under identical testing conditions the Bandbox shows a full 170 to 185 volts on the plate of the 171 power output tube. Other radios show from 100 to 110 and 130 to 140 volts on the plate of output tube. The 171 power tube should have around 180 volts. This better than 40% superiority in one case and 25% in the other is the difference between today's radio and yesterday's.



MUSICONE
Type D

\$15

Crosley Musicones are famous for their value. This new style is no exception. Its low price of \$15 is in keeping with Crosley traditions. It instantly demonstrated its soundness by immediate and enormous sales.



602
Double Unit

AC BANDBOX

Single Unit
704

The Bandboxes are genuine Neutrodyne receivers. Totally and completely shielded, their acute sensitivity and sharp selectivity is amazing.

They have a single illuminated dial.

Contributing much to the success of this 1928 wonder radio is the Mershon Condenser in the power element of the set. Not being paper, the danger of its blowing out is entirely removed so that the desired *heavy voltage* can be used to produce the acoustic and volume results so greatly desired. **IT IS SELF HEALING.** It does not have to be replaced as is the case with paper condensers.

The capacity of smoothing condensers in Crosley power units is 30 mf. Other sets use only a fraction of that condenser capacity. Undersize condensers, transformers, etc., are used in order to build down to a price. Crosley builds up to a standard.

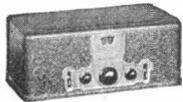
The AC Bandbox is purposely made in two models—the 602 in a double unit—the 704 self contained. This is to provide maximum adaptability in all sorts of surroundings and uses.

The 602 double unit provides console cabinet installation in ALL kinds of consoles.

The 704 is for those who want the entire set in one cabinet. The two sets are identical in elements, design and performance. The physical difference is solely to meet the human differences of taste, necessity and price! The size of the 704 is 17 3/4 inches long by 12 3/4 inches wide and is 6 1/2 inches high.

Battery Type Bandbox \$55

This celebrated model needs no picture for in appearance it is identical to the 602 receiver pictured above. Its amazing performance has won the radio world this season and its value is as outstanding NOW as the day it was first presented!

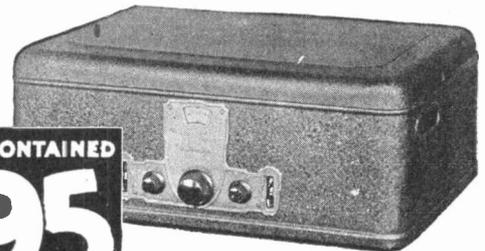


New
401 Dry Cell Type

BANDBOX
JUNIOR

\$35

A new dry cell receiver with all the features of the Bandbox—selectivity, sensitivity, volume and appearance. For places where AC current or storage battery service is not available or desired.



SELF CONTAINED
\$95

Approved Console Cabinets manufactured by Showers Brothers Co., of Bloomington, Ind., and Wolf Mfg. Industries, Kokomo, Ind., are sold to Crosley dealers by H. T. Roberts Co., 1340 S. Michigan Ave., Chicago, Sales Representatives.



Crosley is licensed only for Radio Amateur, Experimental and Broadcast Reception.

THE CROSLLEY RADIO CORPORATION
Powel Crosley, Jr., Pres. Cincinnati, Ohio

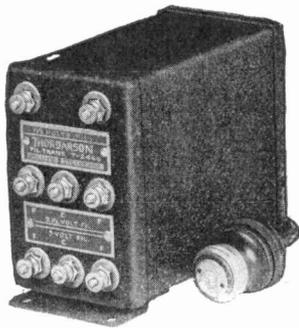
Montana, Wyoming, Colorado, New Mexico, and West, prices slightly higher.

Write Dept. 130 for descriptive literature

"You're there with a Crosley"

CROSLLEY RADIO

Hitch Up Your Harness With the THORDARSON Filament Transformer AND *Electrify*



The Thordarson Transformer T-2445 is designed especially for use with the R.C.A. and Cunningham alternating current tubes UX-226 and UY-227 and power tubes UX-171 or UX-112. A strict adherence to the recommendations of the tube manufacturers combined with the skill of Thordarson design is positive assurance to the user of this transformer of the finest results obtainable.

Specifications

- Secondary No. 1, 1.5 volts will supply 6 UX-226 or CX-326 amplifier tubes.
- Secondary No. 2, 2.5 volts will supply 2 UY-227 or CY-327 detector tubes. (Center tapped.)
- Secondary No. 3, 5 volts will supply 2-5 volt power tubes. (Center tapped.)
- Receptacle provided for B-supply plug.
- Primary 115 volts, 60 cycle equipped with 6-foot cord and separable plug.
- Case, crackle finished, compound filled.
- Dimensions 2 3/4 -in.x5 3/4 -in.x4 3/4 -in. high.
- T-2445Price \$10.00

The A. C. wave has struck the country—manufacturers, jobbers, retailers and the consuming public are all talking A. C. operation of radio equipment. Set manufacturers cannot turn out A. C. tube receivers fast enough, and the tube manufacturers are running to capacity.

Thousands of radio dealers all over the country are today receiving requests from their purchasers of D. C. sets, asking if their set may be turned into an A. C. tube set. You can accomplish this to the satisfaction of your customers and with profit to yourselves by the use of the new harness with adapters now being put out by a number of reputable radio manufacturers.

This plan is called the *Electrification* or *Conversion* plan.

Among your customers there are thousands of owners of battery operated receivers. Each one of these is a potential customer for A. C. conversion.

Stock and sell the Thordarson A. C. Filament Transformer. Insure yourself of maximum quality and guaranteed results.

WRITE FOR THESE FREE BOOKLETS

THORDARSON ELECTRIC MFG. CO.
500 W. Huron St., Chicago

Gentlemen: Please send to me, free of charge, your booklet describing your 210 power amplifier on the metal baseboard

Also send your booklet entitled, "Power for the A.C. Tubes."

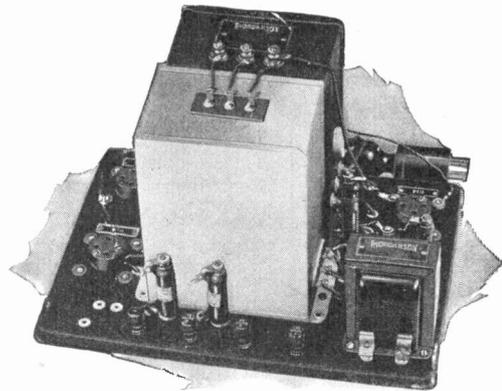
NAME

STREET and NO.

TOWN STATE

3577-M

for improved
musical performance



210 POWER AMPLIFIER and PLATE SUPPLY

Easy to build—Simple to install—Economical
to operate—Quiet in performance

Parts used—

Metal Baseboard R-211.....	\$ 5.00
Power Compact, R-210.....	20.00
Resistance Unit, R-508-3445.....	4.90
Power Input Plug, R-172.....	1.00
Special Condenser Block, Dubilier PL-575, or Tobe R-210.	

This new unit is ideal for the home constructor. The metal baseboard assembly of the Thordarson 210 Power Amplifier makes construction so simple that the most inexperienced novice can assemble this unit in an hour's time.

Baseboard includes all sockets and binding posts mounted, all holes drilled, all screws, nuts and wire furnished, and all connections and leads marked on under side.

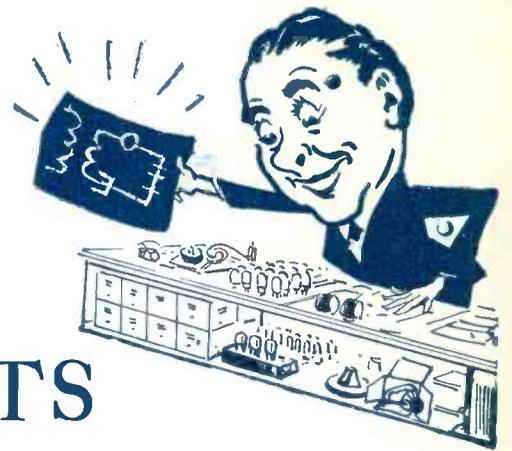
Complete power amplifier supplies A, B and C current for one UX-210 power tube, and B-voltage for the receiver.

You will find this a welcome and quick moving addition to your Thordarson stock—the fastest selling line of transformers in the U. S. A.

THORDARSON

THORDARSON ELECTRIC MANUFACTURING CO.
Transformer Specialists Since 1895
WORLD'S OLDEST AND LARGEST EXCLUSIVE TRANSFORMER MAKERS
Huron and Kingsbury Streets — Chicago, Ill. U.S.A.

MERCHANDISING RADIO PARTS



A Section of *Radio Retailing*

February, 1928

Do You ANSWER these QUESTIONS For Your Customers?

*The parts merchant who is not answering questions
for the prospective set-builder is losing money to-day*

IS THE average dealer taking altogether too much for granted when he assumes. As is frequently the case, that the market for parts is a "self-generating" one? That the demand "just grew" for some reason or other and from causes which were, and are, beyond his power to control or stimulate? There was a time when this was true. Not today, however.

The advent of receiving set kits, of current-supply kits, of power amplifier kits and of matched units has given rise to the necessity for more than passive sales methods in order to keep a retail parts business in the picture. It has given rise to an advanced selling technique to meet these new trends and this new opportunity.

These recent developments in parts have played right into the hands of the alert retailer. The kit, for example, has provided the opportunity on the part of the dealer to stimulate the desire of the latent or embryo set builder because kits permit the dealer to show the visible results obtainable from the parts. It enables him to create prospects by displaying the completed job; by featuring show cards which explain the "why" and "how" of set-building; and by newspaper or other promotional publicity of similar purpose. He can answer the questions of the uninformed, the would-be assembler, before they are asked.

A Chicago parts dealer recently made it a particular point to interview latent prospects for custom-built sets in order to determine what was holding

them back. He found that there were thirteen major questions in the minds of these would-be customers that were keeping them from buying and building, yet everyone of these questions could have been disposed of with a little information. All of these prospects had the time, the money, the ability and the desire to build a real set. Fear and uncertainty—lack of information—were the factors preventing buying action with them. They had never been approached with the answers to their questions.

Further illustrating this point is the experience of the Hudson-Ross Company, Inc., Chicago, with a display window

which they decorated especially in a manner designed to answer most of these questions. The window contained samples of completed sets and cards giving comparative costs with different sets, receiving range, type of current operation and other question-answering information. This window sold approximately 25 customers.

A dealer in Idaho, who is gunning for the parts business of the novice, has instructed his clerk to avoid rapid-fire, high-pressure salesmanship with this kind of customers. A nook is provided in the rear of the store. Here the technical man sits down with the prospect and talks it over. The objection that this kind of selling takes too much time, that it is too costly, is solved, in this instance, by a co-operative plan whereby the personal assistance of an experienced employee is available, for shoulder-to-shoulder assembling and operating instruction, at the rate of \$2 an hour.

Another Chicago dealer, the Newark Electric Company, has a list of over 300 "neighborhood," semi-professional set builders who have agreed to assemble or service sets or to instruct the man who prefers handling his own tools. In this instance also, the compensation rate has been fixed at \$2 an hour.

According to the president of this latter company, Louis M. Strauss, displaying assembled kits, an appreciation of the problems of the beginner, and an adequate organization of "big brother" set builders within reach of any prospect's residence, more than doubled parts sales.

These Are the Thirteen Major Questions Asked by Set-Building Prospects

1. *What are the advantages of assembling my own set?*
2. *What will this set give me in distance, tone, volume and selectivity?*
3. *What will be the comparative cost with manufactured sets?*
4. *How much technical knowledge is required?*
5. *How much mechanical skill?*
6. *How long will it take me to build this set?*
7. *What are the chances that it will operate satisfactorily?*
8. *What tools will I have to have?*
9. *How will the finished job look?*
10. *What else will I have to buy for this set?*
11. *What instructional facilities or assistance can I expect?*
12. *What will this cost me?*
13. *And what servicing protection do I get?*



MR. MANUFACTURER—

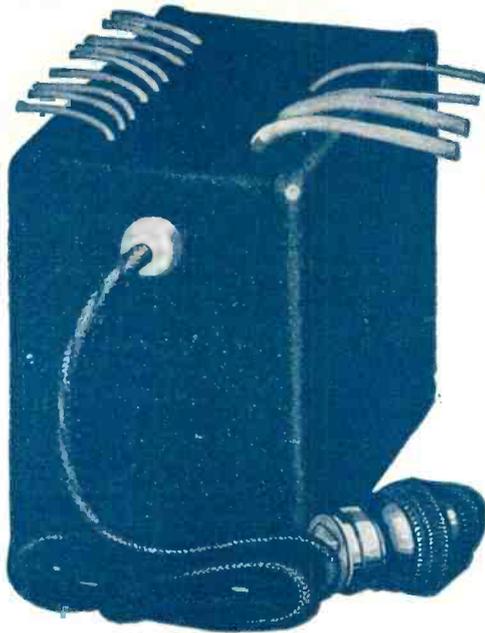
It will pay you to talk with us before placing your transformer order.

Use TCA products and be sure—

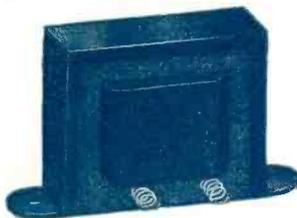
ALL types and models of power packs, and below are the specifications of two of our biggest sellers:

No. 302 Power Pack
 Dimensions 3¾ in. wide, 5 in. high, 6¼ in. long.
 Suitable for:
 6 or 7—226 tubes
 1—227 tube
 1—280 tube
 1 or 2—171 tubes
 Plate Voltage with proper condensers 225 V—50 MA.

No. 368 Power Pack
 Dimensions 3⅝ in. wide, 4¼ in. high, 5¾ in. long.
 Suitable for:
 4—226 tubes
 1—227 tube
 1—280 tube
 1—171 tube
 Plate voltage with proper condensers 150 V—35 MA.
 Both Power Packs contain two 30 henry chokes.



Together with the proper condensers, resistors, tube and tube socket, this pack makes an ideal unit of power supply for the A. C. set.



ALL TCA Audio Frequency Transformers are designed with the same scrupulous accuracy characteristic of TCA products. These transformers are assembled with E and I shaped laminations, making a completely closed core, unquestionably the most efficient type built. The primary possesses a high inductance.

which, together with an evenly distributed capacity insures full and undistorted amplification over the entire musical range. Standard TCA transformers listed below:

- | | |
|-----------------------|----------------------|
| Large type: | Small type: |
| No. 512 2 to 1 ratio | No. 502 2 to 1 ratio |
| No. 513 3½ to 1 ratio | No. 503 3 to 1 ratio |
| | No. 504 4 to 1 ratio |

Let us build to your specifications.

WRITE

The Transformer Corporation of America
 1428-1432 Orleans Street, Chicago
 Gentlemen:

Please have one of your engineering representatives call

Enclosed please find transformer specifications for 1928. As described in accompanying letter, send your quotations on our requirements

Name

Street and No.

Town State

The Transformer Corporation of America, headed up by men with many years' experience in the radio industry, has served since 1923, an ever increasing number of reputable radio manufacturers. The policy of this organization from the start has been to manufacture quality products of the most exacting technical perfection; to always render the maximum service to its customers; to study and follow every new and modern scheme in production in order to be able to deliver each and every order at prices well in line with those of any other manufacturer.

For the season of 1928-29, this organization, with its increased manufacturing facilities, is prepared to serve a number of new manufacturers whose requirements call for: filament supply transformers, power packs (all types and models), audio frequency transformers, transformers and choke coils (mounted or unmounted) for all types of A.C. sets and eliminators of all kinds.

View of one section of our daylight factory in Chicago



The Transformer Corporation of America
 1428-1432 Orleans St., Chicago

Pre-viewing the New Circuits

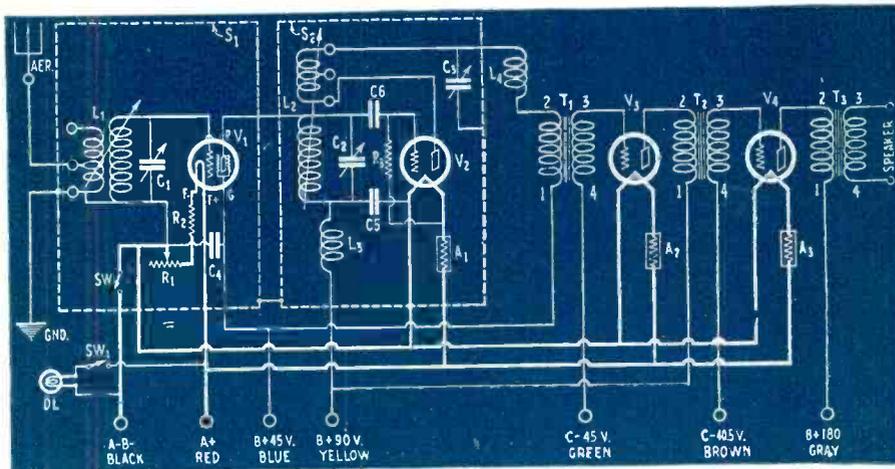
Current fan magazines are telling how to build the sets described on this page. Do you have the parts?



The Knowles Screen-Grid Receiver

THIS receiver, designed by Hugh S. Knowles, is described in the March issue of *Radio News*. It is the familiar 4-tube, 1-stage radio-frequency and regenerative detector receiver with the necessary modifications for using the screen grid tube. It is claimed by the designer that the much greater amplifying properties of the 222-type tube has made greater radio-frequency amplification possible; with the result that this set's sensitivity is equal to that of the average five- or even six-tube receiver in which controlled regeneration and individual-stage control are not used thus combining simplicity of operation on local stations with a flexibility of control which permits remarkable results on distant stations.

The antenna coupling may be varied (in the coil L1) to suit the type of antenna used and the amount of interference that prevails in a particular locality. The radio-frequency stage (S1) is tuned separately; which insures maximum amplification. The detector circuit (S2) has a separate tuning control, which may be operated in unison with the R.F. stage control on local stations, but may be more closely adjusted for the reception of distant stations. The judicious use of regeneration by means of condenser C3 makes the detector stage contribute its quota to both the selectivity and sensitivity of the receiver.



The list of parts required to build this receiver follows:
C1 and C2—Variable condensers, .00035 mfd.;
C3—Midget variable, 65 mfd.;
C4 and C5—Paper by-pass condensers, .5 mfd.;
C6—Mica grid condenser, .00025 mfd.;
T1 and T2—Audio-frequency transformers, 3:1 ratio;
T3—Output transformer, 1:1 ratio;
L1 and L2—Coupling coils;
L3 and L4—R. F. chokes, 85 millihenries;
A1 and A2—Filament resistors, 5 v., 1/2 amp.;
A3—Filament resistor, 5 v., 1/2 amp.;

R1-SW—Switch—rheostat, 40 ohms;
R2—Fixed resistor, 15 ohms;
R3—Grid-leak, 8 megohms;
V1—Vacuum tube, screen-grid type;
V2—Vacuum tube, '00A type;
V3—Vacuum tube, '01A type;
V4—Vacuum tube, '71 type;
S1 and S2—Stage shields, aluminum;
1—Cable plug, 7-wire type;
1—Drum dial, double type;
1—Leak mounting;
4—Sockets, UX type;
1—Front panel;
1—Terminal strip;
1—Baseboard.

The Karas A. C. Equamatic

THE Karas a.c. equamatic receiver, described in the February issue of *Popular Radio*, is especially designed to use the new a.c. valves in the equamatic type of circuit. It employs a variable coupling feature with only two tuning controls on the main panel, one of them for tuning the antenna circuit and the second for tuning the second stage of high-frequency amplification and the detector circuit simultaneously. These two latter circuits are controlled by two condensers that are harnessed together and operated by a single knob. All of these condensers are equipped

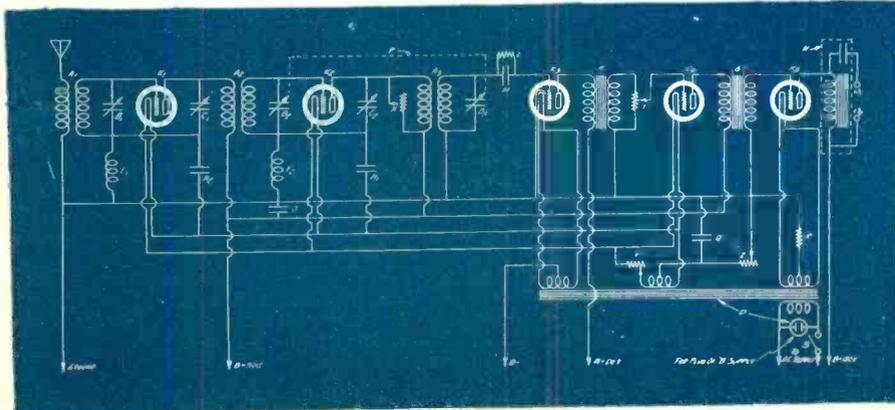
with rotatable primary coils attached on the condenser shafts so that the coils themselves revolve inside of their secondary coils when the condensers are rotated from the low wavelength range to the high wavelength range.

The receiver incorporates two stages of transformer-coupled amplification with a volume control and an output filter.

Two high-frequency choke coils, E1 and E2, are connected in a combination arrangement with two small fixed condensers, N1 and N2, and two small balancing condensers, C1 and C2, in a balanced bridge

arrangement for controlling regeneration and eliminating oscillation at any particular frequency. This same balance may be maintained throughout the whole field by the automatic control of the variable primary coupling coils, already mentioned.

List of Parts for the A.C. Karas Receiver:
A1, A2 and A3—Equamatic coils;
B1, B2 and B3—Variable condensers, .00037 mfd.;
C1 and C2—Balancing condensers;
D—A.C. transformer;
E1 and E2—High-frequency choke coils, 85 millihenries;
F and G—Low-frequency transformers;
H—Output filter;
K1, K2, K4 and K5—Vibrationless sockets (4-prong);
K3—5-prong socket;
L—Grid-leak, 2 megohms;
M—Mica fixed condenser, .00025 mfd., with grid-leak clips;
N1 and N2—Mica fixed condenser, .00015 mfd.;
O—Mica fixed condenser, .006 mfd.;
P—Coupling gear for condensers B2 and B3;
Q—By-pass condenser, 1 mfd.;
R—Fixed resistor, 2,000 ohms;
S—Power switch;
T—Potentiometer, 500,000 ohms;
X—Rheostat, 75 ohms;
Y—Rheostat, .2 ohm;
Z—Potentiometer, 2,000 ohms;
LS1 and LS2—Tip jacks, No. 10;
1—Drilled and engraved panel;
1—Drilled and engraved sub-panel;
2—Dials;
 Brackets, binding posts and connector plug.



ANNOUNCING
**Improved 1928 Model
 of Trav-ler**

**The Original "ONE-MAN"
 Portable Radio**

The Trav-ler has already created a new standard in portable radio receivers and is universally accepted by the trade as a profitable item. With its new features and our sound merchandising policy the Trav-ler Portable Radio will go over even bigger in 1928 as an all-season seller.

Old Features in NEW Model

Weights only 23½ pounds ~ ~ All in one small case—loop aerial, 5 tubes, batteries, loud speaker ~ ~ Standard parts ~ ~ Sweet tone—strong volume.

New Features

Improved appearance—rounded corners—beautiful black and gold color scheme ~ ~ Jones plug—permitting use of Trav-ler with larger batteries or eliminator ~ ~ Special attachment—permitting use of either the Trav-ler's loop aerial or antenna and ground ~ ~ Rearranged construction eliminates service ~ ~ Lower price.



Weights only 23½ pounds complete



Write for complete information about the Trav-ler Portable Radio. Trav-ler Manufacturing Corporation, Dept. D, 3401 North Halsted Street, Chicago.

NOW only \$77¹⁵ complete
 \$57.50 stripped (East of Rockies)
 \$60.00 stripped (West of Rockies)

Trav-ler Manufacturing Corporation, 3401 N. Halsted St., Dept. D, Chicago, Ill.

Please send me complete information about the Trav-ler Portable Radio Receiver.

Name _____ Business concern _____

Address _____ My jobber's name and address _____



Portable Radio

MANUFACTURERS and MARKETS

*Devoted to the Problems
of the Manufacturer in
the Design and Distribu-
tion of Radio Apparatus*

A Section of Radio Retailing

February, 1928

New Radio Circuit ANNOUNCED at Engineers' Convention

AT THE opening session of the third annual convention of the Institute of Radio Engineers, held at the Engineering Societies Building, 33 West 39th Street, New York City, the first public announcement of a fundamentally new radio receiving circuit was made by Dr. Frederick K. Vreeland, well known radio and electrical engineer, who maintains a research and experimental laboratory at the Stevens Institute of Technology.

In a paper delivered at the opening session of the convention, Dr. Vreeland outlined the basic principle of his new development which permits reception of the full sidebands of a broadcast signal without loss of selectivity. "This is accomplished by means of a hitherto undiscovered system of balanced reactances, which is called a 'band selector,' inserted in the radio frequency circuit," Dr. Vreeland said.

The characteristics of this new discovery, Dr. Vreeland declared, give full leeway for the reception of all the sidebands necessary for faithful tone reproduction, and this is accomplished, also, without infringing any existing patents pertaining to radio frequency amplification. The geometric method of tuning developed by Alexanderson is not used at all in this new circuit.

Geometric tuning, according to Dr. Vreeland, is responsible for much of the distortion of tone in radio reception, because it trims off the sidebands of the signal wave, and the sidebands are what give the tone quality to reception.

The "band selector" is a very simple circuit which has the remarkable property of balanced reactances at all the frequencies within a band of 20 kilocycles. An ordinary tuned circuit has its reactances balanced at only one frequency. The balanced reactances are variable and are adjusted by means of an ordinary dial.

"Full patent protection has been applied for," Dr. Vreeland stated, "and many of the claims have been allowed, indicating the circuit is fundamentally new and does not conflict with patents already issued."

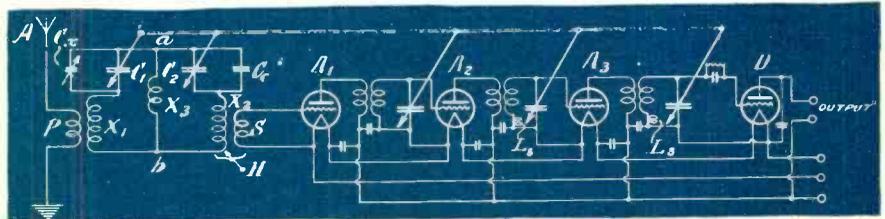


Frederick King Vreeland, M.E., A.M., Sc.D., scientist and physicist, has a long list of achievements in radio invention to his credit. His list of patents include the electrolytic detector, Jan. 24, 1905; sine-wave oscillator, Aug. 28, 1906; "beats" receiver, the basis of the heterodyne and super-heterodyne circuits, Sept. 11, 1917, and June 30, 1925, applications filed Jan. 2, 1907; and other important electrical and radio patents.

"IN a demonstration of the new receiver Dr. Vreeland caused its hearers to express amazement at the unusual fidelity of the tonal reproduction, while, at the same time achieving absolutely sharp selectivity. This is due, Dr. Vreeland explained, to the unique characteristics of his "band selector."

A radio broadcast signal wave includes sidebands to a width of 20 kilocycles. In an ordinary circuit, the response curve rises to a sharp point, cutting off much of the sidebands. (Fig. 1) In his new circuit, however, which he has as yet not named, except to call it a "full band selector," the response curve takes on the appearance of a rectangle, rising sharply, flattening out at the top to almost the entire 20 kilocycle width, and then descending sharply, thus taking in practically all of the sidebands, yet cutting off the interfering wave, sharply at the base. (Fig. 2).

The ordinary radio receiving set in use today, according to Dr. Vreeland, depends for its tone quality upon the audio amplification system, but the best audio system cannot give faithful reproduction if some of the tones are cut out by the radio frequency tuner. Several years ago, Dr. Vreeland set himself the task of securing tone quality in the radio frequency circuit, hitherto considered an impossibility if selectivity was to be preserved. He convinced his audience that he had accomplished his purpose through the develop-



Wiring diagram of Dr. Frederick K. Vreeland's "band selector" method of radio frequency amplification, showing three stages of radio frequency and detector. Audio frequency amplification to any desired number of stages may be added.

410 - Harvey

B-L

[Formerly MARATHON]

DRY RECTIFIERS

B-L (Marathon) Rectifiers embody a proved principle of rectification. They are bone dry, noiseless, durable, compact and long-lived—require no acids, no liquids, no bulbs, no care, no adjustments. Their taper charging rate is self-regulating.

B-L Rectifying Elements



Pat. Applied for

Type C-10
List Price \$5.00 Each

Type C-10 B-L Rectifying Elements have standard screw bases and are furnished either with single top contact or with double contact in base. They are designed for use with all 2 1/2 ampere bulb charging devices, having a transformer secondary voltage of from 15 to 18 volts under load. Operate as single-wave rectifiers—noiseless—no hum. Adaptable to high and low rate chargers. Require no attention—install them and forget them.



Pat. Applied for

Type A-20—40 & 40P
List Price \$5.00 Each

B-L Rectifying Replacement Units

Type A units are used to replace electrolytic rectifiers in trickle chargers and power devices. Three types for different transformer secondary voltages:—A-20: full wave, 10 to 12 volts under load, A-40: single wave 15 to 16 volts under load, A-40P for Philco Power Device.



Pat. Applied for

Types B-8, List Price \$4.50
B-12, \$5.00—B-16 \$5.50
Each

B-L Rectifying Element

Type B full-wave units are especially designed to meet requirements of manufacturers of trickle chargers and "A" Power devices, with transformers having a secondary voltage of from 9 to 11 volts depending on type of units.

Manufacturers—Write for information on B-L Rectifying Elements for your power equipment. . . .

Jobbers—Some desirable territories open

Dealers—Order from your jobber, or write us for name of nearest distributor.

The Benwood-Linze Co.

"Pioneers in Radio—First in Midwest"
1832 Washington Ave. St. Louis, Missouri



Converts D. C. Sets To A. C. Sets

Built in Two Models

Acme Converter Unit, Model ABC-5 for converting D. C. sets into A. C. sets using the new A. C. tubes 226 and 227. (A harness is necessary for changing sets to these A. C. Tubes.)

TYPE ABC-5

Acme Converter Unit (less tube) . . \$32.50
Tube 5.00
Harness for six tubes 7.00

Acme Converter Unit, Model ABC-15 for converting D. C. sets into A. C. sets, using Arcturus tubes. No harness required.

TYPE ABC-15

Acme Converter Unit (less tube) . . \$34.50
Tube 5.00

Either of above units deliver 40 mills at 180 volts "B" current and provide the necessary A. C. voltages for operation with the new tubes. Operates on 50-60 cycles, 110 volts alternating current.

Acme ABC Converter Units work without A. C. hum.

Ask your jobber about these new Acme Units.
If he cannot supply you write us direct.

THE ACME ELECTRIC MANUFACTURING COMPANY

Established 1917, Member R. M. A.
1446 Hamilton Ave., Cleveland, Ohio
Dept. R
Representatives in Principal Cities

ment of his entirely new principle of radio frequency amplification.

"Distortionless reception and faithful reproduction of tone," Dr. Vreeland said, "means that all the frequencies in the transmitted band of the modulated wave shall be received in their true relative intensities.

"Selectivity requires that a certain group of radio frequencies, comprising a modulated signal wave, must be separated from all other radio waves.

"IF WE are to receive a full frequency band, or spectrum, of 20 kilocycles width, including modulation frequencies up to 10,000 cycles, obviously the bands of two modulated waves 20 kilocycles apart will meet with no space between. To receive without distortion one wave band of 20 kilocycles width and exclude the adjacent wave requires a receiver of extraordinary qualities, receiving with equal efficiency all the frequencies within the 20 kilocycle band, and abruptly cutting off all frequencies outside this band. In other words, it requires a receiver whose frequency characteristic of reception is substantially rectangular.

"The receivers in general use today do not work that way. In the allied art of wire telephony, filters are used to separate adjacent frequency bands. Similar means may be used at radio frequencies where the bands are fixed and where such complicated circuit networks are permissible, but in the field of broadcast reception there is one added condition that must be met, namely, the feasibility of adjustment of the band of reception in the frequency scale. This requires simplicity of the circuits and apparatus and the operation of all frequency adjustments by a single control.

"The ideal solution of the problem is a system which has a substantially rectangular frequency characteristic, that is, one which gives substantially uniform reception over a definite band of frequencies, including all the sideband frequencies of the modulated wave, with a sharp cut-off for frequencies outside this band. Such a system in its ideal form would give distortionless reception, with extreme selectivity.

"A BAND selector has been developed in our laboratories which meets these three stated conditions, i.e., fidelity, selectivity, and simplicity. It comprises in general a system of reactances so related to each other that they are mutually balanced, not merely at a single frequency as in the case of the ordinary tuned circuit, but also at any frequency within a given band. At any frequency outside of this band the reactances are not balanced and the unbalanced reactance is high. As a result of this property, the band selector unit responds with substantial equality to all frequencies within its characteristic band and is non-responsive to frequencies outside this band. When the system is suitably designed, the cut-off at the limits of the band is very sharp. The electrical and mechanical construction is exceedingly simple, and frequency adjustment is obtained by means of only two variable elements operated by a single control."

AT THE conclusion of his talk, Dr. Vreeland declared that the fact that his circuit is entirely clear of conflict with existing radio frequency patents was wholly accidental. The thing that led to the discovery of the circuit was Dr. Vreeland's goal of developing a radio frequency system that would combine tone quality and selectivity. This he found could not be done by means of the geometric system

Fig. 1—Ordinary R. F. Wave

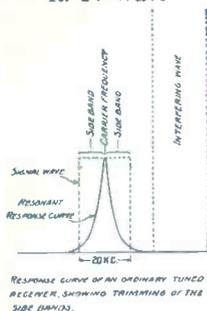
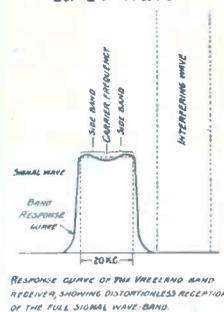


Fig. 2—Vreeland R. F. Wave



Graphic and oscillograph reproduction of the Vreeland wave showing its rectangular characteristics as compared to the ordinary wave. All sidebands are included, thus achieving tone quality without loss of selectivity.

of tuned radio frequency developed by Alexanderson. He, therefore, took an entirely new course, which led to the discovery of the "full band selector" principle, which consists merely of setting up two small and extremely simple balanced circuits, before each radio frequency stage.

In the six-tube set on demonstration three stages of radio frequency, detector, and two stages of audio amplification were used, with the new "balanced" circuits inserted in front of each r.f. stage. He stated that several prominent manufacturers are negotiating for the manufacture of receivers using his balanced radio frequency system. When they are marketed, he promises the public a sensational improve-

ment in tonal reproduction as it is known at the present time.

Dr. Vreeland is a Fellow of the Institute of Radio Engineers, The American Institute of Electrical Engineers, and the American Association for the Advancement of Science. He holds the degrees of M.E. and Sc.D. from the Stevens Institute of Technology, and A.M. at Columbia University.

Among his many radio inventions is the "beats" system, which makes the famous "superheterodyne" circuit possible, and which he has licensed the Radio Corporation of America to use. His new circuit, however, Dr. Vreeland plans to market independently.

Latest Radio Patents

DESIGNS

74,114. Loud-Speaking Sound Reproducer. George R. Lum, New York, N. Y. Assor. to Western Electric Company, Incorporated, New York, N. Y.

PATENTS

1,653,045. Loud-Speaker Unit. Emil F. Holinger, New York, N. Y. Assor. of one-half to E. Chase Crowley, New York, N. Y.
 1,653,128. Loud Speaker. Lawrence Alvin Smith, New Orleans, La.
 1,653,144. Sound Amplifier. James S. Bach, Toronto, Ontario, Canada.
 1,653,158. Radio Reproducer. Walter L. Eckhardt, Philadelphia, Pa.
 1,653,159. Radio Reproducer. Walter L. Eckhardt, Philadelphia, Pa.
 1,653,172. Radio Control of Engine Speed. John Hays Hammond, Jr., Gloucester, Mass.
 1,653,544. Electron Tube. Hugh Alexander Brown, Urbana, Ill. Assor. to Board of Trustees of The University of Illinois, Urbana, Ill.
 1,653,725. Combination Radio and Phonograph Apparatus. Frank Oberst, New York, N. Y. Assor. to Sonora Phonograph Company, Inc.
 1,653,727. Radio Reproducer. Frank Oberst, New York, N. Y. Assor. to Sonora Phonograph Company, Inc.
 1,653,745. Variable Resistance. Erwin R. Stoekle, Milwaukee, Wis.
 1,653,753. Radio Wave Control Switch. Jesse S. Wheeland, San Francisco, Calif.
 1,653,795. Concealed Loud Speaker for Radio Receiving Sets. Joseph Wolff, Brooklyn, N. Y. Assor. by mesne assignments to Sonora Phonograph Company, Inc.
 1,653,796. Radio Apparatus. Joseph Wolff, Brooklyn, N. Y. Assor. to Sonora Phonograph Company, Inc.
 1,653,837. Modulated-Carrier-Wave Signaling System. Harold S. Black, East Orange, N. J. Assor. to Western Electric Company, Inc., New York, N. Y.
 1,653,859. Apparatus for Influencing Alternating Currents. Ludwig Kuhn, Charlottenburg, Germany (near Berlin). Assor. to The Firm: Dr. Erich F. Huth G.m.b.H., Berlin, Germany.
 1,653,869. Socket. Emil J. Nielsen, Oak Park, Ill. Assor. to Kellogg Switchboard and Supply Company, Chicago, Ill.

1,653,875. Dial Mechanism for Radio Apparatus. William A. Ready, Brookline, Mass.
 1,653,878. Electric Wave Signaling System. John C. Schelleng, East Orange, N. J. Assor. to Western Electric Company, Incorporated, New York, N. Y.
 1,653,881. Apparatus for Varying the Wave Form of Alternating Current. Homer C. Snook, South Orange, N. J. Assor. to Western Electric Company, Incorporated, New York, N. Y.
 1,653,887. Frequency Translating Circuits. Harold S. Black, Newark, N. J. Assor. to Bell Telephone Laboratories, Incorporated, New York, N. Y.
 1,653,891. Radio Speaker. Howard P. De Graff, New York, N. Y.
 1,653,898. Signaling System and Apparatus. Albert F. F. Gilson, Oradell, N. J. Assor. to Western Electric Company, Incorporated, New York, N. Y.
 1,653,951. High-Frequency Coll. Edward B. Featherstone, Toledo, Ohio. Assor. to W. G. Nagel Electric Company, Toledo, Ohio.
 1,654,071. Electrical Wave Filter. Robert W. De Monte, Jersey City, and Timothy E. Shea, Rutherford, N. J. Assors. to Western Electric Company, Incorporated, New York, N. Y.
 1,654,075. Electric Wave-Transmitting Means. William S. Gorton, East Orange, N. J. Assor. to Western Electric Company, Incorporated, New York, N. Y.
 1,654,080. Carrier Signaling System. Raymond A. Heising, Milburn, N. J. Assor. to Western Electric Company, Incorporated, New York, N. Y.
 1,654,085. Voltage-Limiting Device. George T. Lorange, New York, N. Y. Assor. to Bell Telephone Laboratories, Incorporated, New York, N. Y.
 1,654,090. Modulation Indicator. Arthur A. Oswald, East Orange, N. J. Assor. to Western Electric Company, Incorporated, New York, N. Y.
 1,654,108. Radio Antenna. Adolph I. Blanc, Detroit, Mich. Assor. to Peter P. Stone and Adolph I. Blanc, doing business as S. & B. Specialties Manufacturing Company, Detroit, Mich.
 1,654,123. Frequency Selective Transmission System. Ralph V. L. Hartley, South Orange, N. J. Assor. to Western Electric Company, Incorporated, New York, N. Y.
 1,654,145. Radio Battery. Walter B. Schulte,



ACME Flexible Celatsite Wire

A cable of fine, tinned copper wires with non-inflammable Celatsite insulation. Ideal for sub-panel or point-to-point wiring. Strips easily, solders readily. Nine beautiful colors; sold only in 25 ft. coils, in cartons colored to match contents.

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Tinned copper bus bar hook-up wire with non-inflammable Celatsite insulation, in 9 beautiful colors. Strips easily, solders readily, won't crack at bends. Sizes 14, 16, 18, 19; 30 inch lengths.

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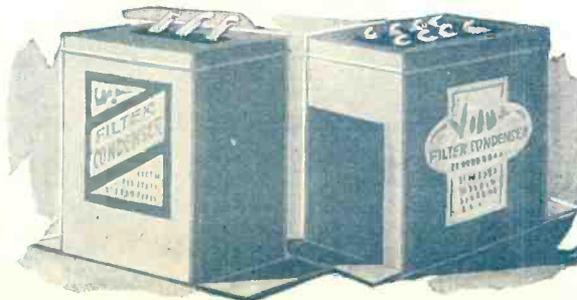
DEXSTAR Condenser Paper is regarded by Radio experts as being the highest grade Insulating Tissue ever made—the freest from defects, the most uniform in quality, the most lasting under exacting and unusual requirements. DEXSTAR Condenser Tissue is the specialized product of a paper mill which has excelled in Tissue Paper production for three generations.

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- Madison, Wis. Assor. to Burgess Battery Company, Madison, Wis.
- 1,654,184. Frequency-Control Circuits. Raymond B. Meyer, Washington, D. C. Assor. to Wired Radio, Inc., New York, N. Y.
- 1,654,189. Piezo-Electric-Crystal Apparatus. Edwin L. Powell, Washington, D. C. Assor. to Wired Radio, Inc., New York, N. Y.
- 1,654,195. Modulation System for Frequency Multiplier Circuits. Albert H. Taylor and Leo C. Young, Washington, D. C. Assors. to Wired Radio, Inc., New York, N. Y.
- 1,654,196. Three-Phase Oscillator. Albert H. Taylor, Washington, D. C. Assor. to Wired Radio, Inc., New York, N. Y.
- 1,654,281. Modulation System. Robert L. Davis, Wilkinsburg, Pa. Assor. to Westinghouse Electric & Manufacturing Company.
- 1,654,285. Modulating System. Charles Le G. Fortescue, Pittsburgh, Pa. Assor. to Westinghouse Electric & Manufacturing Company.
- 1,654,322. Radio Sending System. Frank Conrad, Pittsburgh, Pa. Assor. to Westinghouse Electric & Manufacturing Company.
- 1,654,374. Transmission of Pictures by Electricity. Joseph W. Horton, Bloomfield, N. J. Assor. to Western Electric Company, Incorporated, New York, N. Y.
- 1,654,390. Apparatus for Detecting or Translating Electrical Impulses. John Scott-Taggart, London, England.
- 1,654,471. Grid for Electron-Discharge Tubes. Eduard Schrack, Vienna, Austria.
- 1,654,497. Sound-Producing Device. Leo J. Grubman, New York, N. Y. Assor. to Voices, Incorporated, Newark, N. J.
- 1,654,498. Sound-Producing Device. Leo J. Grubman, New York, N. Y. Assor. to Voices, Incorporated, Newark, N. J.
- 1,654,499. Sound-Producing Device. Anton L. Grubman, Belle Harbor, N. Y. Assor. to Voices, Incorporated, Newark, N. J.
- 1,654,500. Sound-Producing Device. Leo J. Grubman, Belle Harbor, N. Y. Assor. to Voices, Incorporated, Newark, N. J.

REISSUES

- 16,834. Radio System. Lloyd M. Knoll, Philadelphia, Pa. Assor. by direct and mesne assignments to Federal Telegraph Company, San Francisco California.

DESIGNS

- 74,149. Radio Cabinet. Arthur Atwater Kent, Ardmore, Pa.
- 74,162. Radio Aerial. Nicholas A. Becker, Pittsburg, Calif.
- 74,164. Loud Speaker. Morris Borris, New York, N. Y.
- 74,170. Loud Speaker. Beryl E. Colburn, Green Bay, Wis. Assor. to Super-Ball Antenna Co., Inc., Green Bay, Wis.
- 74,172. Combined Radio Loud Speaker and Bird Cage. Paul Drew and Lester C. Zabriskie, Ridgewood, N. J.
- 74,194. Stand for Radio Loud Speakers or Similar Articles. Frederick Schwartz, Brooklyn, N. Y. Assor. to Robert Filday Manufacturing Company, Inc., Brooklyn, N. Y.
- 74,205. Loud-Speaker Cabinet. Charles D. White, East Orange, N. J. Assor. to Brandes Laboratories, Inc., Newark, N. J.
- 74,208. Radio Loud Speaker. Julius Wondolowski, New York, N. Y.

PATENTS

- 1,654,741. Operating Unit for Sound-Amplifying Devices. George C. Lindsey, Los Angeles, Calif. Assor. of nine thirty-seconds to Robert Turner, seven thirty-seconds to Michael Gozzo, one-eighth to Don Emiger, and six thirty-seconds to Victor P. Hendrick.
- 1,654,804. Combined Radio and Talking-Machine Amplifier. Alfred H. Haag, Baltimore, Md. Assor. to Radio Corporation of America, New York, N. Y.
- 1,654,867. Adjustable Electrical Condenser, Resistance, Variometer and The Like. Claude Gustaf Hjalmar De Laval, Stockholm, Sweden.
- 1,654,881. Variable Condenser. Benjamin Q. Isler, New York, N. Y. Assor. by mesne assignments to Lazarus Shapiro, New York, N. Y.
- 1,654,920. Multichannel Radio System. Emroy Leon Chaffee, Belmont, Mass. Assor. to John Hays Hammond, Jr., Gloucester, Mass.
- 1,654,929. Amplifier Circuits. John W. Foley, Bogota, N. J. Assor. to Western Electric Company, Incorporated, New York, N. Y.
- 1,654,945. Vacuum-Tube Circuits. David C. Price, Schenectady, N. Y. Assor. to General Electric Company.
- 1,655,160. Radio Receiving System. Winfred T. Powell, Rochester, N. Y. Assor. to Stromberg-Carlson Telephone Manufacturing Company, Rochester, N. Y.

- 1,655,243. Radio Apparatus. Ambrose H. Rosenthal, Brooklyn, N. Y. Assor. to Otto Munk, Trustee, New York, N. Y.
- 1,655,267. Sound Apparatus for Producing and Receiving Sound Waves. Walter Kahnemann, Kitzberg, near Kiel, and Heinrich Hecht, Kiel, Germany. Assor. to Signal Gesellschaft mit beschränkter Haftung, Kiel, Germany.
- 1,655,355. Resistance Device for Antenna Circuits. George C. Clarke, New Berlinville, Pa.
- 1,655,372. Radio Apparatus. Arthur Atwater Kent, Ardmore, Pa.

DESIGNS

- 74,217. Radio Loud Speaker. Walter Scott Grau, Lebanon, Pa.
- 74,218. Radio Loud Speaker, Walter Scott Grau, Lebanon, Pa.

PATENTS

- 1,655,403. Sound-Reproducing Unit. Paul G. Andreas, St. Charles, Ill. Assor. to Newcombe-Hawley, Inc., St. Charles, Ill.
- 1,655,537. Amplifier Circuits. John W. Foley, Bogota, N. J. Assor. to Western Electric Company, Inc., New York, N. Y.
- 1,655,557. Amplifier Circuits. Robert C. Mathes, New York, N. Y. Assor. to Western Electric Company, Inc., New York, N. Y.
- 1,655,619. Vacuum Tube. Herbert E. Metcalf, San Leandro, Calif. Assor. to The Magnavox Co., San Francisco, Calif.
- 1,655,877. Radio Equipment. Herman P. Pullwitt, Oak Park, Ill. Assor. by mesne assignments to John H. Newman, New York, N. Y.
- 1,655,899. Tube-Control Unit. Herbert H. Frost, Chicago, Ill. Assor. by mesne assignments to Chicago Telephone Supply Company, Elkhart, Ind.
- 1,655,910. Radio Loud Speaker. Leo A. Madson, Elk River, Minn.
- 1,655,961. Radio Signaling System. Ludwig Kühn, Berlin, Germany. Assor. to Westinghouse Electric & Manufacturing Company.
- 1,656,009. Radio Amplifier Unit. Leroy King McMullin, St. Louis, Mo.
- 1,656,085. Radiophonograph. James S. Spainhour, Hemstead, N. Y. Assor. of one-half to Joseph H. Cohen, West Hempstead, N. Y.
- 1,656,092. Radio Apparatus. Dorsey F. Asbury, Brooms Island, Md.
- 1,656,098. Vacuum-Tube Circuits. Robert L. Davis, Wilkinsburg, Pa. Assor. to Westinghouse Electric & Manufacturing Company.
- 1,656,140. Radio Speaker or Horn. Clarence E. Burk, Marion, Ohio. Assor. of one-half to the Van Atta Hardware Company, Marion, Ohio.

Foreign Radio Broadcasting

Broadcasting is now provided by 431 stations in 57 foreign countries, in addition to the 685 operating in the United States and its non-contiguous territories according to Lawrence D. Batson, Electrical Equipment Division, Department of Commerce, Bureau of Foreign and Domestic Commerce, Washington. Europe has 196; North America, outside the United States, 128; South America, 52; Asia, 18; Oceania, 28; and Africa, 9.

The division of stations by countries gives Canada, 59; Cuba, 47; Russia, 38; Sweden, 30; Australia and Germany each, 24; Argentina, 22; United Kingdom, 20; France and Mexico each, 18; Spain, 15; Brazil, 12; Chile, 9; Finland, 7; Switzerland, 6; and Austria, 5. There are 4 each in Belgium, Czechoslovakia, Uruguay, India, Dutch East Indies, and New Zealand; 3 each in Italy, Poland, China, Japan and South Africa; 2 each in Denmark, Estonia, Hungary, Irish Free State, Norway, Portugal, Bolivia, and Algeria, and 1 each in Iceland, Latvia, Lithuania, Luxembourg, Netherlands, Turkey, Yugoslavia, Costa Rica, Haiti, Paraguay, Peru, Venezuela, Ceylon, Chosen, Kwangtung, Straits Settlements, Canary Islands, Egypt, Morocco, and Tunisia.

Outside the United States, the most powerful broadcasting stations are those at Motala, Sweden, and Moscow, Russia, these two having a power of 40,000 watts each. Russia also has a 20,000-watt station

at Moscow, and one of 10,000 watts at Leningrad. Davenport, England, operates on 16,000 watts. A station of power ranking above 40,000 watts is reported to be under consideration in the Netherlands.

BUSINESS OF BROADCASTERS

The broadcasting service of foreign countries is provided by governments, organizations, merchants, manufacturers, broadcasting companies, and private citizens. The ownership of 34 broadcasting stations has not been reported.

Governments own and operate 77 stations; associations and institutions 87; commercial and industrial establishments 69; broadcasting companies 127; and private citizens 33. Of the government stations, 2 are municipal, 16 provincial, and 59 national, the latter being subdivided into 33 operated by ministries of communication, 2 by ministries of education, and 4 by ministries of war, the 20 stations in the United Kingdom being administered by an independent government broadcasting commission.

Radio organizations operate 65 of the 87 stations in the organization group, church organizations 6, and educational institutions 5. Aviation, political, military, radio merchants' and theosophical societies operate the remainder.

Merchants, mostly electrical and radio, have 35 stations, manufacturers maintaining 5. The stations operated by publishers number 15, most of these newspapers, by railways 3, and grain dealers and farmers' co-operatives 2 each; telephone companies, hotels, sales agents, theaters, and power companies are represented by but a single station each.

CHAIN STATIONS

Nationwide chains include 29 stations, 21 of them being owned by companies holding national broadcasting monopolies. Local broadcasting companies each operating but a single station number 31. Regional monopolies with exclusive broadcasting rights in only a limited part of the country, own 27. Private citizens control 33; in a sense these latter are of the amateur class though their stations are of the broadcasting classification. Radio amateurs account for the largest number of the broadcasting business group, with 40 stations.

Fifteen broadcasters have part time use of stations owned by other organizations. Four of these are church organizations, one a radio society, two are publishers, and one a railway, the latter having arrangements with eight stations in different cities.

To License Under New Small Cone Patent

The United Radio Corporation of Rochester, builder of Peerless speakers, has perfected a new four-inch cone speaker which is said to produce a volume and quality of speech and music heretofore unobtainable from a small cone. Negotiations are now under way looking toward co-operation with other independent speaker manufacturers for the introduction of this new reproducer, on which basic patents have been filed.

It is understood that several manufacturers are to bring out the new cone which will be built under a Peerless license and to Peerless specifications, thus insuring the performance of the speaker.

A. T. Haugh, general sales manager of the Peerless organization admitted that the corporation had developed such a speaker and that the question of licensing other manufacturers was under discussion.

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Convert Battery Sets to A. C.

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NATIONAL Power Units

For use with all standard
Set-conversion Harnesses

NATIONAL POWER TRANSFORMER

A heavy-duty transformer for 110-120 volts, 60 cycles, A.C. Capable of handling the largest sets. Center tapped 7.5 and 5 volt secondaries are provided for filaments of both UX-210 and UX-171 Power Tubes. Dimensions 4 1/8-in. wide x 4-in. deep x 4 3/4-in. high. Bakelite Panel; Black Crackle metal case.



Made in two types—Type R has 300 volts secondary each side of center, for Raytheon BH or UX-280 Rectifier Tube. List \$12.50. Type Ra has 230 volts each side of center. List Price, each, \$12.50.



Two heavy chokes in single case to match NATIONAL POWER TRANSFORMER. For all Power Supply Filter Circuits. List Price \$10.00



For heating the new A.C. Tubes direct from Lamp Socket, replacing the old A-Battery. Has 1.5 2.5 and 5 volt taps for all types of A.C. Tubes. List Price..... \$10.00

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RADIO INTERFERENCE FILTERS



Take out noises in your radio caused by motors and household appliances.

Requires **NO** attention.
Over 1000 now in use.

Size No. 1 for small motors, \$10
Up to 1-4 h.p.

Size No. 2 for larger equipment
Up to 5 h.p. @ 220 volts \$15

WRITE FOR PRICE LIST
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Every Set Owner Is Ready To Buy This NEW BEEDE Socket Test Meter



\$2.50 LIST

Tests Where Tests Should Be Made

At Last B Power can be measured where it should be measured. The BEEDE Socket Test Meter not only checks up the strength of the battery and eliminator, but also indicates power losses due to open circuits or deterioration of tubes. Tubes may be taking too much current, other tubes may be receiving too little. Replacing each tube in turn with this simple BEEDE Socket Test Meter reveals instantly many sources of interference that would otherwise take hours to discover. It can be used on all types of sets, including those electrically operated. The BEEDE Socket Test Meter takes the same amount of current as the tube. Set owners have long wanted a socket test meter. BEEDE is again the first to meet a universal radio need.

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136 LIBERTY ST., NEW YORK

BEEDE METERS



1928's Fastest Selling
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Red Lion Cabinet

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The NEW ATWATER KENT
Model 37 A. C.

Big sales of Red Lion—Atwater Kent combinations in 1927 proved the popularity of medium priced sets. And 1928 will be even better.

The unusual combination of a handsome, useful Red Lion Cabinet and a famous Atwater Kent A. C. Set makes a real business getter.

Your Atwater Kent Distributor can supply you with Red Lion Cabinets in desk, console and chest types for the new Atwater Kent Model 37 A. C. Radio.

But this will in no way interfere with the regular line of cabinets for Atwater Kent Models 35, 30, 33.

One of these ideal combinations is shown above—Red Lion Cabinet with Red Lion Built-in Speaker using the Atwater Kent Unit and an Atwater Kent Model 37 A. C. Set—retails for \$138.

Write for full particulars of our new models and our new merchandising program.

RED LION CABINET COMPANY
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A New Sales Producer

CARTER A.C. Adapter Harness



Practically every set owner will welcome the opportunity to change his set to A.C. tube operation. Here is your opportunity for new business from old customers, and prospects. A few minutes and the job is done. No structural change in the circuit; simply slip in the adapter harness. Not even a pair of pliers required.

Made for use with all standard A.C. Filament Transformers including the following:

Carter Adapter Harness for	Karas "A-C-Former" Type		Silver-Marshall Bremer-Tully Type		Thordarson Jefferson or Acme Type	
	Code No.	List Price	Code No.	List Price	Code No.	List Price
5 Tube Set no power Tube..	HK-5	\$10.75	HS-5	\$13.00	HT-5	\$12.25
5 Tube Set with power Tube..	HKP-5	12.50	HSP-5	15.00	HTP-5	14.00
6 Tube Set no power Tube..	HK-6	11.75	HS-6	14.00	HT-6	13.25
6 Tube Set with Power Tube..	HKP-6	13.50	HSP-6	16.00	HTP-6	15.00
7 Tube Set no power Tube..	HK-7	12.75	HS-7	15.00	HT-7	14.25
7 Tube Set with power Tube..	HKP-7	14.50	HSP-7	17.00	HTP-7	16.00

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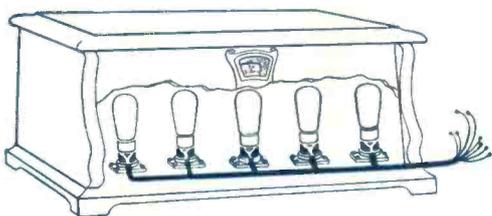
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A-C ADAPTOR HARNESS

Enables Any One To Convert a Battery Set Into a House Current Receiver—WITHOUT REWIRING



MADE IN TWO TYPES

Corwico A-C Harnesses are made in two types—one with adaptors attached for R.C.A. and other A-C type tubes and one without adaptors for Arcturus A-C tubes. Arcturus A-C tubes are equipped for Corwico A-C Harness connections without the use of adaptors. This type Corwico A-C Harness should be used where there is not enough height left for the tubes if adaptors are used.

The Corwico-A-C Adaptor Harness consists of a twisted cable of heavy Corwico Flexible wire and the necessary number of adaptors to fit into the sockets of the battery set to be converted. The adaptors pick up the plate and grid connections of the original circuit while the harness supplies the required new filament circuit. Connect the harness to any standard step-down transformer, insert the A-C tubes into the adaptors and the old battery set is changed into an A-C Receiver, eliminating all storage batteries or A eliminators.

It's a Hot Seller

Every customer to whom you have sold a battery set is a live prospect for a Corwico A-C Adaptor Harness. It also makes it easier to move your old traded-in battery sets by converting them into A-C electrics.

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An Insulating Cap with a split screw that bites twisted wire ends.

SM

All "A" Power for \$5.00!



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The S-M 247 filament transformer supplies 5 volts for one to four 112A or 171A power tubes, 1.5 volts for one to five 226 A.C. amplifiers and 2.25 volts for one or two 227 A.C. detector tubes. You can use it with any combination of A.C. tube harnesses or adaptors, or A.C. tube equipped set. It's the biggest "A" power value you ever saw!

Specially attractive prices to manufacturers or jobbers interested in electrification of present stocks of battery sets.

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ARE AVAILABLE For Your Customers

THESE are the Tubes that have helped build up the
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LIGHT SOCKET OPERATION



Type 445 Plate Supply and Grid Bias
Unit Price (with Tube) \$60.00

By means of these two General Radio items you can convert a battery operated receiver into one deriving its power from the light socket. Don't overlook the fact that the public now wants complete elimination of all batteries. The change is easily accomplished.

Through the unique method of voltage control in the type 445 Plate Supply and grid bias unit any combination of voltages from 0-180 may be taken from the four positive "B" terminals. An adjustable grid bias voltage from 0 to 50 is also available for use on the power tube. The type 445 Plate Supply is designed for use on 105 to 125 volt A. C. lines (50-60 cycles) and uses the UX-280 or CX-380 rectifier tube. The type 445 unit is licensed by the Radio Corporation of America for radio amateur, experimental and broadcast reception only, and under the terms of the R.C.A. license the unit may be sold only with tube.



Type 440-A Transformer
Price \$10.00

The A.C. tubes require a source of low voltage capable of delivering large current. The various types require several different voltages. The type 440-A Transformer supplies voltage for all popular tubes and sufficient current of ordinary receiver requirements. Filament supply is provided for filament, separate heater, power amplifier and rectifier tubes. The following voltages and currents are available.

2 Volts	10 Amperes
3.5 Volts	5 Amperes
5 Volts	2.5 Amperes
7.5 Volts	2 Amperes

The Type 440-A Transformer is designed for use on 105-125 volt (50-60 cycle) A.C.

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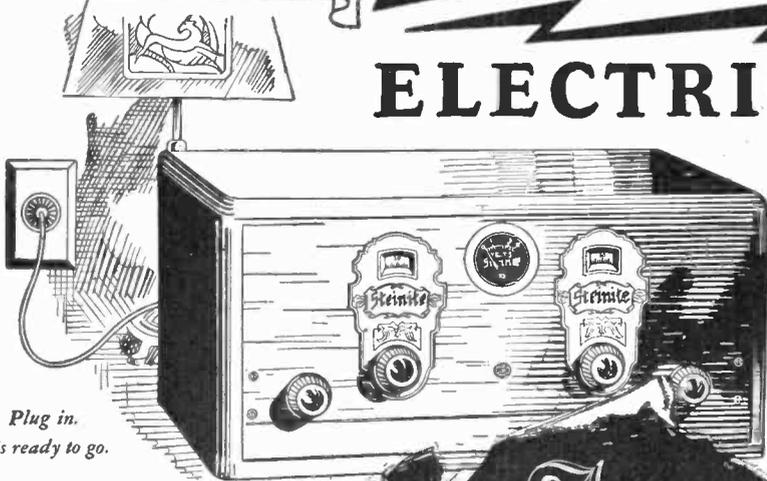
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Inventor of the
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In 1924 I pledged to the American public that Steinite would always represent the latest developments in radio, and at all times offer the greatest radio value.

In 1925 I predicted that Steinite would produce the first all electric radio. At the 1926 Radio Show this first prediction was fulfilled with the introduction of the Steinite Electric.

In 1927 the Steinite Electric proved the sensation of the season, achieving such popularity that mass production and other manufacturing developments made possible the new one-unit Steinite Electric Radio at \$85.00. This fully mainstay Steinite's supremacy in its field.

It is fitting at this time that I should affirm the pledge made in 1924 that Steinite would always be the country's outstanding radio value.

Fred W. Steinite

Sensationally low in price—
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the new STEINITE has been
scoring heavily since its
Introduction.

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506 S. Wabash Ave., Dept. R. R.
Chicago, Ill.

Send me full details of your new model and
the Steinite proposition.

Name

Address

NAME

NO Batteries - Eliminators! Acids - Water or Attachments!

Radio is better with **Battery Power**

**Why
pay for waste
space ?**

**Buy the
EVEREADY
LAYERBILT**

- it's every inch a battery



This is the Eveready Layerbilt, the unique "B" battery that contains no waste spaces or materials between the cells; the longest lasting of all Evereadys.

IN DRY cell "B" batteries made up of cylindrical cells more than one-third of the space is wasted. That's inevitable. No matter how closely you pack a group of cylinders, there always will be spaces between them. Usually these spaces are filled in with pitch or other substances, to prevent movement of the cells during shipment and breakage of the wires connecting cell to cell.

Think of it—over a third of the space inside the ordinary battery is filled with inert packing material!

In the Eveready Layerbilt "B" Battery No. 486 there are no waste spaces between the cells and no useless materials. Instead of cylindrical cells, this extraordinary battery uses flat cells. It is built in layers and assembled under pressure into a solid block.

Electrical connection between cell and cell is automatic, by pressure of the entire side of each cell against its neighbor.

The most surprising thing about this construction is that it actually makes the active materials more efficient. A given weight of them produces more current, and lasts longer, than the same amount when put in the cylindrical cell form. This was the unexpected result of researches into methods of utilizing the hitherto waste spaces. Scientists now know that the flat shape is the most efficient form for the cells in

a "B" battery. No wonder the Layerbilt is the longest lasting and therefore most convenient and economical of all the Evereadys.

Only Eveready makes the Layerbilt. Its exclusive, patented construction is Eveready's greatest contribution to radio enjoyment, giving new economy and convenience to battery users. The Layerbilt, of course, provides Battery Power—silent, reliable, independent, guarantor of the best reception of which your receiver is capable. For modern sets, use the Eveready Layerbilt.

NATIONAL CARBON COMPANY, INC.
New York  San Francisco
Unit of Union Carbide and Carbon Corporation

Tuesday night is Eveready Hour Night
East of the Rockies
9 P. M., Eastern Standard Time
Through WEAF and associated N. B. C. stations
On the Pacific Coast
8 P. M., Pacific Standard Time
Through N. B. C. Pacific Coast network

EVEREADY
Radio Batteries
-they last longer

Illustrating cylindrical cell "B" battery construction. Note the waste space between the cells.

The air is full of things you shouldn't miss



This is the February consumer advertisement, appearing in *The Saturday Evening Post*, February 4th, and in many other national publications, to assist you in selling Eveready Radio Batteries.

The New Excello Consoles

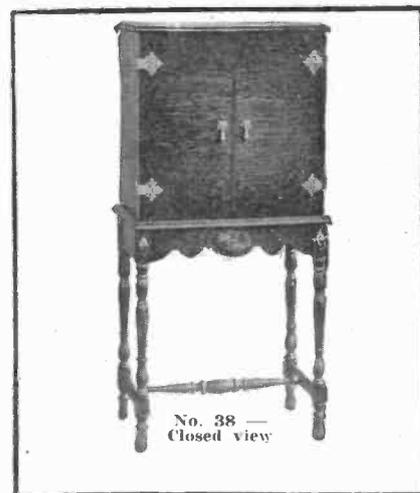
for
RADIOLA-17
ATWATER KENT
CROSLEY
FREED-EISEMANN
*J and other Standard
 A.C. Receivers*



No. 37 for Radiola-17 and other standard sets.



No. 38 — for Atwater Kent Model 37 and other standard sets.



No. 38 — Closed view

BEAUTIFY your set!

On your display floor these quality consoles will attract favorable attention. They will display your A.C. sets to best advantage and increase sales.

The cabinet work throughout is of true Excello quality: doors are of 5-ply matched butt walnut. Consoles finished in rich piano finish.

Dealers and distributors—write for particulars of the full Excello line. Also for details of attractive franchise proposition.

EXCELLO

Radio Consoles

Nationally advertised—Sell the Excello—Nationally preferred.

EXCELLO PRODUCTS CORPORATION

4834 West 16th Street, Cicero, Ill.
(Suburb of Chicago)

Pacific Coast Representative: N. F. Andruss, 426 Larkin Street, San Francisco, Calif.

TISIT

A Liquid Solder That Pays Profit



No Heat Required - No Soldering Iron Needed

A Household Necessity

TISIT is a live seller, because once it is tried in the home it will be used constantly. TISIT is a Liquid Cold Solder—heat-proof and acid-proof. It is applied cold with a stick. Easy to use and always ready. No heat or burnishing is necessary.

TISIT is invaluable for use with radio sets. Radio owners who have used it give it their unqualified endorsement.

It has many other uses. TISIT is the only known solder for aluminum and can be used any place where solder is used.

TISIT has repeated in practically every store where it has been sold—that means you can sell it and make money on it.

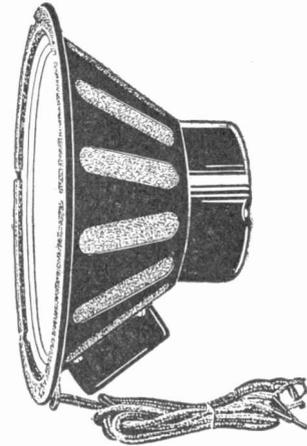
\$4.00 Per Dozen on Display Card
Retails for 50c each—\$2 per doz. profit

Order a sample dozen today by sending us your letterhead and your jobber's name.

Letellier Laboratories, Inc.
 Manufacturing Chemists

119 Main St. E. Rochester, N. Y.

TISIT



Famous Rola Reproducer Unit

Cabinet and furniture manufacturers can purchase the reproducer units used in Rola loudspeakers for installation in cabinet and console sets.

Attractive quantity prices on request.

Write our nearest office

The Rola Company

612 North Michigan Avenue, Chicago, Ill.
 45th and Hollis Streets, Oakland, Calif.

The day is just dawning for

HYATT GENERAL UTILITY RECEIVERS



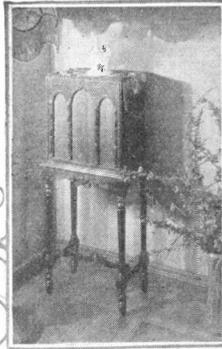
MODEL A
 6 tubes — Baritone
 Unit, Horn Type
 Speaker, 10 inch
 throat.

Remember! The owner of a large standard radio set is your best prospect for a Hyatt General Utility Receiver, particularly when you can demonstrate its quality of tone, selectivity and many practical uses right in his home or office.

Write for information on our dealer license plan.

HYATT ELECTRIC CORPORATION
 836 N. Wells St. Chicago, Ill.

NEW FLOOR CABINET,
Model 17 - - \$55.00



NEW TABLE SPEAKER,
Model 10 . . \$30.00



NEW TABLE CABINET, Model 20 - - \$35.00



NEW PEDESTAL SPEAKER,
Model 12 - - - \$35.00

Rola's Superb Performance Is Still Further Improved!

ROLA was first in the development of the modern, high-quality cone reproducer—a speaker which re-created the entire tone-range of modern broadcasting.

☞ The advent of AC sets and the newer power tubes with high voltages, created a need for greater loudspeaker capabilities. Rola engineering now meets these new requirements with a new Rola reproducer, giving a performance far surpassing former Rola achievements. We offer in these improved instruments a new tone quality, the result of extending the response range in

the bass register, and with a power capacity that is practically unlimited. Here is a cone which cannot be rattled or blasted.

☞ The new Rola is positive in adjustment and foolproof in use. It can be depended upon for continuous, trouble-free performance—with any radio set and under all conditions.

☞ The new Rola line is at once beautiful in appearance, outstanding in performance and remarkably *free from service requirements.*

☞ Write our nearest office.



THE ROLA COMPANY
612 NORTH MICHIGAN AVE., CHICAGO, ILLINOIS
FORTY-FIFTH AND HOLLIS STS., OAKLAND, CALIF.

Tower

Adventurer

RADIO CONE SPEAKER



East
\$11.95
 West 12.95

Unlike all others
 Its beauty of design is known. Its quality of reproduction is supreme. Such a value at such a price has never been equalled before!

TOWER MFG. CORPORATION
 122 Brookline Ave.,
 Boston, Mass.

ELKAY

TRADE MARK REG.

**OFFERS FIVE GREAT
 ELECTRIC RADIO SETS**
with Arcturus Tubes

Senior A. C. Electric.
 Senior A. C. Power Electric, 210 Output.
 Junior "7" A. C. Electric.
 Junior "7" Power Electric, 210 Output.
 Junior "7" Universal Battery or Electric.
 Also available in Pearson Consoles.
 Write for franchise and complete trade sheet to
THE LANGBEIN-KAUFMAN RADIO CO.,
 Dept. M, New Haven, Conn.

Radio Cabinets by UDELL



A beautiful new 32-page Catalog illustrating and describing the greatest line of Radio Cabinets in the country is ready.

Write for your copy today.

THE UDELL WORKS
 28th St. at Barnes Ave.
 Indianapolis

No Adaptors Needed

The Arcturus A-C Cable enables owners of D-C sets to transform them without rewiring, or using adaptors, into thoroughly modern electrified receivers with

ARCTURUS A-C TUBES

Amplifier	Detector High Mu	Power
-----------	---------------------	-------

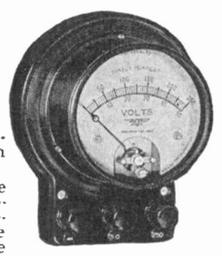
Fit Present Sockets In Most Popular Receivers
 A New Profitable Field

Dealers who stock Arcturus A-C Tubes, and Arcturus A-C Cables are cashing in on the nation-wide move toward electrified receivers. Every one of your present customers is a prospect for this new business which is swelling radio dealers' profits.

ARCTURUS RADIO COMPANY
 255 Sherman Ave., Newark, N. J.



Correct Voltage



To have correct voltage from B-eliminators, a special tester or else a high resistance voltmeter must be used.

The Jewell No. 116 is a high resistance voltmeter and requires but one and one-fourth milliamperes for full scale deflection. It will show the true voltage of any B-eliminator. It has a double range scale of 50 and 250 volts.

Pattern No. 116

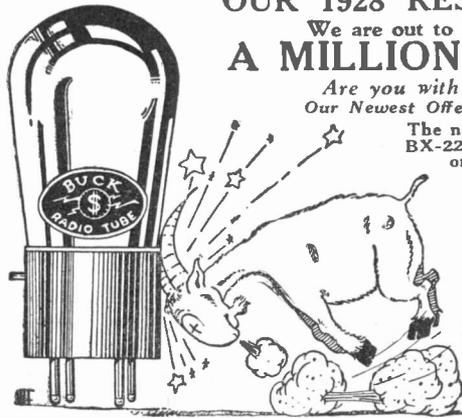
Write for descriptive circular No. 1018

Jewell Electrical Instrument Co.
 1650 Walnut Street, Chicago
 "28 Years Making Good Instruments"

OUR 1928 RESOLUTION

We are out to make
A MILLION BUCKS

*Are you with us?
 Our Newest Offering*



The new AC types—
 BX-226, list price \$2 or two bucks
 BX-227, list price \$4 or four bucks
 Power and Detector 112A - 171A - 200A. List Price — \$2.00 or Two Bucks
 201A-199-12 List Price \$1.00 or one buck

Universal Electric Lamp Co.,
 Newark, N. J.

Only reliable products can
 be continuously
 advertised

Earn NEW PROFITS

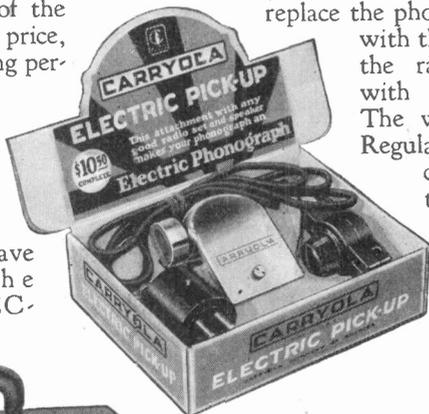
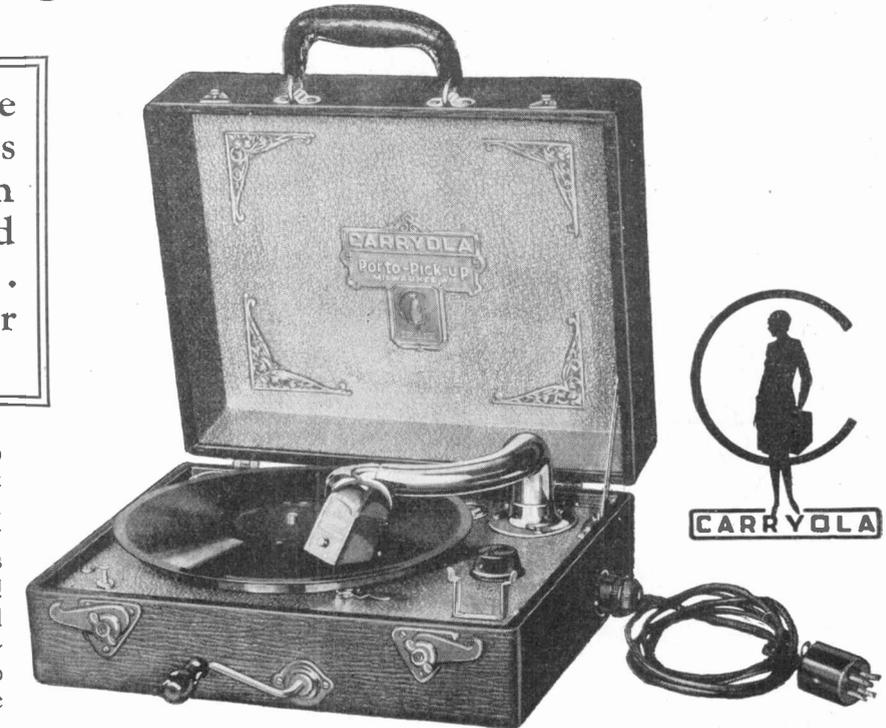
with these Amazing New CARRYOLA Products

THIS Inexpensive Device Enables Ordinary Phonograph Records to be Played Through a Radio . . . Every Radio Owner Will Want One

HERE'S a product that will sell to radio owners on sight—a complete outfit that plays phonograph records through a radio set. It enables radio owners to hear any kind of music they prefer at any time. It's the new CARRYOLA PORTO PICK-UP!

This device can be connected or disconnected to the radio in a split-second. Simply interchange the adaptor plug and the radio detector tube. That's all. And the entire outfit—turntable, electric reproducer, adaptor plug, volume control, the necessary wiring, the sturdy fabrikoid case—costs only \$23.50 list, East of the Rockies! This popular price, together with astonishing performance, makes the possibilities for dealer profit almost unlimited.

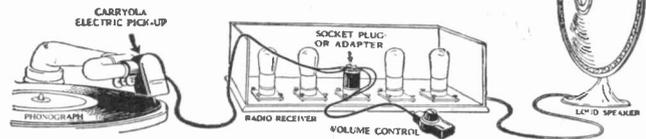
And here's another fast-seller to radio owners who also have phonographs—the CARRYOLA ELEC-



TRIC PICK-UP. So simple that anybody can attach or detach it. Merely replace the phonograph reproducer with the electric pick-up—the radio detector tube with the adaptor plug. The work of a moment! Regulate volume by the control-knob or by the radio rheostats. The price is only

\$10.50 list, East of the Rockies. It's a quick and sure profit earner.

And here are two more! Carryola Portable phonographs. Just let your customers hear the improved tone quality and volume of these instruments. Show them the exclusive new features. Quote the surprisingly low prices. That's all you have to do. Sales take care of themselves.



National Advertising Helps You

Carryola products are widely known. They are backed by national advertising. They are fast-selling and profitable. Each leads its field. Each meets the public demand for high-grade home entertainment. And each gives typical Carryola value—value that combines low prices and high quality with boundless opportunities for dealer profit. Arrange to get the benefits offered by this line now. Write or wire today.

The CARRYOLA COMPANY of AMERICA, 647 Clinton Street, Milwaukee, Wisconsin

CARRYOLA
beyond this you buy furniture

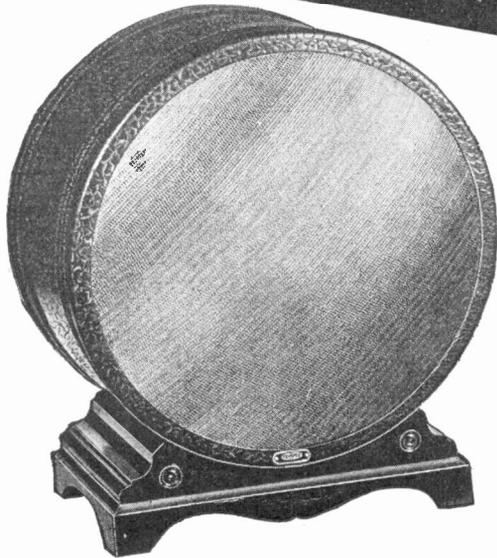
World's Largest Makers of Portable Phonographs

Carryola Master . . . \$25.00 List
East of the Rockies

A fine portable phonograph with features usually found only in expensive cabinet models. Audak Ultra (phonic) reproducer . . . curved, throwback Bakelite tone arm. Improved tone chamber design, new-type metal grill. Album for 15 records. Colored Fabrikoid cases, handsome nickel fittings.

The Carryola Lassie at \$15.00 list, East of the Rockies, offers latest design curved, throwback, die-cast tone arm. Audak reproducer. . . case and record album embossed and air-brushed, furnished in colored Fabrikoid. The only portable in its price class with all these exclusive quality features.

POWER

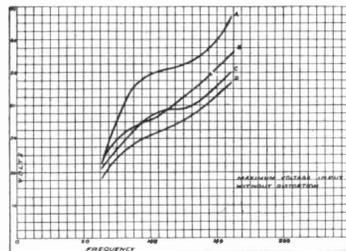


To transmit the full volume of any A C Set

Your customers who own an A C Set will get full value from their investment with a Temple Air Column Speaker—the Speaker that has given the world a new appreciation of Radio. Amazing Volume—deep rich tones—purity and clearness.

TEMPLE SPEAKER Air Column

Loud Speaker
Low Frequency
Response



The above curve recently released in a technical paper before the Radio Manufacturers' Association monthly meeting in Chicago, disclosed the fact that loudspeakers do have limitations in their response with respect to fidelity of reproduction on the low frequencies. The curve shows that of a number of motor drives or units tested, used in loud-speaker work, there is a tremendous difference between the undistorted power output of one compared with others at the low frequencies. The power capacity of the last amplifier tube should be sufficiently great to give undistorted power outputs at these low frequencies comparable to those available in a power tube. "Is your loudspeaker designed so as to accommodate this input voltage so necessary for true reproduction?"

Write us for full information regarding the new manufacturers type Temple Air Column Speaker incorporating the powerful Temple double action unit.

TEMPLE INC.

1925 So. Western Ave., Chicago

LEADERS IN SPEAKER DESIGN

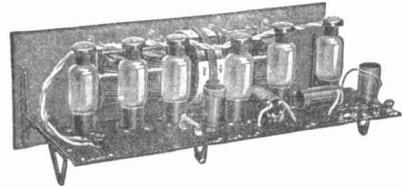
Quality at a Sane Price

PREMIER

"6-in-Line"

Radio Chassis

AC



AC

100% Electric—No Batteries

Radio distributors and merchandisers who may be interested in purchasing quality chassis or complete receiving sets under our or their own private brand, owe it to themselves to investigate what we have to offer, as our quality at the price is proving very interesting. We will be pleased to receive your inquiries.

PREMIER ELECTRIC COMPANY

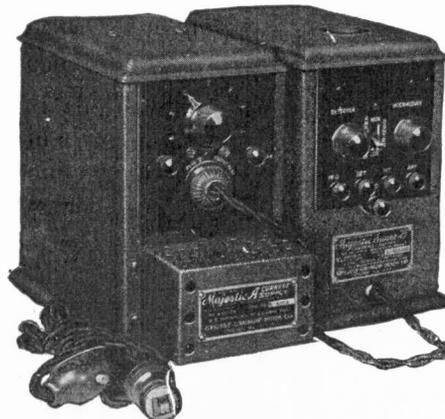
Dept. 724, 3800 Ravenswood Ave., Chicago, Ill.

Established in 1905—Radio Since 1920

"Electrified"

That's the magic word that moves radio sets to-day. You can electrify every radio set in your town with

Majestic



"A" & "B"
electric power
units.

NO acids.
liquids.
concealed
batteries.

**Majestic
Units**

Improve Radio Reception

Write us for name of your nearest jobber

Grigsby-Grunow-Hinds Co.

4540 Armitage Ave., Chicago

La Salle

**HIGH-VACUUM
A. C. RADIO TUBES
for Socket Power**



JOBBERS who are able to satisfy us of their ability to sell a quality product... from the standpoint of experience, finances and sales organization... will secure an enviable sales opportunity in the perfected LaSalle A. C. Radio Tubes.

Write, wire or telephone for details



Two Types:

L. S. 227

L. S. 226

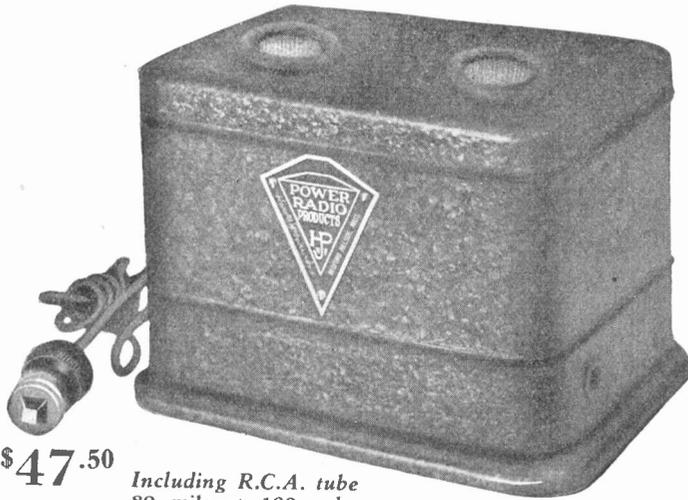
Manufacturers
LA SALLE RADIO CORPORATION

149 West Austin Avenue, Chicago, Illinois

Sole Distributors

Matchless Electric Company, 145 West Austin Avenue, Chicago, Illinois

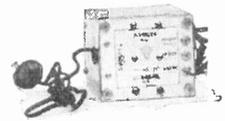
3,000,000 potential customers are waiting
for you to convert their sets to "A.C." operation



\$47.50 Including R.C.A. tube
80 mils at 180 volts
30 mils at 235 volts

The "Power" A.C. harness (\$15.00 list) plus the "Power" A, B and C Socket Power Unit will enable you to convert your own stock sets and those of your old customers into modern A.C. tube operation.

A.C. Tube Filament Transformer } \$10
1½ Volts
2½ Volts
5 Volts



FEATURE

May be used on any line voltage from 85 to 125 volts. Such a provision is essential, otherwise 227 detector tube has brief operating life.

**THE "POWER"
A, B and C**
for A.C. Tubes

Quality Power Unit

(Licensed by R.C.A. and Associated Companies)

Write for Details

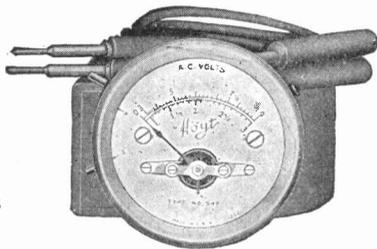
Harold Power, Inc.

Makers of Socket Power Devices
Medford, Mass.

Hoyt A. C. POCKET VOLTMETER

Low Range Type 547
High Range Type 5473

for Servicing
A. C. Sets
and
A. C. Tubes



This is an A.C. year, and here is the A.C. meter needed to carry on with. A compact, sensitive voltmeter, with two scales covering all filament voltages used by standard A.C. Tubes. Resistance of over 20 ohms per volt insures reliable measurements.

Supplied with a pair of special leads, and packed in a durable leather carrying case.

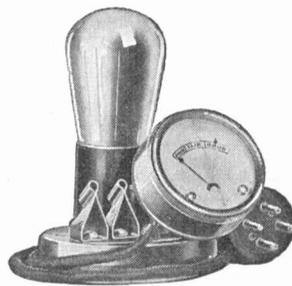


Type 547—0-3, 3-9 Volts.....\$13.00
Type 5473—0-3, 3-9, 50-150 Volts....\$16.00
Also supplied for Panel Mounting.
Type 536
0-3 Volts.....\$5.00 5-25 Volts....\$5.00
3-9 Volts.....\$5.00 50-150 Volts...\$7.50
A special combination of the 3 and 9-volt ranges in one instrument can also be supplied.
Type 5362—0-3, 3-9 Volts.....\$7.50

Hoyt Electrical Instrument Works
Burton-Rogers Co.
Sole Selling Agents
BOSTON, MASS.

Tests Tubes Quickly and Accurately

Readrite
Type AA
Home Tube Tester



TYPE AA

A practical device for the set owner. Invaluable in weeding out tubes that do not function properly. Gives readings in filament voltage and also plate current in milliamperes, either 3 or 5 volt tubes. The grid switch gives two plate readings.

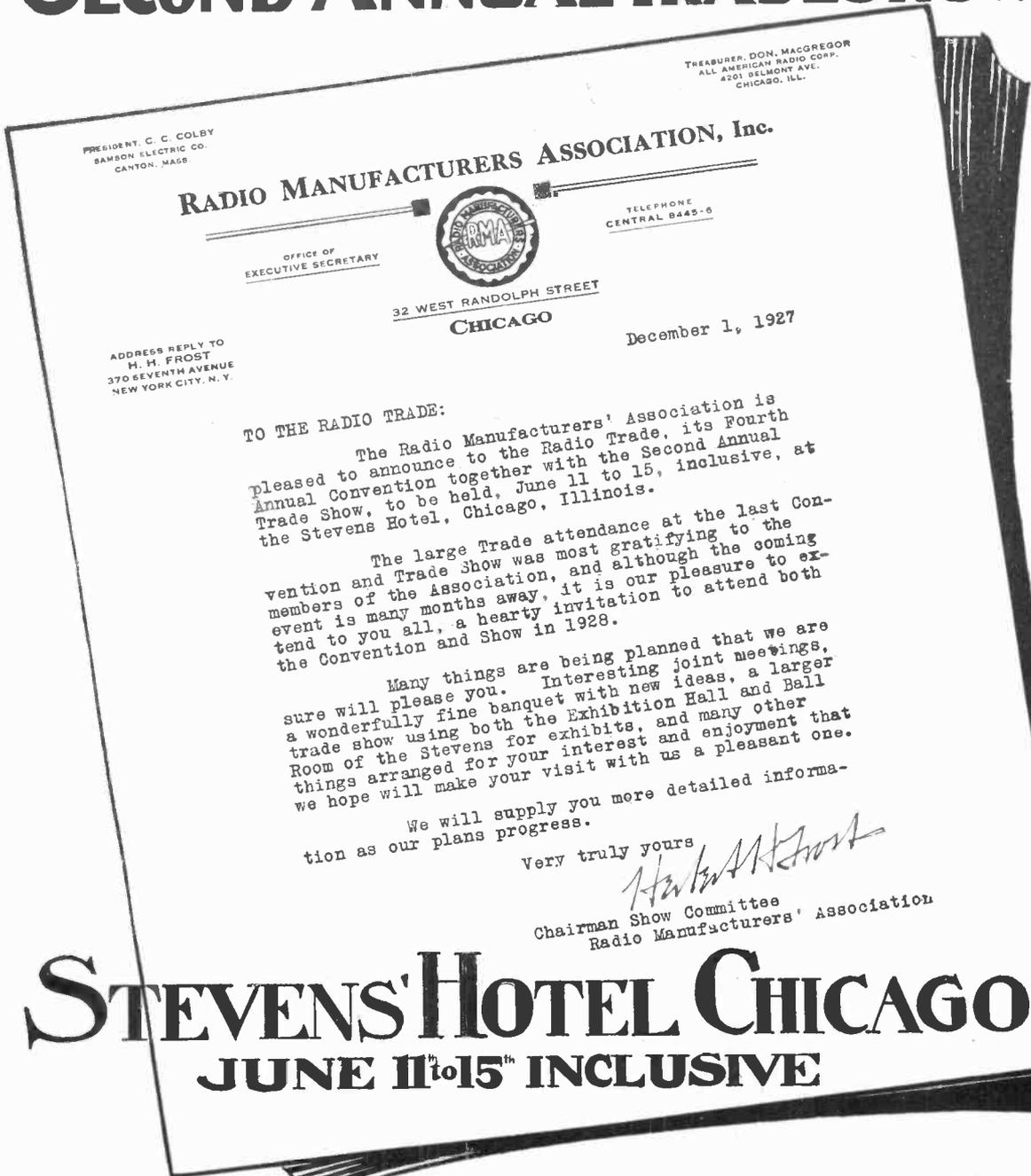
Undoubtedly the greatest value ever offered in a home tube tester. Extremely simple to operate. Is accurate and gives quick tests of tubes. A quick seller that carries a good profit. Order sample today.

Price \$3.50
Includes Cord and Plug

Readrite Meter Works

6 College Ave. Established 1904 Bluffton, Ohio

ANNOUNCING THE FOURTH ANNUAL RADIO CONVENTION and SECOND ANNUAL TRADE SHOW



PRESIDENT, C. C. COLBY
SAMSON ELECTRIC CO.
CANTON, MASS.

RADIO MANUFACTURERS ASSOCIATION, Inc.

TREASURER, DON. MACGREGOR
ALL AMERICAN RADIO CORP.
4201 BELMONT AVE.
CHICAGO, ILL.

OFFICE OF
EXECUTIVE SECRETARY



TELEPHONE
CENTRAL 9445-6

32 WEST RANDOLPH STREET
CHICAGO

December 1, 1927

ADDRESS REPLY TO
H. H. FROST
370 SEVENTH AVENUE
NEW YORK CITY, N. Y.

TO THE RADIO TRADE:

The Radio Manufacturers' Association is pleased to announce to the Radio Trade, its Fourth Annual Convention together with the Second Annual Trade Show, to be held, June 11 to 15, inclusive, at the Stevens Hotel, Chicago, Illinois.

The large Trade attendance at the last Convention and Trade Show was most gratifying to the members of the Association, and although the coming event is many months away, it is our pleasure to extend to you all, a hearty invitation to attend both the Convention and Show in 1928.

Many things are being planned that we are sure will please you. Interesting joint meetings, a wonderfully fine banquet with new ideas, a larger trade show using both the Exhibition Hall and Ball Room of the Stevens for exhibits, and many other things arranged for your interest and enjoyment that we hope will make your visit with us a pleasant one.

We will supply you more detailed information as our plans progress.

Very truly yours

Chairman Show Committee
Radio Manufacturers' Association

STEVENS' HOTEL CHICAGO JUNE 11th to 15th INCLUSIVE

Radio Manufacturers' Association Trade Show

UNDER DIRECTION OF U.J. HERRMANN AND G. CLAYTON IRWIN, JR.

Room 1800 Times Bldg, New York City

Radiola Dealers
and Distributors

Atwater Kent Dealers
and Distributors



No. 933
with 100A Speaker
for Radiola 17

**RADIOLA
100A SPEAKER**

Built in Solid Mahogany

Patterns of Watson town Line

Pattern for Radiola 17 illustrated selling rapidly.

Make an extra Profit on Every Sale.

Model for Atwater Kent 37 with 100A Speaker now Ready.

Write Now for Prices and Literature

Watson town Table & Furniture Co.
Watson town, Pa.

Successful Furniture Manufacturers Since 1893

POSITIONS
VACANT

EMPLOYMENT

POSITIONS
WANTED

SALESMEN WANTED

Salesmen
Preliminary to announcing our appointment as national factory representative for a high-grade line of radio cabinets and other lines, we desire to communicate with several salesmen or sales agents for full time or side line; priced and built right. SW-58, Radio Retailing, Bell Telephone Bldg., St. Louis, Mo.

REPRESENTATIVE WANTED

Representatives
Large manufacturer of popular priced radio cabinets wants representatives selling radio dealers; models listing at \$13 and up; well made in large modern plant; quantity sellers; straight commission basis. For full details, address Drawer E-11, Boonville, New York.

REPRESENTATIVES AVAILABLE

A LARGE sales organization having broad experience in the marketing of a specialty article, with branches that cover the entire Pacific Coast, desires to add something of real merit, to its present line. Dake-Johanet Adv. Agcy., 407 E. Pico, Box 9, Los Angeles.

TECHNICAL SERVICE

(Agency)
217 Broadway, New York

RADIO PERSONNEL

REPRESENTATIVES AVAILABLE

WANTED—Radio sets or accessories on consignment. Table models, consoles, eliminators, speakers. Will make excellent display in our large store. Highest references. Established 1908. Lowe Motor Supplies Company, 1723 Broadway, New York.

REPRESENTATIVES AVAILABLE

Additional Line Wanted
Successful sales representative wants one additional line, staple electrical specialty, or schedule material, akin to small household appliances, or radio but non-conflicting. Now selling distributors, dealers, chain stores in Ohio, Michigan, Indiana. RA-60, Radio Retailing, Guardian Bldg., Cleveland, Ohio.

WANTED—RADIO LINE

MANUFACTURERS REPRESENTATIVES

Covering Missouri, Arkansas, Kansas and Southern Illinois calling on electrical jobbers. Twelve years in this territory. Want one additional line.

RW-56, Radio Retailing, Bell Telephone Bldg., St. Louis, Mo.

HELP SPECIALISTS

for the
Radio Industry

Male and Female. Every applicant investigated and guaranteed for ten times the weekly salary involved.

Abbye Employment Agency, Inc.

Remington Building
113 West 42nd Street, New York, N. Y.
Bryant 7374-5-6

**FREE RADIO
EMPLOYMENT
SERVICE**

Employers in any line of the Radio industry (or in allied industries) should call on our Free Radio Employment Service when additional employees are needed. Thoroughly trained, experienced men supplied anywhere in the U. S. or Canada on 48 hours' notice. No charge for service. Send post card today for our free monthly bulletin. Address National Radio Institute, Dept. R.R., Washington, D. C.

DEALERS—here's an opportunity to make a real profit on Power Units!

LOOK AT THESE BARGAIN PRICES!



UNI-RECTRON POWER AMPLIFIER



(Model AP-935)

As the Uni-Rectron stands it is a super power amplifier, which can be used in connection with any radio set and loud speaker. Binding posts are provided for input to the Uni-Rectron and output to a loud speaker. Requires no batteries for its operation. It obtains its power from the 110 volt, 60 cycle, alternating current house lighting circuit. Radiotron UX-210 and Rectron UX-216-B or 281 Tube are used with this Amplifier. All that is necessary is to insert the plug into a wall or lamp socket and the R.C.A. Uni-Rectron, by means of the UX-216-B or UX-281 changes or rectifies the current so that the correct

voltage will be delivered to the super-power amplifier tube, UX-210. The whole unit is enclosed in a metal cabinet which is small and compact and presents a good appearance.

This super power amplifier cannot overload. From the faintest whisper to the loudest crash of sound—R.C.A. Uni-Rectron amplifies each note at its true value. High and low notes are all treated alike.

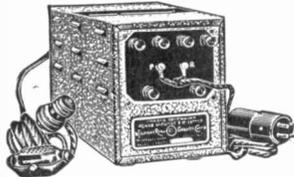
Not only is its volume and quality a revelation but it lowers the cost of set operation, for when Uni-Rectron is used the drain on the batteries which operate the receiver is greatly reduced.



List Price \$88.50 Each
(without tubes)

Special at \$14.50 Ea.

TIMMONS Combination Power Amplifier and "B" Supply



List \$70.00
(without tubes)

SPECIAL AT
\$18.50 ea.



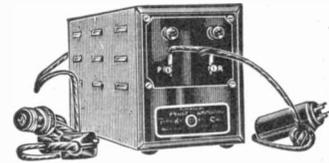
Both of these high quality compact units use a UX-216-B or 281 Tube for rectifying and a UX-210 super power audio tube as an amplifier which gives distortionless and true natural reception with wonderful tone quality and volume.

Both instruments are identical in their performance as super power amplifiers. The Combination however is also

TIMMONS Power Amplifier

List \$45.00
(without tubes)

SPECIAL AT
\$11.50 ea.



a complete "B" Eliminator furnishing all the "B" current required by the regular tubes of the set. No adjustments required and no output transformer or similar auxiliary equipment needed with either unit.

For use with alternating current 105-120 volts, 50-60 cycles. These units have been approved by Popular Radio and Popular Science Laboratories.

All units offered in this advertisement are BRAND NEW, packed in original factory sealed carton and fully guaranteed!

TERMS: 20% cash with order, balance C. O. D. f.o.b., New York.

AMERICAN SALES CO., 19-21 Warren St., NEW YORK CITY

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The American Sales Co., 19-21 Warren St., New York City, has just issued a catalog of bargains in standard radio equipment. Interested dealers can secure copies by writing direct.

WE PAY CASH for your SURPLUS RADIO STOCKS

What have you for sale?
AMERICAN SALES CO.
21 Warren Street, New York City.
Established 1919

Dealers!!! Send for our catalog of radio bargains.

Every item a real money-maker
AMERICAN SALES CO.
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WANTED Broadcast Transmitter Complete

Advertiser Desires to Purchase Broadcast Transmitter Complete with speech input equipment. Must be Western Electric Company's manufacture and of at least 500 watts to 1000 watts capacity. Supply complete list of apparatus.

W-59, Radio Retailing,
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Power unit manufacturer has quantity new Jewell, high resistance voltmeters, 3 tap, 250 v., with or without case. Also 3 paper 9 3/4 mmf. standard tap condenser blocks. Write for specifications.
FS-57, Radio Retailing
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Manufacturer's Surplus Radio Stock

Write or call with sample. Quote quantities and lowest cash price.

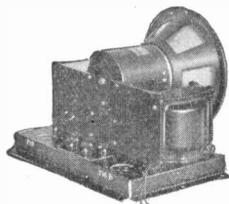
UNION RADIO DISTRIBUTORS
325 — 37th St., Union City, N. J.
Phone Union 9547

RADIO

Will rent on a straight rental or percentage basis, 2 fully equipped radio departments doing a good business, splendidly located in large New York furniture stores. Only men who are financially responsible and experienced in the radio business will be considered.

Box 96, 228 W. 42nd St., New York

MAGNAVOX



R500 Unit Dynamic Power Speaker and power amplifier combination

The wonderful Magnavox Dynamic Speaker, with a matched power unit, self-contained on steel frame, is ready for installation in any radio set or phonograph cabinet having space available of 14 in. wide and 12 in. high.

Power unit for 105-125 volts 60 cycle A.C. supply. Requires one 316B type rectifying tube and one 310 or 210 type amplifying tube. Can replace last audio tube of set or use all tubes of the set. For use with phonograph electrical pickup head 2 additional audio stages recommended between pickup and R500 unit.

Only the dynamic type of speaker can bring out the full qualities of reproduction demanded today. With this carefully matched power unit the combination is the highest grade of radio device. Price \$120 for complete unit less tubes. *Write for speaker bulletin and dealer's sales plan.*



Lobby Model

R 500 unit in handsome cabinet finished in rich old English brown mahogany. \$165 less tubes.

The Magnavox Company
Oakland, California

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SX-280
Full Wave
Rectifier



SX-281
Half Wave Rectifier



SX-210
Amplifier and
Oscillator



SX-226
Amplifier for
AC Operation



SY-227
Detector for
AC Operation

Sylvania

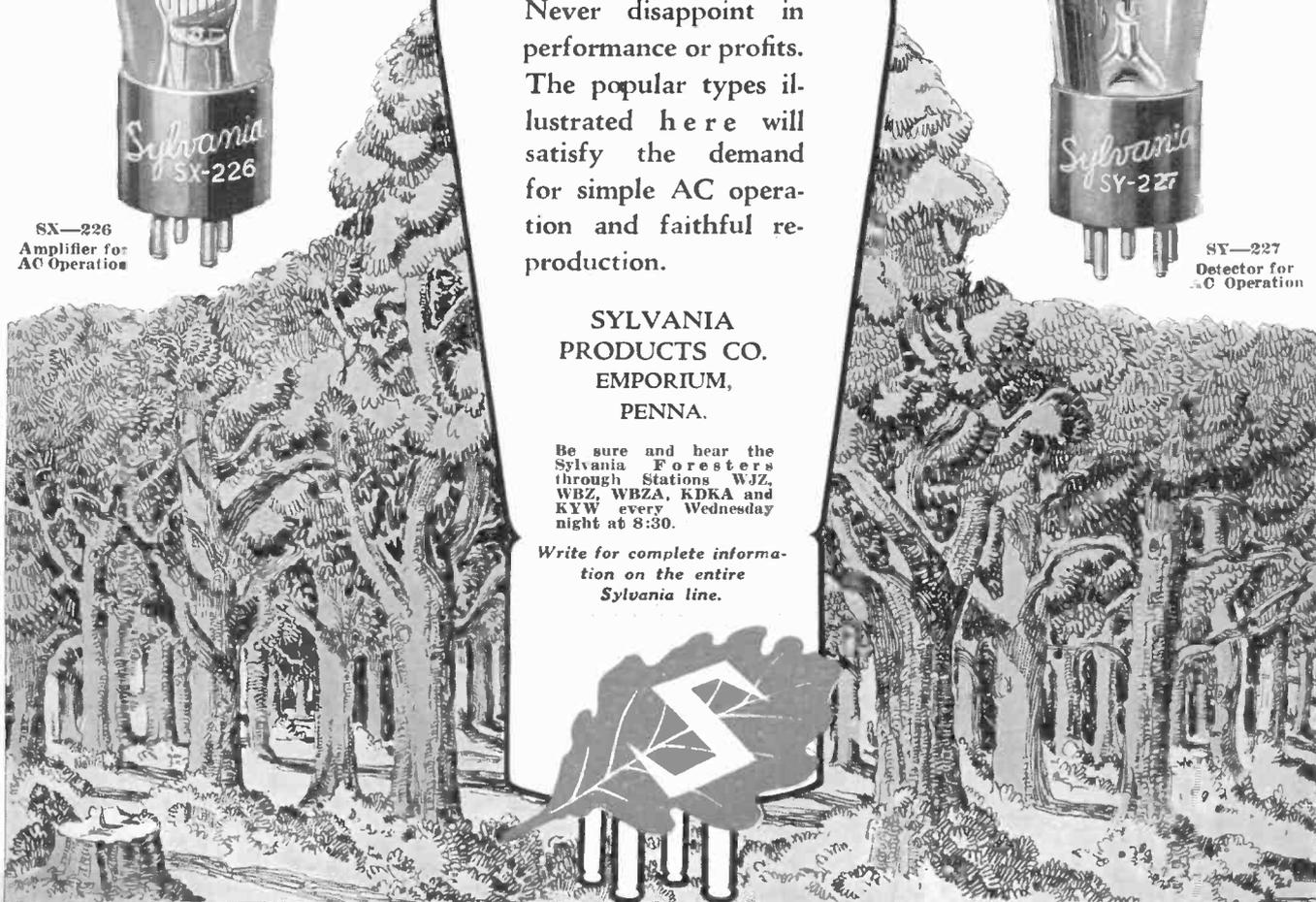
RADIO TUBES

Never disappoint in performance or profits. The popular types illustrated here will satisfy the demand for simple AC operation and faithful reproduction.

SYLVANIA
PRODUCTS CO.
EMPORIUM,
PENNA.

Be sure and hear the Sylvania Foresters through Stations WJZ, WBZ, WBZA, KDKA and KYW every Wednesday night at 8:30.

Write for complete information on the entire Sylvania line.



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for every purpose**

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Detector Amplifier
- RADIOTRON UV-199**
Detector Amplifier
- RADIOTRON UX-199**
Detector Amplifier
- RADIOTRON WD-11**
Detector Amplifier
- RADIOTRON WX-12**
Detector Amplifier
- RADIOTRON UX-200-A**
Detector Only
- RADIOTRON UX-120**
*Power Amplifier Last
Audio Stage Only*
- RADIOTRON UX-222**
*Screen Grid Radio
Frequency Amplifier*
- RADIOTRON UX-112-A**
Power Amplifier
- RADIOTRON UX-171**
*Power Amplifier Last
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- RADIOTRON UX-210**
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*Detector Amplifier for
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- RADIOTRON UX-876**
Ballast Tube
- RADIOTRON UV-886**
Ballast Tube

The standard by
which other vacuum
tubes are rated



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for every purpose**

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- RADIOTRON UV-199**
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Ballast Tube
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Ballast Tube



The standard by
which other vacuum
tubes are rated



Every Radiotron is tested and inspected in 41 different ways before it is approved in the laboratories and factories of RCA, General Electric and Westinghouse.

The Radiotron is the joint product of RCA, Westinghouse and General Electric, developed and perfected in the 2000 great laboratories which give you the Marconi lamp. They are the creation of the skilled radio engineers who make modern broadcasting possible. Equip your set with genuine RCA Radiotrons. Never use new tubes with old ones that have been in use a year or more. See that your set is completely equipped with RCA Radiotrons since a year at least.



RCA HOUR

Every Sunday Night
through the following
stations broadcast on the
National Broadcasting
Company

- Chicago** WBBM
- Cleveland** WCLM
- Los Angeles** WLS
- Minneapolis** WCCO
- New York** WJZ
- Philadelphia** WPTZ
- Pittsburgh** WTAE
- Portland, Ore.** WJCL
- San Francisco** KGO
- Seattle** WJAC
- St. Louis** KMOX
- Washington** WJLA
- Wichita** WJOP

RCA Radiotron

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The better the tube the bigger your sales. That's why it is good business to offer your customers RCA Radiotrons. Manufacturers of quality receiving sets specify them for preliminary tests, for initial equipment and for replacement. And there is an RCA Radiotron for every purpose. It will pay you to carry the complete line.



RADIO CORPORATION OF AMERICA NEW YORK CHICAGO SAN FRANCISCO

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