



RADIO
and
ELECTRICAL
CATALOG



QUALITY AND SERVICE

American RADIO Mfg. Co.

Kansas City, Missouri



CATALOG No. L-25 FOR 1924-25

:: Money Back Guarantee ::

We positively guarantee all goods to be as represented. If upon examination you are not thoroughly satisfied, return goods immediately and we will gladly exchange or refund your money.

TERMS

Orders over \$10.00 will be shipped C. O. D. if desired. We recommend that you remit with order and save the return money charges which are collected on C. O. D. shipments.

Orders for less than \$10.00 should be accompanied by check or Money Order in full.

A Special Cash Discount of 3% is allowed on all orders. Prices are F. O. B., Kansas City, subject to market changes. When ordering goods via Parcel Post, postage and insurance must be included. Over remittances will be refunded.

Foreign shipments must be remitted for in full.

IMPORTANT

Before accepting shipments, examine carefully and see that packages are in good condition. In case of damage, make a notation on receipt. In case of concealed damage, report same to carrier within 24 hours. Therefore, if there is any damage in transit, kindly make prompt claim on carrier and write us, explaining the nature of damage. While we cannot hold ourselves responsible for breakage or loss in transit, we desire to have all claims adjusted to the entire satisfaction of our customers, and will give all the assistance possible to accomplish this.

Should any goods purchased of us prove defective, **do not return** without first writing our Service Department who will forward shipping instructions. Compliance with this will expedite adjustment.

INSURANCE ON PARCEL POST

3 cents under \$5.00. 5 cents from \$5 to \$25.00. 10 cents from \$25.00 to \$100.00.

Postage and insurance must be included in remittances. C. O. D. shipments are insured.

QUALITY AND SERVICE
American RADIO Mfg. Co.

WHY

We Deserve Your Business

Walton, Nebr., Feb. 25, 1924.
American Radio Mfg. Co.,

We are a little late with our thanks but now is better than never. On our last order of the large panel Mahoganite, we were surely pleased with it and with the service your firm rendered us in our time of dire need, so allow us to thank you for your service and congratulate you on your splendid organization.

NATIONAL MFG. & IMP. CO.,
A. H. Galvin

Just a few
of Many
Hundred
Examples
of GOOD
SERVICE

Ithaca, N. Y., Jan. 18, 1924.
American Radio Mfg. Co.,

I wish to thank you for your extreme promptness and accuracy in filling my last order. This dependable service is greatly appreciated.

GEO. B. NORRIS.

Rensselaer, N. Y., Feb. 16, 1924.
American Radio Mfg. Co.,

Will you please acknowledge the receipt of this order by return mail?

I would also advise you that my previous orders were received in excellent condition. Your packing of radio articles is beyond comparison. It seems almost impossible that an article should arrive in damaged condition with such excellent packing. Thanks for your courtesy and prompt attention that you have given my past orders. I trust that our relationship may continue for some time to come.

HAROLD E. STICKELS CO.

Bagley, Ia., Oct. 29, 1923.
American Radio Mfg. Co.

I wish to congratulate you on your wonderful service and the quality of goods you sell. They are excellent and your goods are packed well.

CORNELIUS RADIO CO.

West Point, Nebr., Feb. 16, 1924.
American Radio Mfg. Co.

We are in receipt of your letter of recent date giving us the information that our refund had been allowed and that we had a credit with your company of \$2.34.

Wish to continue to enjoy the excellent service which the American Radio Company extends to its patrons and it is through such little acts of courtesy as this which permits us to do so.

We give you our heartiest thanks and remain, Very truly yours,

LLOYD K. JOHNSON & CO.

SERVICE
THAT
SERVES
AND
SATISFIES

Kirkville, Mo., Jan. 18, 1924.
American Radio Mfg. Co.
I will say your company gives the best service over any other radio house I have had dealings with. A. L. LINK CO.

QUALITY AND SERVICE
American RADIO Mfg. Co.

We're Pleased to



H. HEPPERT - Store Man



J. M. BERNEY - Service Man



L. WYNN - Stock of Shipments



H. E. BOLANDE - Sales Man

A Personal Message

MY third year in the radio business has more than convinced me of the wonderful possibilities of this new and great industry.

My prediction, in our last year's catalog, that 1923 would be a banner year, was greatly surpassed. The volume of business done this last year was so enormous that a year ago it would have been thought unbelievable. So great was our business that we were forced three times to seek larger quarters and now again we are extending our space facilities.

Radio has grown in truly remarkable strides and so bright is the immediate outlook that I unhesitatingly predict that the Summer of 1924 will see three times the radio sales of the preceding Summer.

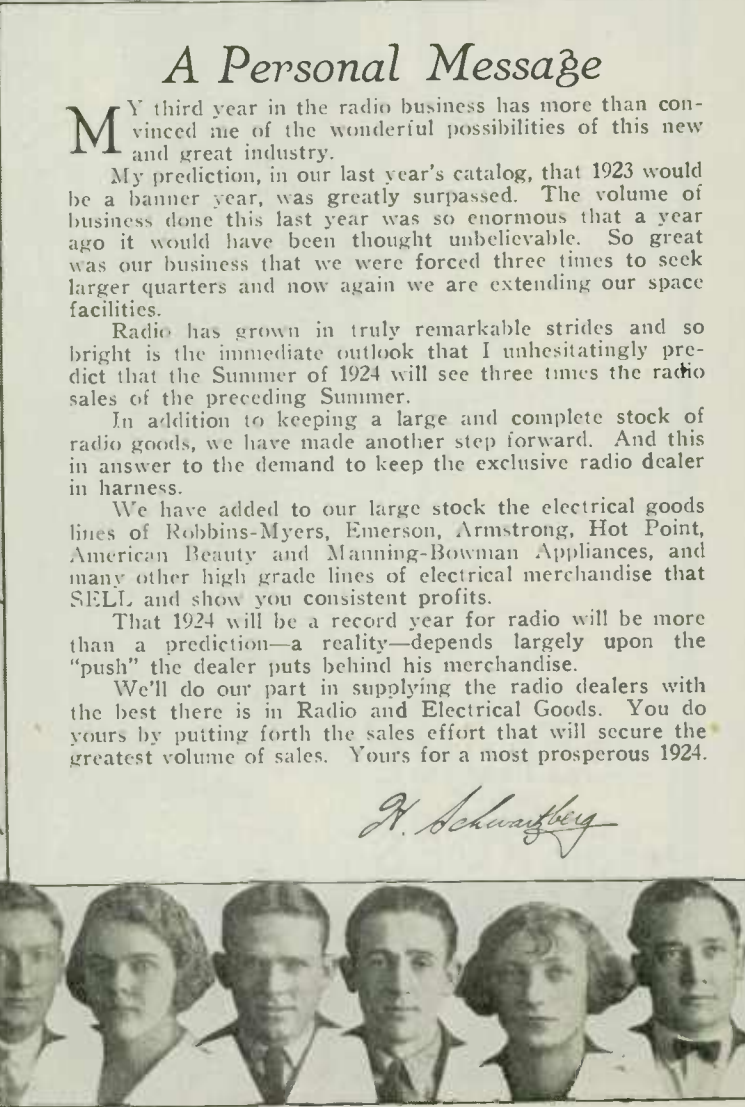
In addition to keeping a large and complete stock of radio goods, we have made another step forward. And this in answer to the demand to keep the exclusive radio dealer in harness.

We have added to our large stock the electrical goods lines of Robbins-Myers, Emerson, Armstrong, Hot Point, American Beauty and Manning-Bowman Appliances, and many other high grade lines of electrical merchandise that SELL and show you consistent profits.

That 1924 will be a record year for radio will be more than a prediction—a reality—depends largely upon the "push" the dealer puts behind his merchandise.

We'll do our part in supplying the radio dealers with the best there is in Radio and Electrical Goods. You do yours by putting forth the sales effort that will secure the greatest volume of sales. Yours for a most prosperous 1924.

H. Schwartzberg



Serve You!

HARRY
SCHWARTZBERG
MANAGER



OUR POLICY

Has been, since our inception, one of fairness and square dealing with all of our customers. We sell only guaranteed apparatus, so anything you order from us is guaranteed. We make every effort to give unequalled service and handle such equipment as will give the greatest satisfaction. If for any reason you are dissatisfied or we make an error, write us fully and give us a chance to make good.

A MEASURE OF SERVICE

As it is impossible to stock all lines of radio equipment, we will be glad to secure for you any standard apparatus not listed in our catalog.

Your orders will be shipped the same day they are received, and should some of the goods be out of stock we back order and make shipment at the first possible moment.

"We Never Close 'Till Your Order Goes"

SHIPPING—Due to the delicate nature of radio equipment, we make a special effort to see that all goods shipped are carefully packed by shipping clerks familiar with this line of merchandise. Examination allowed on Express shipments if requested.



*From Begin-
ning on--
Perfect
Service Is
Our
Endeavor*

QUALITY RADIO SUPPLY CO.
Greensburg, Pa.

Feb. 18, 1924.

American Radio Mfg. Co.,
Kansas City, Mo.
Gentlemen:

Enclosed find check in the amount of \$852.55 for which kindly rush the attached order for radio supplies by express. We are just starting in the business and of course would like to get the supplies as soon as possible.

In case you don't have any of these items in stock do not hold up the whole order as we will be pretty busy arranging things, but I do hope you may be able to furnish us the whole order promptly.

I am not quite sure if I have figured the discounts properly so if the check is short send balance C. O. D., as it would take some time to correspond back and forth, and if it is in my favor of course you will take care of that.

I also note some free books with orders of \$75.00 or over, we would like to have these and if you have any pamphlets of any kind that would help us in any way, would appreciate them.

If quality and service is O. K., you can expect some future orders.

Asking again that you rush order all possible and if for any reason there is a delay on my part, wire collect.

Yours very truly,

QUALITY RADIO SUPPLY CO.,

By W. J. Smith, Jr.

W. J. Smith, Jr.

A. N. Long

"Service Always"

QUALITY RADIO SUPPLY COMPANY

All Leading Sets and Parts

121 North Main St.

Greensburg, Pa., Feb. 27, 1924.

American Radio Mfg. Co.,
Kansas City, Mo.

Gentlemen:

Att. Mr. Bolande.

Received shipment Monday morning and must thank you for your promptness. In fact I didn't have my place ready so was not able to check up until today.

I find everything first class as to quality and condition.

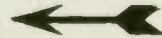
Attached find another small order for supplies which I hope you have in stock and along with my back order please rush all possible. However, it is needless to ask this as the other order came as fast as the train could get here.

Again thanking you for your speedy service, and I almost forgot the books and advertising literature, which I appreciate very much.

Yours very truly,

QUALITY RADIO SUPPLY CO.,

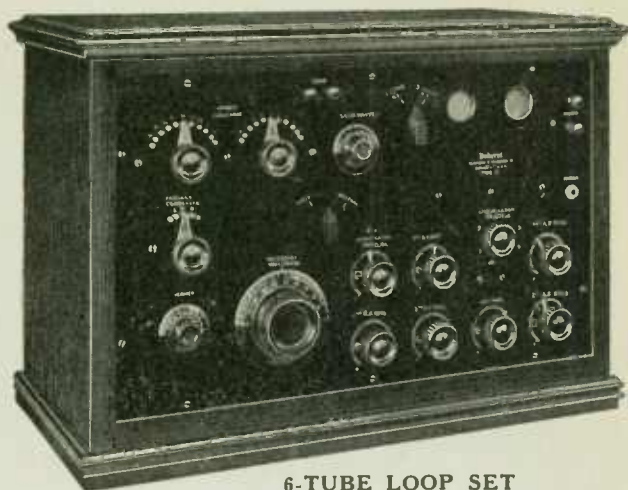
W. J. Smith, Jr., Gen. Mgr.



*No Distance
Too Great
for Quick
Service*

*No Order
Too Big,
No Order
Too Small*

FEDERAL TYPE 61 RECEIVERS



6-TUBE LOOP SET

The FEDERAL Type 61 has a greater breadth of usefulness than any other of FEDERAL'S receivers. It may be used with equal effectiveness with a small or large loop antenna, a small indoor wire, or the more common large outdoor antenna systems and when used with any of these types of signal pickup systems will give a range of reception of such magnitude as to make available almost all American broadcasting. It secures its great range and flexibility through the use of its three stages of radio frequency amplification in combination with two stages of audio frequency amplification and through a unique switching system, which gives an exceptionally great variation of the degree of amplification, it has an extremely wide range.

It is so constructed that when used with an antenna it is, in effect, a very selective and extremely sensitive two tuned circuit receiver, while when used with a loop it becomes a single tuned circuit receiver. The change from one type of receiver to the other is accomplished through the simple turning of a single switch.

Practically every position of the circuit is provided with separate controls, thus making it possible to operate all parts of the device at the utmost in efficiency.

By careful choice of the controlling mechanism and the arrangement of parts, the operation of the controls is made quite independent so that the manipulation of any control may be accomplished without any reaction on the remaining controls. This makes possible the operation of the receiver at a high degree of effectiveness without any previous familiarity with the device and makes the manipulation of the controls to bring about maximum possible effectiveness possible after only an extremely limited experience with the device.

The face of the receiver is a highly polished black bakelite panel upon which all control knobs are of a similar material while all exposed metal parts are of highly polished nickel. The mahogany cabinet which houses the receiver is finished in a luxurious dark brown mahogany with a delightful satin surface. It will retain its beautiful finish indefinitely and requires only the most infrequent dusting or polishing.

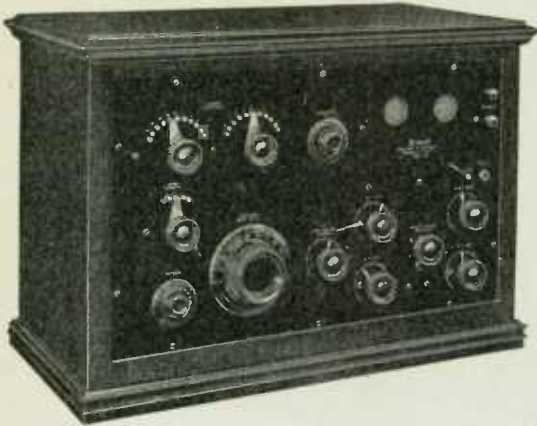
The terminals for the connection of all auxiliaries such as antenna, ground, batteries, etc., are mounted inside the cabinet so that all connecting wires are concealed from view.

The tuning system consists of two variable inductively coupled tuned circuits. The antenna circuit is tuned by means of two inductance switches, whereby the inductance may be very slowly varied, a turn at a time. The secondary circuit is tuned by means of a FEDERAL No. 45 Variable Air Condenser and an auxiliary FEDERAL No. 48 Vernier Condenser. The coupling between the two circuits is made variable in exceptionally minute steps so that a very close control of the selectivity of the receiver is easily possible. Through the turning of a switch the receiver is changed to a single tuned circuit device which employs a loop antenna.

Dimensions of Cabinet—Height $16\frac{3}{4}$ inches. Width, $24\frac{1}{4}$ inches. Depth, $12\frac{3}{8}$ inches.

Type 61 Receiver (with head set and plug).....\$223.00

FEDERAL TYPE 59 RECEIVER



The FEDERAL Type 59 Receiver has a greater range of reception and a more beautiful reproduction of music than any of the FEDERAL receivers which have been produced in the past for use primarily with antennas. Through its use practically all the broadcasting on the American continent is made available under good conditions and the entertainment which may be secured through its remarkable faithfulness of tone reproduction makes it a device of infinite utility. In addition to its tremendous receiving range, it makes possible, through its exceptionally precise tuning qualities, almost a complete elimination of all but the broadcasting of the desired station and it does this with the simplest kind of manipulation and adjustment.

It gains its tremendous range of reception through the use of painstaking circuit design and the choice of the finest kinds of materials, fabricated with the most careful workmanship.

It is essentially a two-circuit receiver with variable inductive coupling between the circuits in connection with a combination radio and audio frequency amplifier, consisting of one stage of FEDERAL Radio Frequency amplification and two stages of FEDERAL Audio Frequency amplification. It combines in itself, a rare degree of ease and simplicity of operation with a degree of effectiveness unique to itself. Sufficient controls are provided so that the utmost in receiving range may be secured under very careful manipulation, while the choice and arrangement of parts and the lack of interdependence of controls is such that a more casual manipulation of the receiver will still give a greater range of reception than has been heretofore available by apparatus more complicated than the FEDERAL Type 59.

The entire receiver is mounted on a polished bakelite panel with all exposed metal finished in highly polished nickel, and the entire unit is mounted in a beautifully polished dark mahogany cabinet. Provision is made for the connection of batteries, antenna and ground by a special set of terminals mounted inside the cabinet, making it possible for the connection of all auxiliaries with the connecting wires wholly concealed.

The highly polished black of the panel, as contrasted with the rich satin finished mahogany cabinet makes the receiver a device of unquestioned beauty and one which will always constitute a suitable addition to any type of home furnishings.

The tuning system consists of two variable inductively coupled tuned circuits. The antenna circuit is tuned by means of two inductance switches, whereby the inductance may be very slowly varied, a turn at a time. The secondary circuit is tuned by means of a FEDERAL No. 45 Variable Air Condenser and an auxiliary FEDERAL No. 48 Vernier Condenser. The coupling between the two circuits is made variable in exceptionally minute steps so that a very close control of the selectivity of the receiver is easily possible.

Dimensions of Cabinet—Height, 15¾ inches. Width, 22¾ inches. Depth, 11¾ inches.

Type 59 Receiver (with head set and plug).....\$177.00

FEDERAL TYPE 110 RECEIVER



The FEDERAL Type 110 Receiver combines with a remarkable simplicity of operation a compactness of parts, a range of reception and beauty of music reproduction heretofore impossible of attainment in so small and modest a radio receiver. When used with almost any type of antenna it requires frequent manipulation of only one or, at most, two controls for its operation at maximum effectiveness and when used with reasonable care in its manipulation will bring in signals over startling great ranges with a beauty of tone quality that is indeed surprising to the user. It is especially suited for use with dry battery tubes and provision is made for the housing of the dry batteries within the receiver so that it constitutes a portable but still long range receiver.

Notwithstanding the simplicity of its controls, the degree with which it is possible for the user to tune in the desired station and eliminate the undesired station is such that with the present allocation of broadcasting wavelengths no serious interference between broadcasting stations need occur.

The quality of the units entering into its construction is identical to that in our higher priced receivers. The workmanship and finish throughout is in no way inferior to the high standards of our types 59 and 61. Every effort has been made to make this model the most popular radio receiver ever offered the public. The extremely low price set upon a device in which are incorporated all of the latest developments of our laboratories makes it the greatest value of any radio receiver appearing on the market. The spontaneous reception which will be given this receiver will make the low list price justifiable because of the lowered costs due to quantity production. Yet, the same skilled workmen and inspectors employed in the production of our more elaborate receivers will assure the same unsurpassed mechanical and electrical qualities that have given so much prestige to FEDERAL radio products.

The extreme sensitivity of this device has been made possible by painstaking development covering a period of many months. Our engineers have scrupulously studied the effects of the nature and location of the units to produce a harmony which has resulted in unprecedented efficiency and positiveness of control. Every unit entering into its construction is produced in our own factory where direct engineering supervision during the production of each component part is assured.

The tuning system is especially devised for ease of operation. It has the simplicity of the ordinary single circuit tuner and combines in addition, a degree of selectivity not found in the usual single circuit receiver. In tuning, the one major control provides for the change of wavelength of the receiver. This control in connection with the FEDERAL Vane Vernier gives an exceedingly gradual change of wavelength. The five selectivity taps provide five different values of selectivity, giving a flexibility which makes it possible to operate the receiver with a low or high degree of selectivity at any wavelength.

Dimensions of Cabinet—Height, 14½ inches. Width, 13¾ inches. Depth, 11¾ inches.

Type 110 Receiver (with head set and plug).....\$105.00

FEDERAL D. X. TYPE 58 RECEIVER



No. DX58

The FEDERAL D. X. receiver is especially suited for use by the radio amateur who desires a receiver that is more selective than is the single tuned circuit receiver, Federal No. 57. The greater selectivity of the FEDERAL D. X. receiver is secured through the use of two tuned circuits provided with controls which make it possible by a series of simple adjustments to secure a degree of selectivity quite exceptional for a receiver as simple in operation as the FEDERAL D. X.

The receiver is exceedingly sensitive and makes reception possible over ranges greater than can be accomplished with the more ordinary means of amplification.

It can be used with a wide variety of antennas and it may be used for the reception of broadcast radio telephone signals with almost any type of antenna. It serves admirably for the reception of amateur telegraph or telephone signals on the shorter wave length, and through the use of the FEDERAL Radio Frequency Amplifying Transformers gives exceptionally high sensitiveness with high selectivity.

The tuning circuit consists of an antenna tuning inductance, a secondary circuit inductance, with variable induction coupling between the two inductances, and a secondary circuit tuning condenser. The antenna circuit inductance is equipped with an inductance switch which allows a very exact tuning of the antenna circuit while the secondary circuit condenser allows of precise tuning of that circuit.

The coupling between the circuits is variable between very wide limits and makes possible adjustment of the receiver to almost any degree of selectivity.

The amplifying system consists of one stage of radio frequency amplification, a detector tube and two stages of audio frequency amplification.

The R. F. amplification of which this receiver is capable is exceptionally high and results from the use of the FEDERAL No. 35 Radio Frequency Amplifying Transformer which is supplied with the receiver, in conjunction with a UV-201-A vacuum tube or its equivalent. The two stages of audio frequency amplification, which so greatly augments the amplification made available through the R. F. amplifying transformers, is accomplished through the use of the FEDERAL 226 Audio Frequency Amplifying Transformers in conjunction with UV-201-A Vacuum Tubes or their equivalents. Provision is made for the use of a sensitive detector tube such as the UV-200 Vacuum Tube.

Control knobs are supplied for the adjustments of the primary antenna circuit inductance, primary-secondary coupling and secondary condenser. An amplification control knob allows the variation of the amplification between wide limits and separate filament control rheostats, allows of the careful adjustment of the filament currents of individual vacuum tubes.

Such parts as tube sockets, filament rheostats, filament control jacks, etc., are standard high quality product and each contributes its share to making a device unrivalled in quality of material and workmanship.

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

D. X. Type No. 58 Receiver (with head set and plug).....\$123.00

SPECIFICATIONS TYPES 61, 59 AND 110 FEDERAL**Tubes**

Any of the commonly available vacuum tubes may be used with these receivers. This is made possible through both the circuit design and through the use of the No. 27 rheostat which provides control for any tube filament current between the limits of the very small current required by the UV-199, WD-12 tubes to the much higher current required by the UV-200 vacuum tube.

Batteries

Any type of dry or storage battery may be used with the receiver, since the No. 27 rheostat with which it is provided allows the control of any battery voltage between two and six volts. Individual control of the filament current of each vacuum tube is provided through the use of a FEDERAL No. 27 rheostat for each of the tubes.

Telephones or Loud Speaker

The telephone binding posts and telephone jack provide for the connection of any type of head set or loud speaker the connecting cords of which are equipped with either plug or plain terminals.

Radio Frequency Amplifier

The R. F. Amplifier consists essentially of the No. 35 FEDERAL R. F. Transformer and will perform very effectively with any of the many vacuum tubes over the entire band of broadcast wavelengths—225 to 550 meters. It is provided with an R. F. Amplification Control whereby the degree of amplification is made variable between wide limits.

Audio Frequency Amplifier

The A. F. Amplifier consists essentially of FEDERAL amplifying transformers and will operate with any of the available vacuum tubes to give an extraordinarily high degree of amplification combined with a pureness and faithfulness of reproduction unrivaled by any other type of amplifier. It is provided with an A. F. amplification control, whereby the degree of amplification may be varied between wide limits.

Tube Mounting

The four vacuum tube sockets are securely mounted on a suspension of elastic material, making the whole receiver proof against shock and eliminating the tube noises inherent in any other type of mounting.

Panel

The panel is of the highest grade of phenol condensation material with the controls arranged in such symmetry as to give a well balanced and beautiful assembly.

Cabinet

The receiver is mounted in a wooden cabinet of excellent design, finished in a dark brown mahogany which blends perfectly with either mahogany or walnut. The cabinet is of such dimensions that it will accommodate four dry cell "A" batteries and three small sized "B" batteries.

COMPLETE FEDERAL COMBINATIONS

Listing necessary accessories with prices, as dry cell outfits. If storage battery equipment is desired, include price of battery desired and deduct price of adapters and dry "A" batteries.

Type 61

Receiver, with Phones and Plugs.....	\$223.00
6—UV-199 Radiotron Tubes	30.00
6—UV-199 Adapters	4.50
3—22½ volt "B" Batteries.....	7.50
3—No. 6 Dry Cells.....	1.50
Total.....	\$266.50

Type 59

Receiver with Phones and Plug.....	\$177.00
4—UV-199 Radiotron Tubes	20.00
4—UV-199 Adapters	3.00
3—22½ volt "B" Batteries.....	7.50
3—No. 6 Dry Cells.....	1.50
Total.....	\$209.00

Type 110

Receivers with Phones and Plug.....	\$105.00
3—UV-199 Tubes	15.00
3—UV-199 Adapters	2.25
3—Small 22½ volt "B" Batteries.....	4.50
3—No. 6 Dry Cells.....	1.50
Total.....	\$128.25

Type D. X. 58

Receiver with Phones and Plug.....	\$123.00
3—UV-201-A Tubes	15.00
1—UV-200 Detector Tube	5.00
1—45 volt "B" Battery.....	5.00
1—22½ volt "B" Battery.....	2.50
1—100 Amp. Hr. Storage Battery.....	20.00
Total.....	\$170.50

NOTE:—Any of the above receivers will operate on any type tube with the exception of DX-Type 58. The 6 volt tubes are recommended for use with the latter. Loud Speakers range in price from \$10.00 to \$175.00.

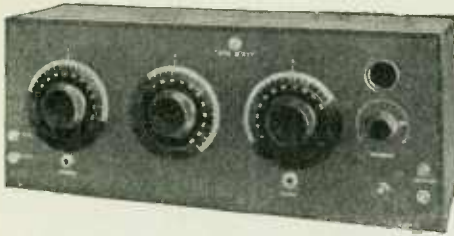
GUARANTEE

"We hereby guarantee FEDERAL Radio Products to be free from all mechanical defects, and to function properly when installed in accordance with our authorized directions and we agree to replace, at our expense, any unit or part which may prove defective."

THE NEW FADA--"One-Sixty"

The "One-Sixty" Receiver is the reward of the expert staff of engineers working in close co-operation with Professor Hazeltine—as it is unquestionably the Ideal Radio Receiver. The "One-Sixty" requires only four vacuum tubes, resulting in two stages of tuned radio frequency amplification, detector and two stages of audio frequency amplification. It is recommended to obtain best results that three UV-201-A or C-301-A tubes be used as amplifiers and that a UV-200 tube be used as the detector.

The receiver is permanently adjusted for capacity neutralization at the factory. Various other types of tubes than those listed may, however, be used with complete satisfaction.



No. 160A

any later time it is only necessary to set the dials at the same given position.

WITH THE NEUTRODYNE CIRCUIT

No technical knowledge is required to operate a FADA "One-Sixty" receiver. By one masterly stroke of radio design and engineering, all former radio receiver disadvantages were eliminated. Tuning in for stations is simplicity itself, and after any station is once picked up with maximum intensity, notations can be made of the dial settings and if one wishes to listen to the same station at

TUNES THROUGH LOCAL STATIONS

Long-distance broadcasted programs can be listened to, while local stations are broadcasted, using the loud speaker and reproduced with pleasing purity of tone, clarity and volume.

Range 1500 Miles—On a Loud Speaker—Through Local Reception

Eight Reasons Why You Should Sell "One-Sixty" Receivers

- ONE**—Can be easily operated to receive both local and long-distance broadcasting stations.
- TWO**—The "music of the air" is recreated with surprising purity of tone and with "clear as a bell" volume for loud speaker reproduction.
- THREE**—Covers the wavelength range of all broadcasting stations in the country.
- FOUR**—Long-distance stations on a loud speaker can ordinarily be heard using an indoor antenna or loop. Operates best, however, with a small outdoor antenna.
- FIVE**—Is ideal for home entertainments, the cabinet harmonizing with the interior decorations of modern American homes.
- SIX**—Is only nineteen inches long by eight inches square.
- SEVEN**—The Fada "One-Sixty" Receiver does not cause interfering signals (those prolonged up and down squeals and whistles) that disgust your next door neighbor, who likewise wishes to enjoy what's "on the air."
- EIGHT**—The Fada "One-Sixty" is a fast seller—and pays good profits.

Type 160-A FADA Receiver\$120.00

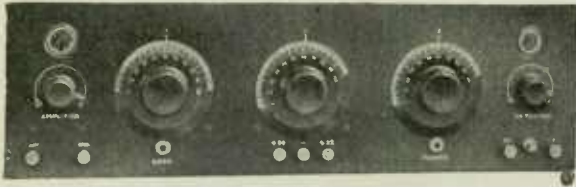
FADA KNOCK-DOWN SETS

Complete set of parts for 4-tube Reflex Neutrodyne without cabinet or tubes.

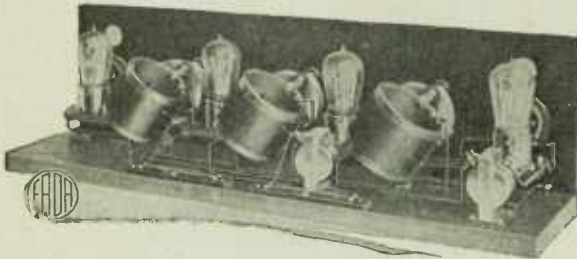
No. 166A

Price \$64.00

This is the same as the famous 160A Model.



Showing Panel View.



Showing Rear View.

COMPLETE SET OF PARTS FOR FADA 5-TUBE NEUTRODYNE

No. 167A—(without cabinet or tubes)

Price \$65.60



Showing Panel View.



Showing Rear View.

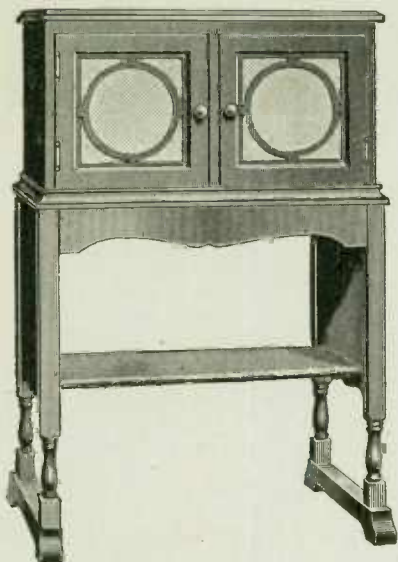
The above sets include panel engraved and drilled ready to mount parts.
Baseboard and Instructions included.

CROSLY ACE CONSOLETTA

Manufactured Under Armstrong U. S. Pat. No. 1113149

Price \$125.00

A Complete Self-Contained Radio Receiving Set with Built-In Loud Speaker



Type 3C

To meet the demand for a radio set, combined with an attractive piece of furniture, we have produced the ACE Type 3C or Consolette Model, shown in this circular. This is a three tube Armstrong regenerative receiver, containing the new VARIND basket weave variable inductance. This unit is wonderfully selective and the Crosley Type "D" Condenser which is part of the equipment permits remarkably sharp tuning, enabling you to pick up distant stations through local broadcasting. We cannot comment too much upon the wonderful selectivity of this Receiver.

A Loud Speaker with a most efficient adjustable loud speaking unit is built into the cabinet. Ample room is provided for dry cell "A" batteries and the necessary "B" batteries. All the wires are hidden inside the cabinet, excepting the antenna and ground connections. Of course this set operates more efficiently on an out-of-door antenna, although excellent results can be obtained from a comparatively short antenna under average conditions. A single wire run along the ceiling or floor for a distance of from thirty to forty feet, will, under most conditions, serve as a very satisfactory

antenna for long distance reception. This is due to the wonderful efficiency of this receiver, which enables it to function on very weak signals collected by even a moderately inefficient antenna.

The size of the cabinet is $13\frac{1}{8}$ inches high, 23 inches wide and $13\frac{3}{8}$ inches deep. It is made of solid mahogany beautifully rubbed, piano finish.

An attractive stand on which the 3C Consolette can be placed, makes a complete floor type of radio receiving set, and an extremely attractive piece of furniture for any home.

Price of the floor stand is only \$25.00 additional. (Shown in cut.)

We believe there is no receiving set on the market that has greater range and more volume from three tubes, namely, detector and two stages of audio frequency amplification.

The set is provided with a phone jack to plug in head phones for tuning, using two tubes. When the plug is removed the three tubes are automatically connected to the loud speaker.

CROSLEY

CROSLEY RECEIVER TYPE V

Wonderful efficiency, simplicity of operation and low cost are the chief factors in the growing success of the Ace Type V Regenerative Radio Receiver. They are the things that have made the receiver the most popular on the market. This set is well known, thousands of them having been sold.

The Ace Type V is a long range receiver. Stations from coast to coast are heard under ordinary conditions. Signals are clear and distinct. Owners who desire to operate a loud speaker need but add a Two-Step Amplifier. Such a combination forms a set similar to the Ace Type 3B.

A Crosley Multistat, the universal filament control rheostat, is used in this receiver. This is a new and exclusive Crosley feature, which permits use of any make of tube. Price.....\$16.00



CROSLEY TYPE VI

Adoption of recently designed and highly efficient parts as standard equipment in the Crosley Model VI makes the set vastly superior to the former model, which is known to thousands and thousands of radio enthusiasts as "the best two-tube set ever manufactured." The new Model VI consists of one stage of tuned radio frequency amplification and detector, a combination that will bring in far-away broadcasting stations clearly and loudly. The one stage of tuned frequency amplification not only amplifies the signal before it reaches the detector, enabling the detector to work more efficiently, but it also eliminates interference to a marked degree. When the owner desires to operate a loud speaker, we recommend

addition to the Crosley two-stage amplifier, which costs but \$20.00. Price of Model VI, without tubes, batteries or phones.....\$30.00

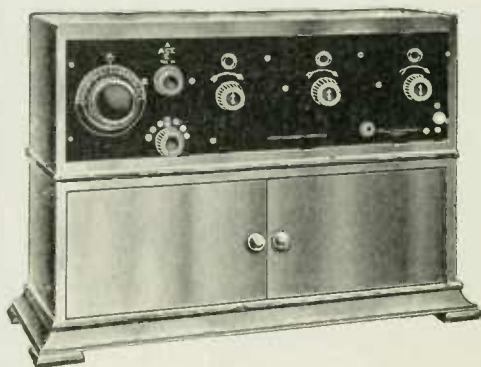


CROSLEY TYPE 3B

The Crosley Type 3B, formerly called the Ace Type 3B, fills the want for a high grade three tube regenerative radio receiver at a moderate cost. Its dull black panel, engraved with white letters, highly polished black dials and knobs, and nickel trimmings form a pleasing contrast to the beautiful piano finished, solid mahogany cabinet, making it a "thing of beauty" for the most magnificent home. The 3B is equipped with new Crosley condensers, with their moulded plates; Crosley Multistats, those universal filament control rheostats for all makes of tubes, phone jack, filament switch, etc. It will operate with either dry cell or storage battery tubes. The two stages of audio frequency amplification, added to the regenerative receiver, permit the use of a loud speaker.

Manufactured under Armstrong U. S. Patent No. 1,113,149.

Price of Type 3B, without tubes, batteries or phones.....\$50.00
Pictured is the 3B with Battery Cabinet which is furnished at an additional price of \$15.00.



CROSLY MODEL IV

This is the new Crosley Model IV, a two-stage audio frequency amplifier. It was designed for addition to the Crosley Model VI receiver, but can be used in conjunction with any tube detector on the market. The Model IV does not produce volume; it amplifies it. In fact, the unit amplifies the volume of the Model VI, for instance, approximately 100 times.

When the Model IV is added to the Model VI the combined units consist of one stage of tuned radio frequency amplification, detector and two stages of audio frequency amplification.

In the Model IV there are Crosley Multistats, the universal filament control rheostats for all makes of tubes, Crosley molded sockets and the very highly efficient Crosley Sheltran transformers.

There also is a filament switch—a unique feature—permitting snapping of the tubes on and off without touching the multistats, changing the tuning or disconnecting the batteries.

Price quoted above does not include tubes, batteries or other accessories.



Price \$20.00

CROSLY RECEIVER—TYPE XJ



This is a new model. It is very similar to the Crosley Model X, which, of course, will be continued, but it is equipped with new parts, including the New Crosley condensers with moulded plates, moulded composition sockets, which are smaller and neater than the porcelain sockets, and new Multistats in moulded cups. These Multistats are universal filament control rheostats for all makes of tubes.

The Model XJ also is equipped with a phone jack to plug in on one stage of radio frequency amplification. Removal of the plug automatically switches the signals to four tubes on the loud speaker, providing the operator has attached the loud speaker to the binding posts marked "Output."

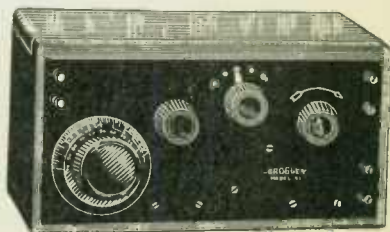
Thus it is possible to tune in without maximum volume and to use three tubes for the head phones whenever desired. The set is also equipped with a filament switch to disconnect all filaments without changing the tuning. A new radio frequency tuned amplifier coil permits elimination of interference. All binding posts are located on a sub-panel, and all wires come in from the rear or bottom for use in connection with a battery cabinet.

This set consists of one stage of tuned Radio Frequency amplification, Detector and two stages of Audio Frequency amplification. Owners will be able to hear every large station in the United States. Price, without tubes, batteries or phones.....**\$55.00**

CROSLY TYPE 51

With the announcement of the new Model 51, less than a week old, orders for thousands have already been received, and production is being crowded to the limit.

This two-tube receiver fills a long felt want, and under reasonably good conditions, it will work a loud speaker on distant stations with comfortable volume for an ordinary living room. This set will bring in nearby broadcasting stations with sufficient volume to work a loud speaker under all conditions. Detector and one-stage audio, price



\$18.50

MU-RAD MODEL MA-15 RECEIVER

Mu-Rad MA-15 receivers represent an extreme refinement of the earlier model MA-13. The cabinet has been improved in looks very materially, it being constructed of solid mahogany wood, in a pleasing brown color which will blend with most furnishings. The panel is of ¼-in. thick Formica, and is engraved instead of employing metal nameplate markings. New E-Z Toon dials with a built-in vernier make tuning a positive pleasure.



and as a noninductive control is now used tuning dwindles down to one control, the tuning condenser, with the left-hand dial as a volume control only. A meter is also mounted on the panel, allowing instantaneous readings of the "A" and "B" battery voltages. The transformers are of the "plug in" type, which means that should a change be made in the broadcasting wave bands, or a change be made in the tube characteristics, the Mu-Rad set can be brought right up to the minute by inserting new transformers, and at a nominal cost. Thus the set is made as complete and simple as can possibly be hoped for. Three stages radio frequency, detector and two stages audio amplification; 6-tube set. Price.....\$180.00

LOOP AERIAL (with base).....\$8.50

NATIONAL INTERFERENCE ELIMINATOR



Adds Selectivity to Your Set

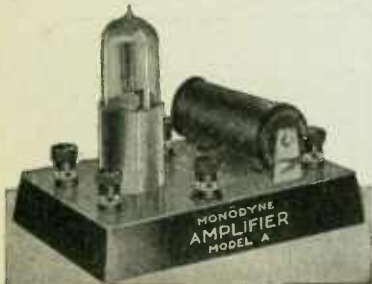
Tunes outside waves or harmonics of powerful broadcasting stations.

Will Make Your Set Tune Sharper

Two coils go with instrument, one for short and another for long wavelengths.

The NATIONAL Interference Eliminator can be used with all radio outfits no matter what make, tube or crystal. Will bring in stations you never heard before. Nothing else required with set as illustrated. Just connect it with two short wires to your outfit. Price.....\$7.50

MONODYNE ONE-STAGE AMPLIFIER

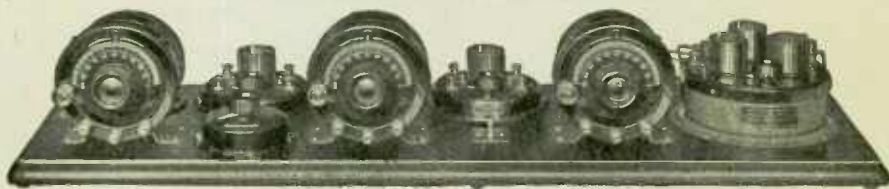


National advertising has created a ready market for an efficient one-tube amplifier, such as this Monodyne. A running mate to the famous Monodyne one-tube set.

For use with 201-A or WD-12 tube.

Without Tube—Price\$8.50

ATWATER-KENT RECEIVING SETS



No. 4340—A. K. Model 10.

The Atwater-Kent Model 10 set includes two stages of tuned radio frequency amplification, detector and two stages of audio frequency amplification.

Exceptional selectivity, volume on D.X. signals, efficiency and great ease of operation are accomplished through the circuit arrangement used. Its range of operation includes all wavelengths in the broadcast band. With this set it is very easy to return to the dial settings for any given station once they are recorded. It is designed for tubes using $\frac{1}{4}$ ampere with the exception that a 1-ampere detector tube may be used if desired. Price.....\$100.00



No. 4445—A. K. Model 9.

The Atwater-Kent Model 9 set includes one stage of tuned radio frequency, detector and two stages of audio frequency.

It is an easily operated, high efficient receiver which gives excellent loud speaker performance on distant broadcasts. With this set it is easy to return to the dial settings once they have been recorded. Price.....\$70.00



No. 4333—A. K. Model 5.

The Atwater-Kent Model 5 set includes the type 11 tuner and the five tube amplifier. The tuning arrangement affords great ease of operation and the two stages of radio frequency, detector, and two stages of audio frequency amplification give ample volume for Loud Speaker operations on both local and distant broadcast programs. Price.....\$55.00

ATWATER-KENT EQUIPMENT



2 Radio, Detector
2 Audio Amplifier



Detector 1-Stage
Amplifier



Detector 2-Stage
Amplifier

The Atwater-Kent line of Detectors and Audio Frequency Amplifiers combine splendid materials and workmanship with low prices. Sockets and posts mounted on moulded condensite. Rigidly constructed and compact.

No. 3902—Detector Unit.	Price.....	\$ 6.00
No. 3676—Detector and 1 Stage.	Price.....	13.00
No. 3634—Two Stage Amplifier.	Price.....	14.00
No. 3812—Detector and 2 Stage.	Price.....	16.50
No. 4330—Two Stage Radio, Detector. Two Stage Audio.....		35.00



National MONODYNE Tube Set

VOLUME
CLARITY
DISTANCE
SIMPLICITY
ECONOMY

For many months radio engineers have been exerting their efforts toward developing the ideal tube set. They knew that millions of homes would welcome the low priced instrument that embodies simplicity of operation with a minimum cost of up-keep. They wanted an instrument that would bring in volume and distance, clear and loud, with a single control, an instrument that would be classed as a work of art, the possession of which anyone would be proud. That their untiring efforts have been crowned with success is now certain.

The NATIONAL MONODYNE TUBE AIRPHONE includes all these features and more.

The MONODYNE CIRCUIT is the most radical advance in radio engineering since the advent of the Armstrong Circuit. Parts heretofore considered essential are omitted and one simple tuning control gives a selectivity equal, if not superior, to that of sets costing hundreds of dollars. A child can operate it.

Simplicity

The NATIONAL MONODYNE uses but one dry cell tube, preferably the WD-12 or any other standard tube. Local broadcasting comes in astonishingly loud and clear, without distortion.

The tube socket is of a new design and most practical because it holds the tube with a positive grip on all four prongs for a depth of more than one-quarter of an inch.

The NATIONAL MONODYNE AIRPHONE will find especial favor with experimenters because of its adaptability in many different hook-ups, a thing not possible with any other low priced outfit.

Long Distance

In our New York laboratory tests we repeatedly heard stations KYW at Chicago, WOC at Davenport, Iowa, and many others, quite loud and clear. This without resorting to any mode of amplification.

The NATIONAL MONODYNE is the most practical tube set made, and is complete in all details. It is only 6½ inches long, 4¼ inches wide, and 2¾ inches high; of durable, compact and rugged construction. The entire casing is moulded from hard rubber composition.

The NATIONAL MONODYNE has a receiving capacity and range of about 1500 miles. A 75-foot aerial is recommended for best results.

All Wave Lengths

With the outfit are furnished two interchangeable fixed double inductance coils for various wavelengths, ranging from 200 to 600 meters.

\$10.00 Without Tube, Including Two Interchangeable Inductance Coils.

THOROPHONE FOR TONE

The Thorophone "S" is the greatest achievement in a Radio loud speaker. It consists of a powerful electro-magnetic solenoid operating a controlled mica diaphragm. This means it combines great amplifying power and sensitiveness with perfect tone quality.

This is the first time that a solenoid unit has been built with a controlled mica diaphragm. It is wonderful. It is so extremely sensitive that no matter what loud speaker you may have used before, the Thorophone "S" will bring your music up louder, and will do so with vastly superior tone quality.

This extreme sensitiveness to the Radio currents serves to give you greater volume at all times, to bring up distant stations better, and to enable you to clarify your signals by not forcing your tubes.

Whether energized to a low volume or up to a tremendous volume, it, at all times, reproduces with true, accurate tone.

In appearance the Thorophone "S" is distinctive and satisfying. Its graceful, well-proportioned lines mark a real step in the design of radio loud speakers. The base and pedestal are of wood, highly finished in the darkest walnut. The horn throat is a casting and the bell of extra heavy Thorite. These are finished in a deep black with a dull satin-like lustre. Each detail is carefully and accurately manufactured.

On account of some of the extremely high-powered sets now being brought out we have built the Thorophone "S" with a large factor of safety to withstand unusual radio currents. The coils will permit the use of over one thousand volts in your plate circuit and several hundred milliamperes of radio energy.

The Thorophone "S" type uses an electro magnet and requires one ampere from a 6-volt storage battery when in operation. This is about the same current consumption as of one small tube and is negligible in view of the wonderful results. The solenoid of the Thorophone "S" being big and rugged requires no adjustment.

If you desire the best in Radio use the Thorophone "S."
S5 consists of the Thorophone "S" type unit complete with concert horn.

This beautiful instrument will give unequalled results on your Radio receiving set. You will find it the ideal Radio loud speaker.

The Tone quality and volume are unrivaled. It has pure, exquisite tone, originating in a mica diaphragm perfectly controlled and correctly amplified in a scientifically constructed horn resonator.

The volume is a little greater than the most efficient of other makes on the same radio energy with the same size of horn.

The height is twenty-eight inches. The base and pedestal tone arm are of wood, elaborately rubbed and finished a very dark walnut. The throat and bell are a deep dull black, with a satin finish. An attractive piece of furniture, harmonizing with your home surroundings.

S6 consists of the Thorophone "S" type unit mounted on its side in a low, flat, beautifully finished wooden container.

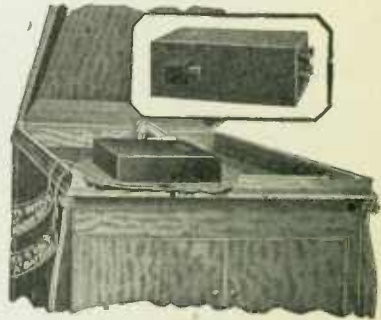
It is arranged to lay on a phonograph and connect to the phonograph horn. Simply remove the phonograph reproducer and put the projecting tube of the S-6 in its place on the tone arm. The adapter on the S-6 is in several parts. It is a universal adapter, fitting the Victor, Columbia, Brunswick, Edison, Sonora, Pathe and other standard phonographs. A small piece of rubber tubing, furnished with the adapter, accommodates the unusual model of phonograph. After attaching the S-6, the phonograph cover may be closed in practically every case.

The loud speaker is the same as in the S-5. This in combination with a good phonograph horn makes a most satisfactory outfit. It is about 3 inches high. Just the thing to lay in your phonograph.

The only electro magnetic solenoid loud speaker with a controlled mica diaphragm.
SUPERIOR IN TONE, VOLUME, APPEARANCE



No. S5
Price \$45.00



No. S6



No. S6
Price \$35.00

MAGNAVOX

So popular have the original Magnavox instruments proved that new models have been brought out to permit the selection of Magnavox equipment for every type of receiving set and for every condition.

Magnavox Radio Reproducers R-3 and R-2 are a universal accessory suitable for use with any good receiving set having one or more stages of amplification. These Magnavox Reproducers are equipped with horn of heavy spun copper, impervious to ordinary accidents or climatic deterioration, and possessing proper resonant qualities. Current consumption from "A" battery is very small: .06 ampere for R-3 at 6 volts and .06 ampere in R-2. Dry cells may be used for field excitation on either model. The R-2 is recommended for every installation but especially for large rooms, halls, etc. Models R-2 and R-3 have field switch.

The M-1 meets the requirements of dry battery receiving sets, as it consumes no current from batteries. It is particularly recommended where low voltage and low current consumption tubes are used. Horn is of standard Magnavox curvex type. Base equipped with a five-foot flexible cord and with binding posts for extensions.

Magnavox Power Amplifiers Model C are particularly desirable for addition to sets already equipped with Magnavox Reproducers. They are designed for replacement of or in addition to ordinary audio-frequency amplification, especially meeting the requirements of home installation.

These audio-frequency Power Amplifiers will accommodate either dry cell or six-volt tubes and are equipped with specially designed transformers insulated to stand any plate voltage up to 750 volts.

The A1-R and A2-R consist of Magnavox electro-dynamic Reproducer combined respectively, Magnavox audio-frequency Power Amplifier (see illustration at left). Equipped with modulating device for controlling volume. Plainly marked binding post terminals are provided by bakelite panel on back. With 14-inch curvex horn. Price does not include tube.

In addition to the above, we specialize in Magnavox equipment for public speakers' use and for the amplification of phonograph music.

PRICES OF MAGNAVOX EQUIPMENT

R2 "C" Radio Magnavox with 18-in. Curvex Horn.....	\$50.00
R3 "D" Radio Magnavox with 14-in. Curvex Horn.....	35.00
M1. Radio Magnavox (for dry battery sets), 14-in. Horn	35.00
A1. One Stage Power Amplifier only, in Metal Case.....	27.50
A1-R. One Stage Amplifier, with 14-in. Curvex Horn (see cut)	59.00
A2-R. Two Stage Amplifier with 14-in. Curvex Horn	85.00
AC-2C. 2-Stage Power Amplifier in Hardwood Case	50.00
AC-3-C. 3-Stage Power Amplifier in Hardwood Case	60.00
AC-2-A. Two Stage Power Amplifier for Radio and Public Speakers' use, in Hardwood Case.....	250.00
AC-3-B. Three Stage Power Amplifier for Radio and Public Speakers' use, in Hardwood Case.....	350.00
V-2. Outfit for Paging and Public Speakers' Use consisting of Telmecophone, Large Horn, VC-1 Control Box and Hand Transmitter with Button.....	150.00



R-3 Magnavox



A 1-R

MV-1. Outfit for Phonograph Music Amplification, Singers' and Public Speakers' use, etc. Consists of Telemegaphone, Large Horn, MC-2 Control Box, MT-4 Transmitter Tone Arm and Hand Transmitter.....	200.00
MT-4. Transmitter Tone Arm for Phonograph.....	30.00
ST-4. Hand Transmitter	20.00
BT-4. Hand Transmitter with Button in Handle.....	25.00

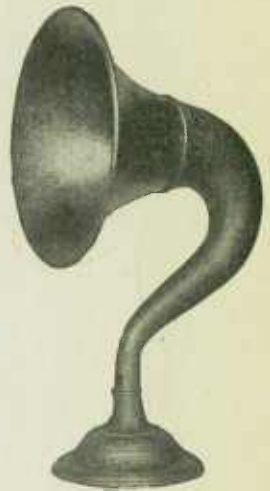
THE NEW BALDWIN SPEAKER—THE SYMPHONY

All the qualifications of the **STANDARD Nathaniel Baldwin Speaker**—only with a smaller bell, which is 11 inches in diameter and stands 21 inches high. Very sensitive and reproduces music with total absence of distortion. No "A" battery required.
 List\$19.00



NATHANIEL BALDWIN LOUD SPEAKERS

Because of its super-sensitiveness and life-like mellow reproduction of all vocal and musical sounds, with an almost total absence of distortion and static, this speaker is fast becoming the most popular loud speaker. Does not require "A" battery.
STANDARD Model\$25.00



MANHATTAN LOUD SPEAKER WITH CONCERT MODULATOR

This is a real musical instrument. It produces a full, rounded tone, extremely mellow in quality. An important feature is the tone adjustment, known as the "Concert Modulator." Does not require an "A" battery. Unit is of die-cast, extra heavy metal, and horn is of acoustic fibre. Stands 25 inches high.
 Price\$25.00



MAGNA VOX



A 2-R



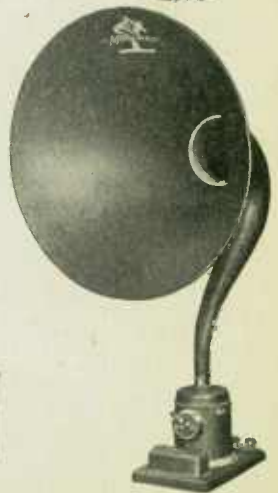
M 1



A 1



AC 2-A



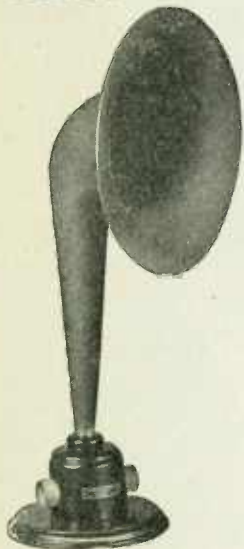
R 2



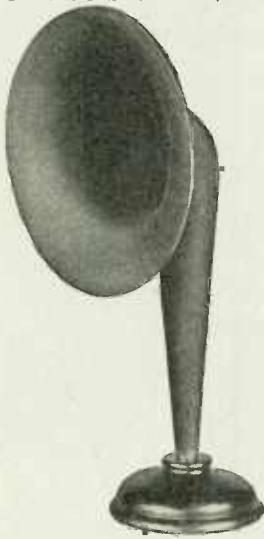
TRUTONE RADIO LOUD SPEAKER

We offer the "Trutone" as one of the best loud speaker values obtainable. It is a beautiful instrument, finished in the popular black crystalline enamel. The horn has a 14-inch bell and stands 32 inches high; it is made of a seamless non-metallic composition having excellent amplifying qualities. The tone chamber in the base is wood, assuring soft, true, clear and resonant music, with maximum volume of sound. The special amplifying and reproducing requires no local battery. Unit has a mica diaphragm. The price is exceptionally low for such a high grade loud speaker. Comes complete, including cord.

- 2910 Trutone SR Radio Loud Speaker\$25.00
- 2911 Little SR.....\$19.50



Type A "TRUTONE" AMPLIFYING RADIO HORNS



Type B "TRUTONE" AMPLIFYING RADIO HORNS

These beautiful amplifying horns are scientifically constructed of seamless, non-metallic composition, finished in black crystalline baked enamel. They employ a special wooden tone chamber in the base bringing out clearly and resonantly the true tone values with the maximum volume of sound. Type A utilizes any standard double headset and Type B requires only a single receiver unit. These instruments stand 24 and 22 inches high respectively.

- 2912A Trutone Type A Radio Horn.....\$ 8.00
- 2912 Trutone Type B Radio Horn..... 8.00
- 2913 Trutone Type B with Loud Speaker unit..... 12.50

Western Electric Phonograph Loud Speaker 522-W



522-W

This instrument needs only to be connected with the tone-arm of any phonograph to form a complete loud speaker. In volume, tone, and permanence this speaker is superior to any other phonograph unit not requiring battery on the market.

No. 522-W—Western Electric, including cord. \$12.00



No. 2914

No. 2914 The "Victophone" has been developed after considerable research to meet the demand for a first class loud speaker at a reasonable price. The material used is high grade in every respect and assembled under the closest inspection.

It is highly nickel plated and polished and is altogether a very attractive article. This unit is used in connection with your phonograph, which makes a most satisfactory loud speaker.

Unless specified the adapter for Victrolas will be furnished as standard equipment. With Cord\$7.50

Baldwin Special Phonograph Loud Speaker attachment\$10.00



Senior—\$30.00



Junior—\$22.50

BRISTOL AUDIOPHONES

Simple and Complete—The construction of the AUDIOPHONE is simple and rugged which insures durability. Every detail is complete; no batteries or other accessories are required. To use, it is only necessary to connect with the receiving set by means of wire leads. Handsome Dull Gold bronze finish. Compact and artistic design. Senior has 15 inch horn; Junior 11 inch horn.



AMPLIFIER

This One Stage Power Amplifier provides a convenient unit which gives the necessary additional electrical energy required for satisfactory operation of a Loud Speaker, especially adapted for use with the AUDIOPHONE.
 Price\$25.00

“CONCERT GRAND”

An Acoustic Marvel—Clarity and Volume

Is a Processed horn with all the mellow, sweet tonal qualities of the master’s violin. Free from metallic distortion. Finished in beautiful Verd-Antique.

Stands 15 inches high. With 9½-inch bell—Acoustically correct. New non-breakable type.

Complete with loud speaker phone and 5 ft. cord.....\$10.00



No. 402

NO. 10-D LOUD SPEAKING TELEPHONE OUTFIT

The Western Electric No. 10-D Loud Speaking Telephone Outfit is designed to satisfy the demand for a loud speaking telephone outfit suitable for connecting direct to a radio receiving set which in itself provides a sufficient amount of amplification, without the assistance of a separate power amplifier. This outfit may be operated direct from a suitable vacuum tube radio receiving set without additional batteries, and if supplied with a sufficient amount of input energy, will give enough volume of sound for ordinary home purposes.

It is not intended to amplify but to reproduce the music or speech from a radio receiving set. The volume and character of reproduction will depend entirely upon the design and output of the receiving set and amplifier used with it. When used with a properly designed and adjusted radio receiving set, the loud speaker will provide a clear and true reproduction of speech and music over the entire musical range, including the low bass notes of a pipe organ and the high notes of a violin.

No. 10-D Western Electric Speaker.....\$55.00



THE MUSIC MASTER

A perfect reproduction, wonderfully magnified, is obtained with the Music Master Radio Amplifier. There is a complete absence of that unpleasant metallic distortion so common in the usual amplifier.

With the Music Master the sound is enriched and mellowed through the resonance of the sonorous wood, which gives this horn such a tonal quality. It greatly increases the volume of sound while refining and clarifying every vibration. It is the one amplifier certain to improve sound delivery of any radio set.

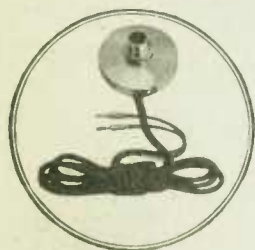
The Music Master Radio Amplifier is ideal for every amateur. Nothing about it is intricate; there are no delicate adjustments to get out of order.

It is easily attached to any radio set. This horn requires no additional batteries or current.

Music Master—14-inch Horn.....\$30.00
 With 21-inch Horn..... 35.00



GERACO MUSIC MASTER PHONOGRAPH ATTACHMENT



This little device when attached to the tone-arm of your Victrola or Columbia Phonograph gives you a most effective loud speaker for radio. Everyone can enjoy the wireless reproduction without the use of individual head sets. The horn is used to amplify the radio reception, producing a greatly magnified, full, rich tone, in much the same manner as it increases the volume of sound from the sound-box when a phonograph record is played. The Phonograph Attachment is interchangeable with the sound-box. Either device may be removed without the use of tools and the other inserted.

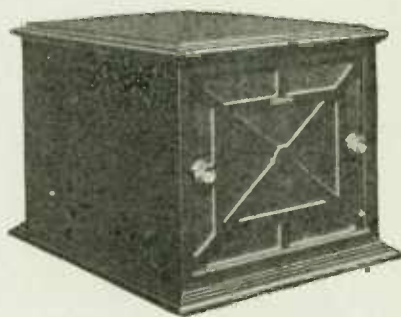
Complete as shown.....\$10.00

WESTERN ELECTRIC POWER AMPLIFIER

Loud Speaker No. 14A

Latest improved Power Amplifier, with speaker self-contained.

Literature on request.
 Complete with three 216A Power Tubes\$175



No. 14A

WESTERN ELECTRIC SPEAKER No. 521W

A beautiful speaker of seamless fibre of highest quality that will reproduce music and speech with volume and clearness. Price\$23.00



No. 521W

Nathaniel Baldwin Phones



Type "C" Phones are recognized as the best loud speaker receivers made for horns and phonographs.

The Baldwin mica diaphragm radio telephone head sets are the nearest to perfection among electro-magnetic receivers. They are used by the U. S. Navy and War Departments and by many foreign governments.

Try them in comparative service with other telephones made and you will be convinced.

Type "C" has large diaphragm (2 5/32 in.). Standard resistance. Weight without cord, 18 1/2 ounces.

Type "E"—Same size as Type "C" with small diaphragm. This type is more rigid and is much better on high frequency and arc signals. High power stations will find this type more efficient.

Type "F"—Similar to Type "E" but smaller. Weight, 14 ounces.

Type "G"—This is Nathaniel Baldwin's latest development. The receiver is similar to Type "E" but has a special diaphragm seat and still smaller diaphragm.

- Type "C"—Head Set complete.....\$12.00
- Type "E"—Head Set complete..... 12.00
- Type "F"—Head Set complete..... 13.00

- Type "G"—Head Set complete.....\$13.00
- Single "C" Units, with cord..... 6.00



KELLOGG HEADSETS

The value of extremely light and very small head sets in radio receiving is most evident when using Kellogg head receivers, which, however, have proved very sensitive and thoroughly efficient as well as light in weight and small in size. We are pleased to offer these high quality head sets at the new reduced prices.

- 2506—Kellogg No. 69-A, 2400 ohms.....\$10.00
- 2507—Kellogg No. 69-C, 2000 ohms..... 8.00

WESTERN ELECTRIC HEADSETS

Western Electric head sets have been thoroughly tested by the U. S. Bureau of Standards and have been adopted as standard by the U. S. Army and Navy. Without question they are the most sensitive and most generally satisfactory head sets on the market today. Their light weight makes them comfortable to wear even during long periods, and their rugged construction results in constant efficiency.

- 2511—Western Electric Type 1002-C Head Set,
2200 ohms\$12.00



TAKE ADVANTAGE OF OUR CASH DISCOUNT OFFER

FEDERAL HEAD TELEPHONES

The sensitiveness and durable efficiency of the FEDERAL Head Telephone is peculiar to the FEDERAL head Telephone alone. Twelve years of manufacturing head telephones, together with constant experimenting in order that they might attain a still higher degree of efficiency, enables us to offer the FEDERAL Head Telephone which stands so high in the favor of all radio enthusiasts.

We readily recommend this type of radio receivers to those wishing the best in good, clear, undistorted signals from broadcasting stations.

No. 53W—2200 ohms. Price\$7.00
 No. 52W—3200 ohms 9.00



No. 53W

BRANDES PHONES

All Brandes Head Sets are matched in tone, which means that both ears hear the exact same musical note at the same instant and that reception is improved both as to distance and clarity.

Ever since its introduction Brandes Superior Head set has been the standard in its class.

The six-foot "Nonoise" conducting cord has a red tracer woven into the lead identifying the positive terminal. This prevents demagnetizing the head set. The cord is noiseless.

Because of its extraordinary sensitiveness the Navy Type has become the standard equipment of every important radio station and in all institutions of learning. Many new records were established with it in long-distance reception. The conducting cord of the Navy Type head set has been especially shielded for use on radio-frequency and to prevent body capacity.

Brandes Superior Type Phones.....\$6.00
 Brandes Navy Type Phones..... 8.00



FROST FONES

The Frost Fones are ideal for use with home Radio Receiving Sets. They combine maximum efficiency with permanent sensitiveness. Increases audibility, clearer tone and longer life. Low prices are the result of quantity production. Backed by 33 years' manufacturing experience.

No. 171—3000 ohms \$5.00
 No. 172—3200 ohms 6.00

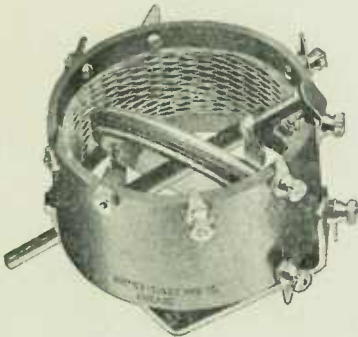
FROST NEW TYPE FONES

A new Frost Fone with polished aluminum shells, composition caps and special headband. Wonderfully light and strong. The economies of the aluminum shell construction and special headband enable us to offer this new Frost Fone at a low price.

No. 161—2000 ohms.....\$4.00



BREMER-TULLY UNIVERSAL VERNIER TUNER



No. 813

No. 813—A Tuning Unit of entirely new design that gives unequalled selectivity and control on practically all modern circuits. Especially adapted for Reinartz, both standard and ultra, all radio frequency including Hazeltine, single circuit, regenerative, etc. Made of bakelite, has positive pigtail connections, marked binding posts. Main inductance wound for minimum capacity and maximum inductance. Bank wound vernier rotor at 180 degrees. Price.....\$5.00

FADA PARTS FOR HAZELTINE NEUTRODYNE



No. 165A



No. 163A



No. 164A

FADA-HAZELTINE NEUTRODYNE PARTS

A combination package of three Neuroformers and two Neutrodons with a complete handbook of "How to Build Hazeltine Neutrodyne Circuit Radio Receivers."

No. 165-A—Fada-Hazeltine Parts.....\$25.00

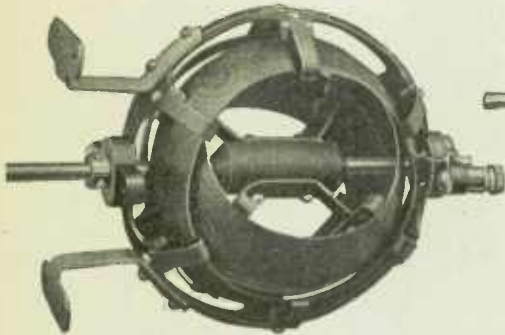
Fada Neuroformer consists of a very special radio frequency transformer together with a standard FADA variable air condenser mounted as a single unit. No. 163-A Fada Neuroformer\$7.50

Fada Neutrodons are very special variable condensers of extremely low capacity and are absolutely necessary in the Neutrodyne circuit to neutralize the capacity of the circuit. They are designed as individual condensers rather than two as a unit. No. 164-A Fada Neutrodon. \$1.25

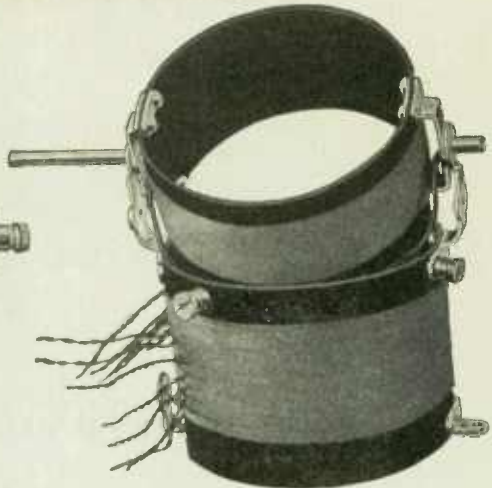
No. 166-A—FADA 4-tube Knockdown set, with all parts to construct 4-tube Reflex Neutrodyne set, with drilled and engraved panel.....\$64.00

No. 167-A—FADA 5-tube Knockdown set, with all parts to build 5-tube Neutrodyne set, including drilled and engraved panel..... \$65.60

FEDERAL VARIOCOUPLER AND VARIOMETER



No. 90



No. 95

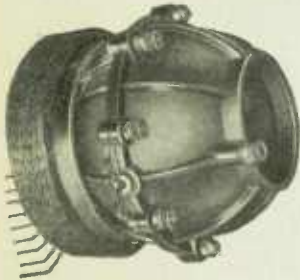
These instruments need no description as to quality. The name of the manufacturer is sufficient guarantee of highest worth.

The FEDERAL No. 95 Variocoupler secures an unusual range of coupling. The primary is tapped to permit varying the inductance by single turns throughout its length. Wavelength range is 200 to 600 meters using a .00025 mf. variable condenser across the secondary. Suitable for panel or table mounting.

In the FEDERAL No. 90 Variometer the windings are supported at as few points as possible to minimize electrical losses due to insulating material in close proximity to the coils. Notwithstanding the few supports the device is extremely rugged and will hold up under rough usage such as encountered in portable receivers. All connections direct and positive. Adapted for either base or panel mounting.

No. 95—Federal Variocoupler\$7.00
 No. 90—Federal Variometer 8.00

KELLOGG VARIOMETER AND VARIOCOUPLER



Kellogg Variocoupler with Diamond Wound Coil



Kellogg Variometer

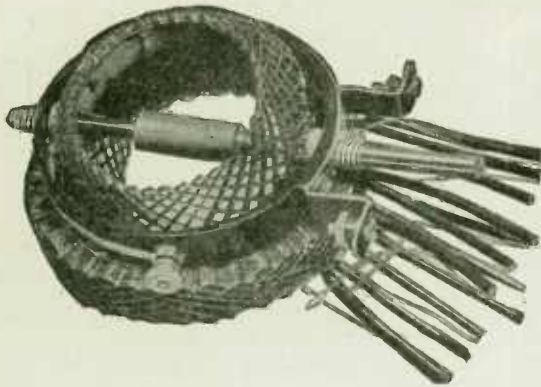
These instruments are technically accurate and efficient, and give the professional, experimenter, or amateur the highest grade devices of their kind that can be made. The stator and rotor shells are pure Kellogg Bakelite, an attractive brown in color, and are ribbed and reinforced to assure mechanical strength without having an excessive mass of dielectric in the fields of the windings. Positive stops, part of the permanent

mould, allow the full 180 degree rotation. Two terminals are provided for the rotor and three for the stator to enable the use of any possible circuits. Every instrument is provided with both panel and base board mounting plates.

The regular variocoupled has 11 taps, and the intermediate wave coupler has 20 taps. The latter is necessary only in circuits tuning above 600 meters, for Arlington time signals, etc. The intermediate wave variocoupler will tune up to approximately 3000 meters and is far superior in every way to most of the "all wave" couplers on the market.

4603 —Kellogg Variometer	\$ 8.00
4505 —Kellogg Variocoupler	9.00
4505A—Kellogg Intermediate Wave Variocoupler (with Diamond Wound Coil)....	12.00
1318 —Kellogg Diamond Wound Coil.....	3.00

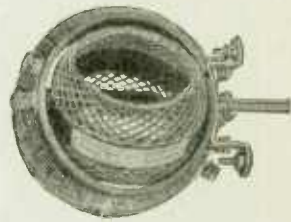
HILCO VARIOCOUPLER



The HILCO Type E Variocoupler contains a primary and secondary winding of the HILCO Lattice Banked Type and is ideal for use in single, two or three circuit tuning systems. The primary winding is so tapped as to give very close adjustments to wavelengths of 150 to 600 meters. The position of the secondary winding makes this instrument very selective, sharp tuning and its coupling is variable through a large range. Price\$7.00
 We recommend this for ERLA Reflex Circuits.

HILCO VARIOMETER

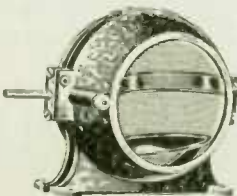
The HILCO Type A Variometer contains four sections of HILCO Lattice Banked Winding, assembled so as to give a wide range of inductance throughout the entire movement of the rotor. This instrument is very selective, sharp tuning and can be mounted in any desired position. The design of the HILCO Lattice Banked Winding is such as to permit open air cells to extend through the coil, preventing an accumulation of moisture in the winding. This design also minimizes energy losses, has a very low distributed capacity and permits of the various winding being assembled and mounted without the aid of superfluous insulating or other energy absorbing material.



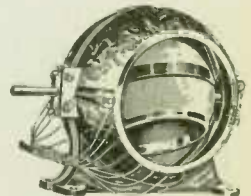
Price\$6.00

PIONEER BAKELITE VARIOMETERS AND VARIOCOUPLERS

Genuine Bakelite Rotors and Stators wound with double green silk wire. Sharp tuned instruments, combining quality material, high-grade workmanship and extreme beauty. Hardware is of buffed and heavy nickel-plated brass. Perfect balanced Rotors, with positive contacts and stop. Both instruments are either table or panel mounted. Wavelengths from 150 to 750 meters.



No. 1212



No. 1213

No. 1212—Variometer\$6.50
 No. 1213—Variocoupler 7.00

FADA 180 DEGREE VARIOCOUPLER

For selective tuning, durability, and adaptability to a wide variety of circuits, this new Fada variocoupler is superior.

It has many additional uses with the ordinary types of circuits or with circuits that oscillate.

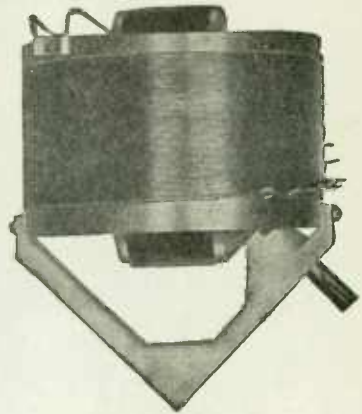
The simplest way to use a variocoupler is to connect the primary winding with the antenna and the ground and the secondary winding with a variable condenser, crystal detector and telephones or with a tube control panel. This makes up a complete radio receiver.

Stator—Bakelite tube, wound with 56 turns of double silk wire, tapped in such a manner that a variation of inductance is possible turn by turn from the first to the fifty-sixth.

Rotor—Moulded condensite, wound with 48 turns of double silk wire. Rotor rotates easily and yet stays in any position.

Mounted at a 45-degree angle, thus giving 180-degree rotation and a gradual variation of selectivity or coupling over the entire 180 degree range. An enormous advantage over the ordinary 90-degree type. All windings moisture-proof. Rotor connections are special flexible braid and will not break.

No. 135-A—Fada Variocoupler. Overall dimensions, 5x4x4 inches\$4.75

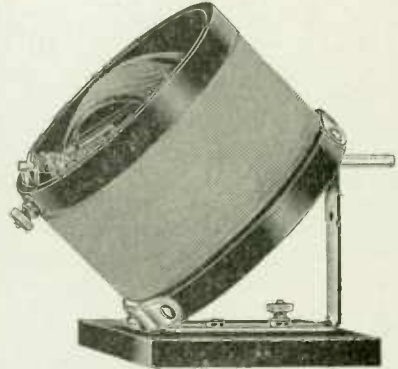


No. 135-A

REMLER VARIO-COUPLER

Remler Vario-Coupler embodies several desirable features. The principal one being that the coupling range is 180 degrees instead of 90. Primary is green silk wire, wound on special tube four inches in diameter by 2 3/4 inches long. Secondary rotor is molded from Bakelite. Primary is mounted at an angle of 45 degrees on a hardwood base, suitable for table or panel mounting.

Type 503—Remler Vario-Coupler.....\$4.50



REMLER BAKELITE VARIOMETER

Stator is moulded in two pieces from genuine black Bakelite. Primary winding is moulded on the inside insuring an absolutely rigid stator winding. Rotor construction permits a minimum clearance between the rotor and stator winding. Binding post terminals are provided and brass supports permit of table or panel mounting.

Type 500—Variometer (New Type).....\$7.50

Cockaday Coil Sets. Each\$3.00
Harkness Reflex Coils. Per pair..... 4.00

No. 811 ESTRU VARIOMETER

No. 811—A small high-grade lattice wound variometer. Ideal for portable sets. As efficient as any. Easily mounted to panel. Price\$5.00



No. 811

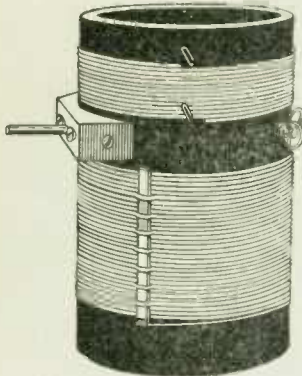
No. 812 Estru Lattice Wound Variocoupler

Matches with variometer. Price\$4.50



No. 812

DEITRICKSON ALL-WAVE COUPLERS
MAKE SELECTIVE TUNING A PLEASURE

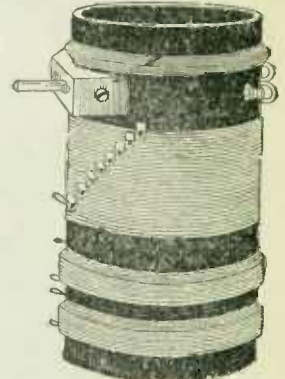


No. 284

These instruments are designed for efficient tuning from 200 to 1500 meters and are adaptable to all regenerative and non-regenerative circuits.

No. 284—200 to 600 meters. Each\$4.00

No. 284-A — Bank-wound Primary, 200 to 1500 meters\$5.00

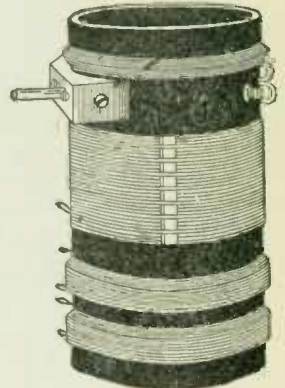


No. 284-A

DEITRICKSON TWO-ROTOR COUPLER

For real selective tuning and compactness this instrument has no equal—does away with Variocoupler, Variometer and Condensers. Patterned after the famous unit used in the popular Westinghouse Senior Set. This tuner, a socket, a rheostat, panel and cabinet make an efficient one-tube set at a very low cost. See drawing in circuit section for hook-up. Covers all the new wave bands.

No. 285—Two-Rotor Coupler. Each.....\$6.00



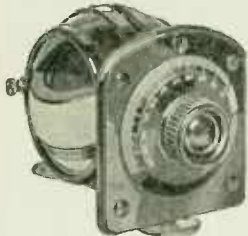
No. 285

ATWATER-KENT BAKELITE VARIOMETER

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

No. 3714—Mounted Variometer (Brown Panel and Dial)\$10.00

No. 3488—Variometer Unmounted 8.00



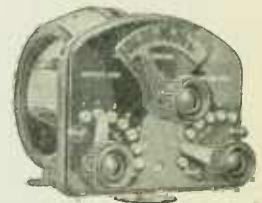
No. 3714

ATWATER-KENT VARIO-COUPLER

The Mounted Variocoupler is designed essentially for a coupled circuit arrangement of highest selectivity at present obtainable. A finished product with engraved bakelite panel. Inductances are tapped so as to permit receiving all broadcasts with good selectivity.

No. 3730—Unmounted Variocoupler\$ 8.00

No. 3731—Mounted Variocoupler 13.00



No. 3731

ATWATER-KENT TUNER

The Type 11, all-Bakelite Tuner has been designed to meet the demand for a tuning unit having good selectivity, permitting the operator to tune out powerful local interference and bring in distant stations. The tuning is accomplished with but one adjustment, supplemented by the vernier.

We recommend this Tuner especially for use in Radio Frequency Amplification Circuits.

No. 4051—Type 11 Tuner Mounted.....\$12.00

No. 3752—Tuner Without Side Winding..... 12.00

CHELTEN VARIABLE VERNIER CONDENSER

A small variable vernier condenser that is practical and highly efficient. Can be used successfully as a variable grid condenser or as vernier when shunted across large variable condenser.

Price \$1.50



Actual Size
CHELTEN VERNIER
No. 2941

TURNEY PLEX TYPE B and C

Turney's Plex is a combination of three Spider Web Coils mounted on a bakelite panel approximately 2x4 ready for mounting in the set.

This tuning unit consists of three Coils, a Primary, a Secondary and a Tickler.

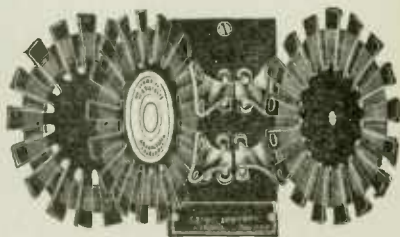
The Primary Coil has 26 turns of No. 26 enameled wire.

The Secondary Coil has 40 turns of No. 26 enameled wire.

The Tickler Coil has 26 turns of No. 26 enameled wire.

The three Coils together have a wavelength adjustment of from a minimum of 180 to a maximum of 480 meters with the condenser in series.

With the condenser in shunt the wave length range is doubled.

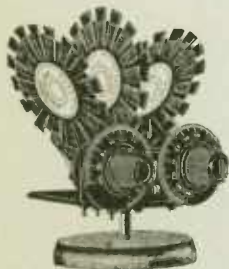


No. 2226

The Coils are the famous Turney Spider Web, patented, machine wound, and the automatic machines are also patented. They are superior in every way to hand-wound Coils as the machine keeps the wire completely surrounded by dielectric, 95% of which is air.

No. 2226—Price \$4.50

No. 2227—Full Mounted with Dials, Type "C" 6.00



No. 2227

THE NEW CAPITOL "ALL WAVE"

No. 1118—Combination flat and bank-wound coupler. Guaranteed wavelength 150 to 3,000 meters. The "All Wave Coupler" is a combination vario-coupler and loading coil and will efficiently cover up to 3,000 meters when hooked up with one .001 MF variable condenser. Eliminates use of all variometers, couplers and loading coils. Six efficient hook-ups free with each coil.

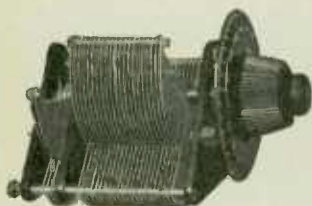
Price \$7.00



No. 1118

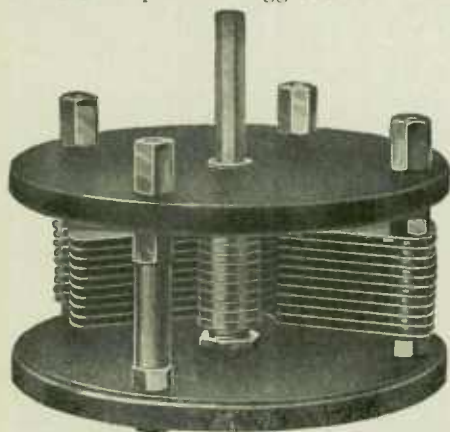
KELLOGG VERNIER CONDENSERS

These decremeter type condensers are unquestionably the best offered to the amateur and experimental trade. They are strictly precision instruments, surpassing many high-priced commercial condensers. The bakelite end pieces, aluminum plates, in fact all parts comprising these condensers are as perfectly machined as they are liberally proportioned. The vernier has 5 plates. Each condenser is equipped with the Kellogg 4-inch dial, and knob for vernier, as illustrated. Note that on account of the large plates and close spacing the maximum capacities of these condensers are greater than other condensers having the same number of plates. Care should be taken to order by capacity desired rather than by number of plates.



**Kellogg Vernier Condenser
No. 605**

No. 601—11-plate	Kellogg Vernier Condenser, .0006 mfd. max.	\$6.75
No. 603—23-plate	Kellogg Vernier Condenser, .001 mfd. max.	7.75
No. 605—43-plate	Kellogg Vernier Condenser, .0018 mfd. max.	8.75
No. 602—11-plate	Kellogg without Vernier	4.50
No. 604—23-plate	Kellogg without Vernier	5.50
No. 606—43-plate	Kellogg without Vernier	6.50



No. 46

FEDERAL VARIABLE CONDENSERS

Without Knob and Dial

Attention is called to the rigid, efficient construction of these four models. They vary only as to capacity and because of their construction will permit of their being mounted on any panel of 1/8 in. to 3/8 in. thickness. Two machine screws are furnished with each model.

No. 44—7 plate	\$3.30
No. 45—11 plate	3.40
No. 46—21 plate	3.85
No. 47—43 plate	5.15

CHELTON VARIABLE CONDENSERS

These are very high grade instruments. The bases are of bakelite and metal parts nickel-plated. Without dial.



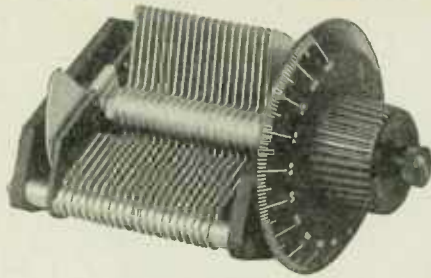
No. 810

No. 800—43-plate, .001 mfd. capacity	\$3.80
No. 810—21-plate, .0005 mfd. capacity	\$3.40
No. 811—11-plate, .00025 mfd. capacity	\$2.70
No. 812—7-plate	\$2.40
No. 803—3-plate, Vernier	\$2.10
3-in. dial for above.	.60c



No. 800

BREMER-TULLY VARIABLE CONDENSERS



No. 2113

These condensers, made of approved design, combine extreme ruggedness, easy mountability and greater accuracy. These condensers are made up with 3-16-inch bakelite end plates, both rotary and stationary plates are made of 1-32-inch hard aluminum spaced accurately. The method of stacking the plates permits any plate to be readily removed, should same become damaged. The rotor plates are stacked in the same manner as the stationary. There is a specially designed friction spring which acts as a tension against the rotor plates, also furnishes additional conducting surface, decreasing the resistance of the current to and from the rotor plates.

The Vernier type variable condenser is for use where more accurate tuning is desired. In this type one moving plate and stationary plate are mounted at the rear of the condenser. The Vernier or moving plate is controlled by an internal shaft through the main shaft, and is operated by means of the small knob in front of the dial. This Vernier feature is of tremendous advantage where tuning is done by means of the condenser, as it permits of greater selectivity. It avoids the difficulty experienced where all stations might come within a few degrees range by spreading them over many times the regular distance.

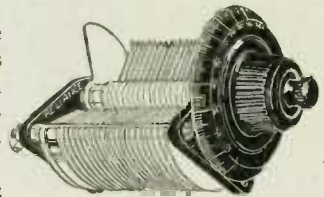
With Dial and Vernier

No. 2111—00025	Mfd., Price.....	\$4.50
No. 2112—0005	Mfd., Price.....	5.00
No. 2113—001	Mfd., Price.....	6.00

RELIANCE VERNIER CONDENSER

This is a well built Condenser. Ends are of bakelite with edges machined perfectly smooth. Stationary plates are extra heavy and are accurately spaced by die-cut spacers, thus insuring uniformity. Vernier effect is accomplished by rotating vernier plate between two adjacent stationary plates. Complete with dial and knob.

22-Plate Vernier Condenser.....\$3.75



No. 109

SIGNAL VARIABLE CONDENSERS

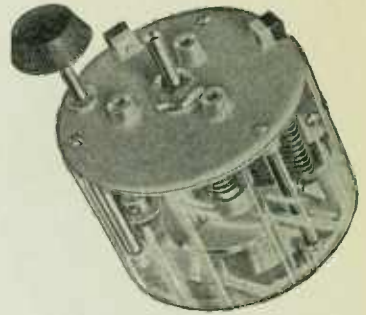
A good condenser at a reasonable price. Made of nicked brass parts and aluminum plates. Plates are equally spaced. Bakelite ends.

No. 109—43 plates, .001	Mfd.	\$2.20
No. 110—23 plates, .0005	Mfd.	1.95
No. 111—11 plates, .00025	Mfd.	1.60
No. 112— 3 plates, vernier	.....	1.40

ACME HAS PERFECTED NEW "LOWEST LOSS" CONDENSER

Because of Low Losses and Sharp Tuning of the Acme Condenser—Practically All the Currents on the Antenna Can Now Be Used.

It remained for Acme—manufacturers of the famous Acme transformers—to perfect the "lowest loss" Condenser. The Acme Engineers have been working for two years to bring out a condenser which would give to Radio experimenters sharp tuning and minimum losses. The new Acme Condenser has these fundamental advantages and structure and equipment.



also has many new improvements in

1. Steel brass cone bearings adjustable.
2. Lock nut for bearing.
3. Highest grade hard rubber Dielectric in that part of the field to prevent losses.
4. Brass separator to which both rotary and stationary plates are soldered, making continuous circuit for each.
5. Brass silver plated plates; rotary plates logalarithmic.
6. Dust proof covering.
7. Stops at extreme end of movements.
8. Coiled connection between shaft and heads allowing lubrication of bearings.

9. Brass separator to which both rotary and stationary plates are soldered, making continuous circuit for each.
10. Counterweight which balances rotary plates.
11. Noiseless friction Vernier control seven to one ratio.
12. Brass separators to prevent twisting and to take strain off Dielectric.
13. Panel mounting holds for 120 degrees spacing.
14. Metal heads.
15. Steel bushing to prevent wear on Vernier shaft.

All parts are of non-rusting metal, except steel bearing, which is covered with nickel-plated protective surface. End plate capacity is .000016 m. f., full capacity is .0005 m. f.
 Price\$6.50

"RATHBUN" VERNIER CONDENSERS

CONSIDER THESE POINTS OF SUPERIORITY

Single Hole Mounting eliminates tension strain on plates, insures shaft at right angles to panel allowing dials to run true. A feature almost impossible with condensers requiring three or more holes and points of contact with panel.

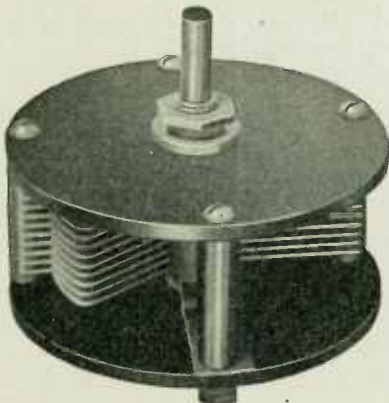
Non-Magnetic Materials throughout, eliminating stray magnetic fields.

Long Brass Bearings eliminate wear and insures permanent plate alignment.

Full Circle Bakelite Discs add to rigidity and protect plates in all positions.

(Virgin) Aluminum Plates anchored in specially milled brass tubes by die casting under high pressure insuring accurate, permanent spacing with best electrical contact and strongest mechanical construction.

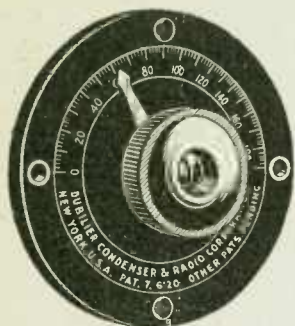
Split Bronze Contact Springs grip shaft around entire diameter, insuring positive contact, noiseless action and permanent adjustment.



PLAIN TYPES

5 Plate Variable, .000125.....	\$3.00
11 Plate Variable, .00025	3.00
23 Plate Variable, .0005	3.50
43 Plate Variable, .001	4.50

DUBILIER VARIDON VARIABLE CONDENSER



No. 814



A complete Variable Plate Condenser, including graduated scale and knob, and no larger than the ordinary dial.

Suitable for mounting on front or rear of panel.

A practical, fool-proof Variable Condenser, 3-in. diameter, 1/4-in. thick, not including knob.

Selected India Mica dielectric.

Impossible to short circuit plates.

Enable sharp tuning.

Not affected by vibrations.

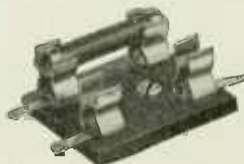
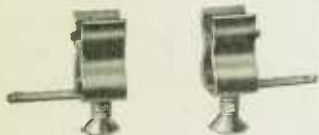
Capacities	Retail Prices
.0004 Mfd.	\$2.50
.0006 Mfd.	2.50

Complete with Knob and Dial.

No. 2114—BREMER-TULLY M. M. F. VARIABLE CONDENSER

1/2 to 15 micro-microfarads. Required for small capacities. Suitable for Hazeltine. Price, mounted95c

MINIATURE CONDENSERS



Condenser on Single Mounting No. 502

Condenser on Double Mounting No. 503

MOUNTINGS

For Miniature Condensers
1 Set No. 501 Clips

No. 501	per set, \$0.20
No. 502—Single Mounting, ea.	.45
No. 503—Double Mounting, ea.	.85

Kellogg Miniature Condensers are 1 1/2 in. x 3/8 in. They are of the cartridge type, sealed in a moisture-proof shell. Not affected by temperature changes.

No. 501 .01 M. F.	No. 503 .0025 M. F.
No. 502 .005 M. F.	No. 504 .0010 M. F.
No. 505 .005 M. F.	No. 506 .00025 M. F.

Kellogg Condensers, each, \$0.75

FEDERAL ENCLOSED TYPE VARIABLE CONDENSER

To the experimenter who desires a Variable Condenser which may be quickly and easily moved from one circuit to another we recommend the Federal Enclosed Type.

It is composed of the Federal standard panel type Variable Condenser enclosed in a brass case finished in black enamel. The Condenser is suspended from the bakelite plate which forms the top of the case, thus allowing of its removal from the case when desired. The case itself is securely spot welded, making it oil tight and where a greater range in capacity is desired, this allows the case to be filled with oil.

The bottom of the case is provided with a flange suitably notched to accommodate mounting screws if it is desired to fasten the Condenser to the table.

In material, workmanship and finish, these Condensers maintain the high standard of Federal apparatus.

No. 81—7 Plate	\$6.40 each
No. 82—11 Plate	6.55 each
No. 83—21 Plate	7.10 each
No. 85—43 Plate	8.65 each



No. 82



No. 54

THORDARSON AMPLIFYING TRANSFORMERS

No. 54—This is a Shell Type Audio Transformer, wound with silk covered wire. The coils are wound in separate sections and placed side by side on the core. The core is twice the cross section of that of the ordinary transformer and is made of special 1 mil high silicon steel. Has low distributed capacity. Ratio 3½ to 1. Mounted on brass and nickered frame. Bakelite terminal board.

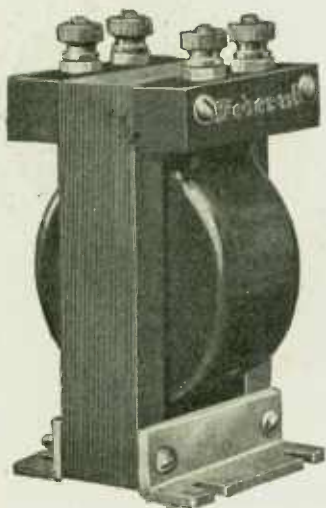
Price, Standard New Type, each.....\$4.00
 No. 54A—6 to 1 ratio. Price each..... 4.50

FEDERAL AMPLIFYING TRANSFORMER

No. 226—original amplification transformer. Its correct design and careful, perfect workmanship insures the best of results in any type of amplification circuit. It is especially compact. Winding ratio, 3 to 1. Audibility amplification is claimed to be 20 times on first step and 400 times on second step. Fully mounted. Price.....\$5.50



No. 286



No. 65

FEDERAL NO. 65 AUDIO

The latest development in Audio Transformers. A real he-man size instrument designed by Federal engineers after years of experiments have brought out this magnificent transformer and, in our opinion, is absolutely the best that money can buy. This transformer brings out the natural tones of voice, high pitched instruments and low music in a band or orchestra that has long been sought in radio.

No. 65. Price\$7.00

B-T AIR CORE R-F TRANSFORMER

All Ratios up to 4 to 1.

Special circulars and information covering any of the above on request.

Special Green Silk Bank Wound.

Price\$2.50

BRANSTON 4 to 1 Ratio Air Core Neutrodyne Transformer. Price\$1.85



No. 66

FEDERAL RADIO FREQUENCY TRANSFORMER



No. 29

Federal Radio Frequency Transformers are designed to give amplification over the definite band of wavelengths as indicated by their wavelength ratings and in these conservatively chosen ratings and transformers give extraordinary amplification.

	Price
No. 29— 175 to 300 meters.....	\$6.60
No. 30— 275 to 600 meters.....	6.60
No. 31— 500 to 1,000 meters.....	6.85
No. 32—1,000 to 3,000 meters.....	7.10
No. 35— 220 to 500 meters.....	6.60
No. 40—Mountings, as shown above .....	.95

DURATRAN

The Dubilier Radio Frequency Transformer is designed for a wave length band of 225 to 550 meters.

Has an amplification factor of 15 to 25.

The transformer is mounted in a hard rubber case. Liberal spacing of the terminals to prevent surface leakage and reduce capacity between the connecting wires, is an outstanding feature.

The terminals are plainly marked and on the back of transformer is shown a conventional circuit diagram.

No special form of circuit is necessary. Will amplify very satisfactory in any form of radio frequency circuit.

Operates on all standard tubes.

Price\$4.00



No. 69

ACME RADIO FREQUENCY TRANSFORMER

An iron core transformer with proper windings and material to give maximum results. Acme quality throughout. Mounted in moulded bakelite case.

Price\$5.00

R-1 wave length range 150-300 meters.

R-2 wave length range 200-600 meters.

R-3 wave length range 250-700 meters.

R-4 wave length range 175-500 meters.

For broadcasting wave lengths use Acme R-2, R-3 and R-4.

For amateur wave lengths use Acme R-1, R-2 and R-4.

For REFLEX see circuits in rear.



PREMIER "HEGEHOG"

AUDIO FREQUENCY TRANSFORMER

Maximum Volume, Minimum Distortion, 100 Per Cent Shielded, Mounts Anywhere
THIS LITTLE WONDER



Is a super-efficient Audio Frequency Transformtr, scientifically designed and developed to a high point never before obtained. It is the smallest, most compact yet highly efficient Audio Frequency Transformer thus far developed and is not surpassed. It will surprise you with its purity of tone and great volume.

HOW IT'S MADE

The Coil Windings, primary and secondary, are automatically wound to the required number of turns with No. 44 copper wire, then thoroughly impregnated by a special vacuum process to give the highest possible insulation resistance.

The Core, which plays so important a part in making the "HEGEHOG" the wonder that it is, has a definite number of very fine, special alloy silicon wire which is so distributed and bent around the coil as to completely enclose it, thus producing a full magnetic field of highest efficiency and making the "HEGEHOG" 100 per cent shielded. In making the "HEGEHOG" the wonder that it is, has a definite number of very fine, special alloy silicon wire which is so distributed and bent around the coil as to completely enclose it, thus producing a full magnetic field of highest efficiency and making the "HEGEHOG" 100 per cent shielded.

Terminal wires are six (6) inches long, thus dispensing with troublesome binding posts and allowing connections to be made direct to other apparatus which reduces high resistance contacts to a minimum.

Small and Compact, being about one-half the size of all other makes of transformers. It is appreciated by those desiring to make the small compact receiving sets now so much desired, mounts either on panel or base.

No. 103. Audio, Ratio 1 to 3. Price.....	\$3.50
No. 104. Audio, Ratio 1 to 4. Price.....	3.50
No. 105. Audio, Ratio 1 to 5. Price.....	3.50
No. 110. Audio, Ratio 1 to 10. Price.....	4.50



ERLA

REFLEX TRANSFORMERS

Unequalled range and power, Erla quality in every transformer. 200 to 900 meters.

No. 1026 Reflex No. 1.....	\$5.00
No. 1028 Reflex No. 2.....	5.00

See circuits in back of catalog.

Erla Radio Frequency, Cascade Type Transformers, AB1, AB2, AB3, each**\$4.00**

ERLA IMPROVED AUDIO TRANSFORMERS

Erla audio frequency transformers, likewise, embody exclusive characteristics, in addition to their peculiar fitness for reflex work, that enables them to surpass markedly results obtained with other types.

Particularly noteworthy is th eaccurate balancing of magnetic permeability and magnetic saturation, attained through the original core design. Unequaled purity of tone and freedom from disturbing noises result from this unique achievement. Remarkable also is the completeness and effectiveness of the magnetic shielding, entirely eliminating all transformer interaction.

So pronounced is the improvement attained by these measures that Erla transformers can be used for as many as three stages of amplification, without appreciable impairment of tone quality or modulation.

Equally as important as the exclusive elements of design embodied in Erla transformers are the advanced, scientific methods employed in their manufacture, for the purpose of insuring positively unvarying results.

No. 1029 3½ to 1 Ratio	\$5.00
No. 1030 6 to 1 Ratio	5.00



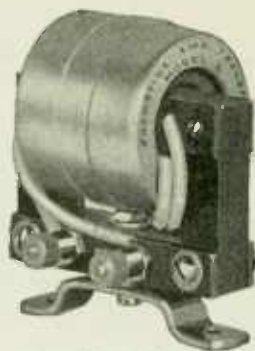


No. 55A

RHAMSTINE AMPLIFYING TRANSFORMER

No. 55A—A very efficient transformer, made of best material obtainable. The core is of laminated silicon steel. Ratio of primary and secondary turns accurately determined. Metal parts are nickel plated. Price\$3.50

No. 55B—Model "B" same as above, but is shielded. Price\$4.00



No. 55B

ACME AUDIO TRANSFORMERS

No. 52—Ratio 1 to 4.25. Made of highest grade material and designed for use with vacuum tubes now on the market. Guaranteed not to howl. Mounted on aluminum supports with engraved panel and nickeled binding posts.

Price\$5.00

No. 3209—Atwater-Kent Transformers, ratio 9 to 1.

Price\$6.00

ACME Super-Heterodyne Transformers\$5.00



No. 52

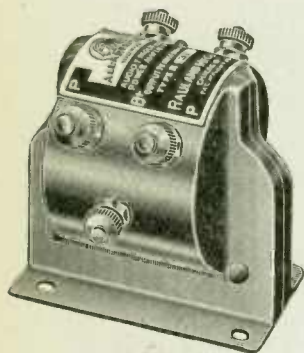
ALL AMERICAN A. F. TRANSFORMERS

All-American Transformers have a very large iron section with proper magnetic leakage. The core is made up of .007 inch high silicon steel laminations having a very low reluctance. Allowable current on primary and secondary windings, all types, 10 milliamperes. Break down tests between windings, 700 volts AC for 1/2 minute. All types are mounted and enclosed.

Type R-12—Ratio 3 to 1, primary 1,150 ohms, secondary 5360 ohms. Price.....\$4.50

Type R-21—Ratio 5 to 1, primary 940 ohms, secondary 6820 ohms. Price.....4.75

Type R-13—Ratio 10 to 1, primary 560 ohms, secondary 10,100 ohms. Price.....4.75



"ALL-AMERICAN" RADIO FREQUENCY

Universal For All Stages

Wave-Length Range 150-550 Meters

Designed for Tube Socket Mounting

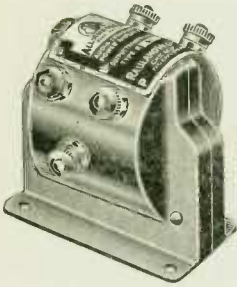
Price\$4.50

This transformer operates efficiently on wave lengths of 150 to 600 meters and is designed for use on all stages. It gives clear, sharp amplification without annoying tube noises or distortion.



Type R-10

ALL-AMERICAN PUSH-PULL POWER AMPLIFIERS



The addition of power amplification to the ordinary audio frequency amplifier solves the problem of faithfully reproducing broadcast programs with greater volume. You will surely be delighted with the purity and richness of tone that this form of amplification develops in any good loud speaker.

Input Type R-30.....	\$6.00
Output Type R-31.....	6.00

THIS POWER AMPLIFIER UTILIZES TWO TUBES

which are practically placed in parallel, because their grid terminals are connected to the opposite ends of the secondary winding of the Input transformer. The Input transformer has, of course, a primary winding. The special feature, however, is the two secondary windings, each having a common terminal which connects with the negative filament through the "c" or biasing battery. The other ends of this double secondary winding as used in the All-American Input transformer are the grid terminals. This secondary winding is sometimes referred to as a "split" winding; in that case the center tap is the same as the common terminal just referred to. The advantage of the double secondary winding is that the impedance of both will be exactly the same. This is important, due to the balancing action described below. **Three circuits are furnished with each pair of transformers.**

This method applies an EMF on the grids of these two tubes exactly 180 degrees out of phase. In other words, one tube is in operation during one-half of the cycle, while the other tube functions during the other half. This action therefore "balances out" or neutralizes the distortion or harmonics usually produced when only one tube is used.
(See circuit in back of catalog).

ALL-AMERICAN SUPER-HETERODYNE TRANSFORMERS

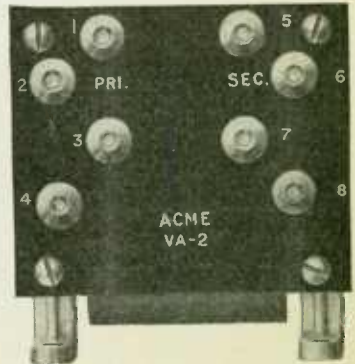
Intermediate 3,000 to 25,000 METERS, each.....\$6.00

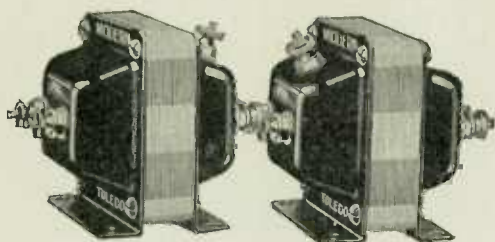
**ACME VARIABLE RATIO AUDIO FREQUENCY AMPLIFYING TRANSFORMER
TYPE VA-2**

ANY RATIO YOU WANT

Although the Acme Apparatus Company is not in sympathy with different ratio audio frequency transformers, we have produced the VA-2 variable audio transformer for those who desire to follow the advices of the other school of radio engineers who advocate such apparatus. As great differences of opinion exist among them as to the proper different ratios to use the Acme VA-2 with its fifteen ratios gives the operator the ability to experiment for his own best results.

Price\$7.00



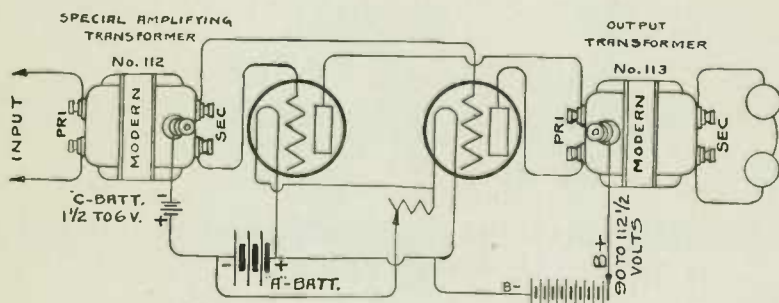


MODERN TAPPED AMPLIFYING TRANSFORMERS

PUSH PULL SYSTEM

The hook-up in the diagram gives very excellent results but there are many modifications in the wiring as suggested in recent radio magazine articles.

Any standard tubes manufactured in this country can be used as the impedance of these tubes is practically the same, about 20,000 ohms. The results will be slightly different, however, depending upon the amplification characteristics of the tubes themselves. The diagram calls for 90 to 112½ volts "B" battery but very good reception can be secured with only 67½ volts. It is not advisable to use over 112½ volts as the windings would be put under a very severe strain and the results do not justify it.



The use of this extra stage of application will add no distortion to the set but if there is any distortion in the preceding stage it will be carried through, so therefore it is very important that the transformers used ahead should be as distortionless as possible.

For best results on 3rd stage use 90 volts separate "B" Battery.

Both tubes must be placed on the same rheostat.

Where a total of three stages is used, the loud speaker itself must be capable of handling a large amount of current and still give clear reception. There are several of this character to be had including some with adjustable diaphragms suitable for attaching to phonographs. The latter combination is highly recommended.

One No. 112 and one No. 113 Transformer, List price \$12.50 for the set of two.

KELLOGG RHEOSTATS



No. 501

The Kellogg Rheostat is simple in design, having but one movable part. The resistance wire is carried on a rotor of high grade insulating material and the contact arms are so placed that a slight movement brings in the one-half turn of the wire, giving a vernier effect.

The knob is the same type as on the Kellogg dial.

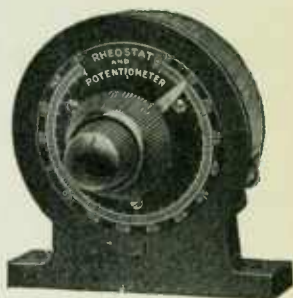
- No. 501—Rheostat, 6 ohms\$1.50
- No. 502—Rheostat, 25 ohms\$1.50

POT-RHEO COMBINED POTENTIOMETER AND RHEOSTAT

The Potentiometer has now come into extensive use on account of gaseous detector tubes and radio frequency amplification.

The ACME Pot-Rheo combines in a small space, and same mounting, a 200-ohm wire wound potentiometer and a 6 or 30 ohm wire wound rheostat. The controls are concentric bakelite knobs. This attractive, well-made unit may be used either table mounted or panel mounted.

Price, each\$3.00

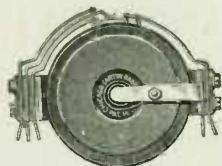


No. 2039

CARTER AUTOMATIC CONTROL RHEOSTAT

The automatic plate circuit control rheostat, when used for each stage of amplification, entirely eliminates first and second stage jacks, change-over switches and filament control jacks. The springs operate when rheostat is started, switching plate circuit automatically, the same as moving the plug from one jack to the next. Has smooth running contact point; heavy phospher bronze springs; clock spring pig-tail insures positive connections. Standard vernier control type is positive in operation. Mounts in any position on panels of various thickness; knob and pointer, drilling template for locating mounting screw holes, and circuit diagram furnished.

- No. 3— 6 Ohms, price each\$2.25
- No. 3-C—20 Ohms, price each 2.50
- No. 3-D—30 Ohms, price each 2.50

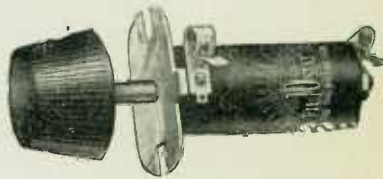


No. 3

THE FILKOSTAT

It is a filament control, designed to use the great tuning possibilities of the tube itself. Fine adjustment of fractional currents makes it ideal for dry cell tubes. Absolutely silent, non-microphonic and free from noise. No current variations, resistance constant at any setting. No discs to break or chip. Fully guaranteed.

Filkostat. Price\$2.00



No. 14

CARTER RESISTANCE UNIT

Used in series with 6 ohm rheostat when using 301-A or 199 tubes. Well made. Easily installed.

- No. 15-A—15-ohm unit for 201-A and C-301-A. Price\$0.50
- No. 25-A—25-ohm unit for 199 and 299. Price50



No. 15

HOWARD RHEOSTATS



No. 1146

No. 1146—7, 25 or 40 ohms.....\$1.10

All sliding contacts are made of phosphor contacts. Diameter of base 2 5/32 inches. Appearance.

No. 927—This is the most simple, smooth running, efficient rheostat on the market. It has a single knob control, an automatic, instantaneous adjustment of the micrometer portion.

Price with knob, 7, 25 or 40 ohms.....\$1.50

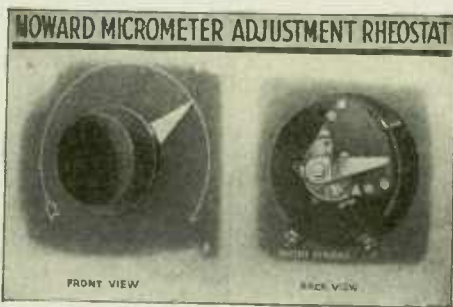
No. 928—Same as above, but with special dial which shows exact position of the vernier.

Price 7, 25 or 40 ohms\$1.75

Designed to give perfect satisfaction under constant service conditions, this Rheostat has gained instant popularity among radio fans. The base and knob are made of a special heat resisting composition and will never lose their shape or finish under the most severe service conditions.

The resistance element consists of a seasoned fibre strip upon which a special non-corrosive resistance wire is wound under tension so that the turns will never come loose.

The total resistance is 7 ohms, while the resistance per turn is approximately .06 ohm. This resistance remains constant under working conditions due to the fact that the temperature coefficient of the wire is practically nil. Carrying capacity 1.5 amperes. Rheostat is very compact and neat in appearance.



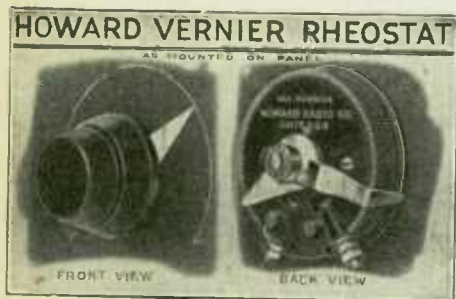
No. 927

HOWARD RHEOSTAT DIAL

No. 929—Price\$0.25

No. 918—A vernier rheostat with variations down to 1-1000 of an ohm. Will produce current changes of approximately one milli-ampere. Vernier adjustment through knob.

Price, 7 or 40 ohms\$1.75



No. 918

No. 225—A high grade instrument for use on "B" battery, especially adapted for short wave, radio frequency circuits. Winding is of non-corrosive enameled resistance wire. Resistance, 200 ohms. Price\$1.50

No. 227—400 ohms 2.00



No. 225

UNITY VERNIER RHEOSTAT

No. 253—A rheostat that permits of finest vernier control at any degree of resistance of a battery current. This is necessary for best results with the modern critical tubes. A special feature is the cut-off switch arrangement which permits current to be cut on or off by a slight push in or out of the controlling knob, without disturbing the adjustment on the resistance sector. Compact rugged, easily mounted. Bakelite base. Molded bakelite knob. Resistance 8 or 30 ohms. Capacity, 3 amperes.

Price\$1.75



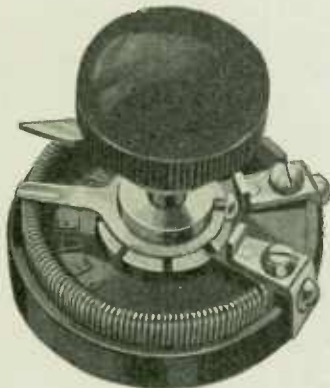
No. 253

FEDERAL POTENTIOMETER

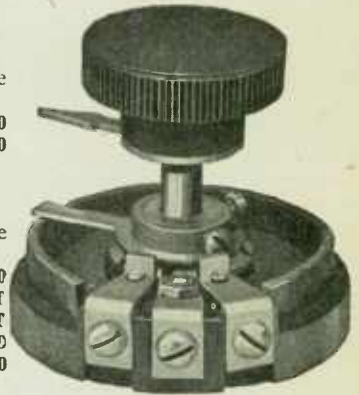
For panel or table mounting. 200 ohms.
No. 24\$1.50
No. 25—1850 ohms 2.20

Federal Filament Rheostat

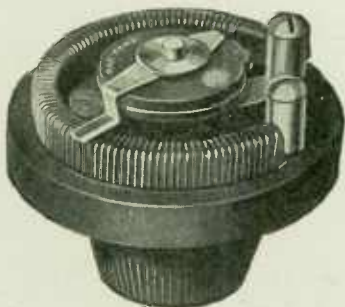
For panel or table mounting.
No. 18—6 ohms\$1.10
No. 19—5.5 ohms.... 1.10
No. 22—25 ohms.... 1.50
No. 23—Duplex 1.70
No. 26—60 ohms.... 1.60
No. 27—All tubes, Triplex 1.90



No. 18



No. 24



No. 120-A

FADA RHEOSTATS
Panel Mounting Rheostat

Over one-half a million Fada rheostats are being used by radio fans and are giving accurate control of vacuum tube circuits.

The adjustment is unusually free and smooth, allowing precision filament current regulation, which is so necessary for radio long distance reception.

Improved construction and the use of special non-absorbent insulating strip and heat resistance base make Fada rheostats mechanically perfect.

The power tube type is used in radio frequency amplifier circuits and for controlling several tubes with the one rheostat.

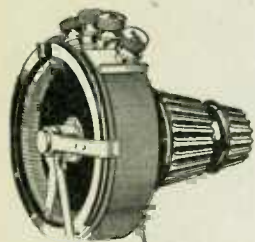
FADA POTENTIOMETERS

Unbelievable delicate control of radio radio frequency amplifier circuits is possible using FADA potentiometers.

No. 152-A (200 ohm)\$1.00
No. 154-A (400 ohm) 1.00

No. 153A—8 ohm for No. 201A or 301A tube\$1.00
No. 120-A—Receiving Type Rheostat (6 ohms, 1½ amperes)\$0.75
No. 121-A—A Power Tube Rheostat (1½ ohms, 6 amperes) 1.20
No. 155A—Vernier 8 ohm rheostat for No. 201A or 301A tubes..... 1.50
No. 156A—60 ohm rheostat 1.00
No. 150A—Fada Vernier Rheostat.... 1.25
No. 157A—30 ohm rheostat 1.00

FROST METAL FRAME RHEOSTATS



FROST-RADIO

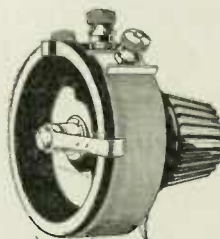
Frames are heavy sheet brass, nickel-plated, and formed to give extreme rigidity, with two windings and 2 contact arm. Designed for central single hole mounting, thimble having locating tip to prevent turning. Washers are provided for panels of varying thickness. Knob is of fluted molded type, with nickel-plated pointer. Vernier type has single knob control.

No. 600—Plain Rheostat—6 ohms	\$0.60
No. 602—Plain Rheostat—35 ohms .....	.60
No. 601—Vernier Rheostat—6 ohms .....	.75
No. 603—Potentiometer, 400 ohms .....	.60
No. 605—Potentiometer, 200 ohms .....	.60

FROST BAKELITE RHEOSTAT

Both base and knob are molded from Bakelite. Arm is smooth running. Vernier type has vernier arm, integral with rheostat arm, and controlled by single knob. Metal parts are nickel-plated, hand buffed. Single hole mounting, with locating tip on base for centering on panel. Supplied in the following types:

No. 650—Plain Rheostat—6 ohms	\$1.00
No. 652—Plain Rheostat—35 ohm	1.00
No. 651—Vernier Rheostat—6 ohm	1.25
No. 653—Vernier Rheostat—35 ohm.....	1.25

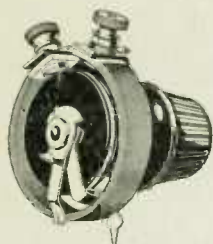


FROST-RADIO

FROST BAKELITE RHEOSTAT

A dependable rheostat with vernier and potentiometer. Has two knob control. Body is maroon molded Bakelite, knobs are black Bakelite. All adjustments are extremely fine and smooth working. Unequaled in finish, design and workmanship, and a great value. Central mounting requires but one hole in panel.

No. 607—Unit with 6 ohm Vernier Rheostat and 400 ohm Potentiometer	\$1.75
No. 610—Unit with 35 ohm Vernier Rheostat and 400 ohm Potentiometer	1.75

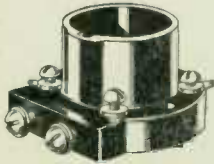


FROST-RADIO

BRADLEYSTAT

No. 253—New Universal Type	\$1.85
ACME TWIN RHEOSTAT	\$3.00

FROST SOCKETS



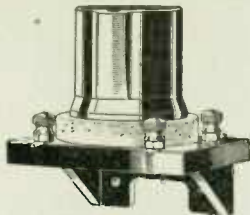
FROST-RADIO

No. 612, Bakelite Socket for C-299 tubes, panel or table mounting50c



FROST-RADIO

No. 617, Bakelite Shock Absorber Socket for C-299 tubes, panel or table mounting\$1.00



FROST-RADIO

No. 618, Bakelite Shock Absorber Socket, Standard base, panel or table mounting\$1.00



No. 118-A

Vacuum Tube Sockets

No. 118-A—Single Socket (patent pending)\$1.00

AJAX RHEO SOCKET.....PRICE \$2.00
 No. 742—Combination Rheostat and Socket Panel Mounting\$2.00

These are made from highest quality moulded bakelite, polished. Advanced design and improved methods of construction make these items best of all for radio use.

Note our new shock-absorber sockets, cushioned with finest sponge rubber, and fitted with fusible coiled "lead" wires which remove all direct contact with the base and make these sockets absolutely non-microphonic. Note also that they may be used for either table or panel mounting. Metal parts are nickel-plated, polished and hand buffed. Construction throughout the very best—and fully guaranteed by the name of the maker.

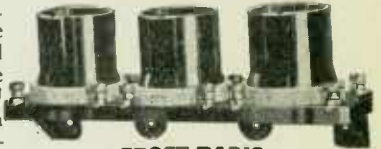
The construction of these sockets reflects the best and newest of radio design. Phosphor bronze contact springs are moulded into the Bakelite—no possibility of their working loose as in a screw assembly.

FROST ADAPTER



FROST-RADIO

No. 611, Bakelite Adapter for C-299 tubes50c



FROST-RADIO

No. 619, Bakelite Shock Absorber Gang, Standard Base \$2.75



FROST-RADIO

No. 616, Bakelite Shock Absorber Gang, C-299\$2.75



No. 121-A

VACUUM TUBE SOCKETS

Only Fada sockets can be had in single, double and triple types. And only Fada sockets have the off-set tube shell allowing compact mounting.

Rheostat Socket Panel

BASE—Genuine condensite. Single size, 2½x 2½ inches. Double size, 5x2½ inches. Triple size, 7½x2½ inches.

No. 122-A—Double Socket (patent pending)...\$1.85

No. 123-A—Triple Socket (patent pending)... 2.70

Contact Springs—Phosphor bronze, securely held in milled grooves.

Socket Shell—Heavy brass tubing with bayonet lock jointing, 2½ inches, center to center.

Mounting—Tapped metal inserts allow shelf mountings to panel. Holes in base for fastening to bench.

AMERICAN GENUINE RED BAKE-LITE SOCKETS

- No. 267A—For standard tubes.....\$0.50
- No. 267B—For WD 11 tubes..... .50
- No. 267C—For 199 and 299 tubes..... .50

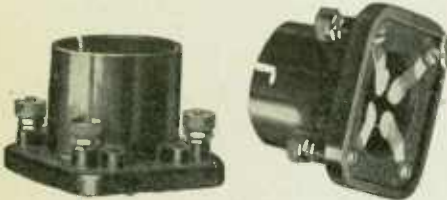


No. 740

ERLA AND CHELTEN SOCKETS

No. 740—A very high grade socket of polished nickeled brass, mounted on bakelite base\$0.75

KELLOGG SOCKETS



No. 266-A

No. 266A—No. 2 Kellogg moulded red condensite. A high grade socket, unaffected by heat. Brass plate in recess avoids breaking.

Price\$0.75



No. 16

FEDERAL VACUUM TUBE SOCKET

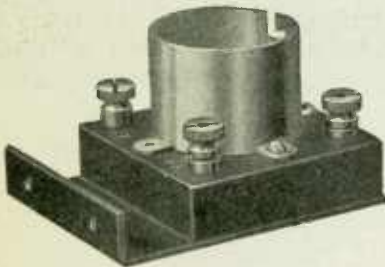
For Table Mounting

- No. 16\$1.00
- No. 14—For 199 and 299 tubes..... 1.00

NA-ALD SOCKETS

Genuine Red Bakelite

- Standard DeLuxe\$0.75
- Na-Ald for 19950
- Small Space Standard35



No. 21

FEDERAL VACUUM TUBE SOCKET

For Panel Mounting

No. 21\$1.20



DUBILIER CONDENSERS



No. 119 and 120

No. 600B — Without
Grid Leak Mounting.

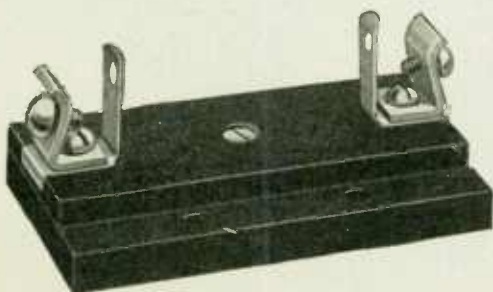
Capacity in Mfds.	Price
.001	\$0.75
.002 .....	.75
.0025	1.00
.003	1.00
.004	1.00
.005	1.00
.006	1.25

DUBILIER BY-PASS CONDENSERS

Eliminates noises and increases signal strength. Used across the "B" battery in Westinghouse and other radio sets. Try it and note the remarkable improvement. For best results use at least 1 mfd.

.1 mfd.	\$0.70
.25 mfd. ....	.75
.5 mfd. ....	.90
1	1.25
2	1.75
3	2.75
4	3.75
5	4.00

**FEDERAL GRID CONDENSER AND
GRID LEAK MOUNTING**

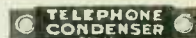


No. 119 and 120

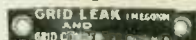
No. 119—Mounting only, each..... \$0.50
No. 120—With Condenser in Base,
each

..... .75

AMERICAN CONDENSERS



No. 101



No. 106

No. 101—Phone .001, .002 mfd. \$0.20
No. 102—Grid, .0005 mfd..... .20
No. 103—Grid, .00025 mfd..... .20
No. 106—Grid, .0005, and Leak,
1 meg.; .00025 and 1 meg.... .20
No. 107—.006

..... .30
American Condensers are made of mica and brass. Very good for a low price condenser.



No. 1 MFD

FEDERAL GRID LEAK

Adjustable



No. 121

No. 121— 1/2 meg, each..... \$0.75
No. 122—1 meg, each..... .75
No. 123—1 1/2 meg, each..... .75
No. 124—2 meg, each..... .75
No. 125—2 1/2 meg, each..... .75
No. 126—3 meg, each..... .75
No. 127—3 1/2 meg, each..... .75
No. 128—4 meg, each..... .75
No. 129—5 meg, each..... .75

DUBILIER MICADONS

Dubilier Condensers have always been known for their permanent capacity. They owe their efficiency to the fact that in the first place mica is used as the dielectric between the thin metal sheets and that, in the second place, a special compound takes the place of the air that remains between the elements. The condenser elements are then pressed to form a solid mass. It is impossible for the sheets to dilate and contract, and hence there can be no fluctuations in capacity.

Every Micadon is tested with 1000 volts alternating current to insure a wide factor of safety. Capacities not listed may be obtained with Type 601 Micadons by connecting more than one in series or multiple as required.



No. 601

Type 601—.0001, .00025, .0005	35c
Type 601—.001, .002, .0025	40c
Type 601—.003, .004	50c
Type 601—.005	60c
Type 601—.006	75c

Type 601G



With grid leak clips, add 10c to list of type 601. Grid leaks not included.

Type 610

.001 Mfd.	\$0.75
.002 Mfd. ....	.75
.0025 Mfd. ....	.75
.003 Mfd.	1.00
.004 Mfd.	1.00
.005 Mfd.	1.00
.01 Mfd.	1.25
.02 Mfd.	1.50



No. 610

No. 600—With Grid Leak Mounting.

Capacity		Price
in Mfds.		
.0001	\$0.75	
.00025 .....	.75	
.0005 .....	.75	
Grid Leak Mounting only.....	.35	



CRL ADJUSTABLE GRID LEAK

A CRL Adjustable Grid Leak is designed for mounting on the panel through a single hole. Its use permits the adjustment of the grid potential to the exact value that provides the maximum signal strength. By turning the polished black knob, the resistance of the leak can be gradually and smoothly changed to any desired value between 1/2 and 4 megohms.

The instrument has a Bakelite base on which is mounted a fabric strip, the ends of which are connected to the two binding posts. The compression block is operated by a screw attached to the operating knob.

If desired, CRL Adjustable Grid Leaks can be furnished complete with condenser (see illustration) or they may be purchased without the condenser.

No. 1969—Adjustable Grid Leak (without Condenser)	\$1.50
No. 1968—Adjustable Grid Leak (with Condenser)	1.85



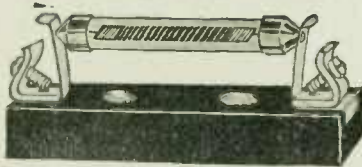
No. 1968

FEDERAL R. F. BY-PASS CONDENSERS

No. 130—1-10 Microfarad, each	\$0.50
No. 131—1-20 Microfarad, each .....	.50
No. 132— $\frac{1}{2}$ Microfarad, each .....	.75
No. 133—1 Microfarad, each	1.00
No. 134— $1\frac{1}{2}$ Microfarad, each	1.25



PRECISION GRID LEAKS



No. 1306

An accurate grid leak for the exacting radio man. In glass case to fit Radio Corp. and Dubilier grid condensers and mountings. From .05 to 9 megohms\$0.50

It is unnecessary to purchase a "Precision" Grid Leak for each resistance value required, since $\frac{1}{2}$, 1 and 2 Megohms, when used in combination, give the following resistances: $\frac{1}{2}$, 1, $1\frac{1}{2}$, 2, and up to 9 megohms in stock.

$\frac{1}{2}$, 1 and 2 Meg. in parallel.....	.285	1 Meg only	1.5
$\frac{1}{2}$ and 1 Meg. in parallel.....	.33	$\frac{1}{2}$ and 1 Meg. in series	1.5
$\frac{1}{2}$ Meg only .....	.5	$\frac{1}{2}$, 1 and 2 Meg. in series.....	3.5
48,000 ohms Grid Leak Resistance		Grid Leak Mounting.....	\$0.35
			\$1.00

KELLOGG CHOKE COILS



No. 501—



No. 502



No. 504

No. 501—10 Millihenry open core choke coil, \$1.00
 No. 502—5 Millihenry open core choke coil, Price\$1.00
 No. 503—100 Millihenry iron core choke coil\$1.35
 No. 504—1 Henry iron choke coil\$1.35

No. 510—12,000 ohm non-inductive resistance.. \$1.75
 12,000 ohm non-inductive molded resistance, \$0.50



No. 706

No. 706—Chelten Variable Grid Leak, Black, with N. P. Hardware. Can be varied with the use of a lead pencil.

Price\$0.20



DURHAM VARIABLE LEAK

Variable Grid Leak provides a leak that is adjustable over a wide range and will maintain its value after setting.

Durham Leak Mounting	\$0.30
No. 100—1,000-100,000 Ohms .....	.75
No. 101—100,000-5,000,000 Ohms .....	.75
No. 201-A—2 megohms to 10 megohms.....	.75



No. UV200

RADIOTRON TUBES

- No. UV200 Detector\$ 5.00
- No. UV201-A Amplifier .25 amp..... 5.00
- No. UV202 5-W Transmission 8.00
- No. UV203 50W Transmission 30.00
- No. UV204 250-W Transmission .. 110.00
- No. WD11 Tube for 1½ volt Dry Cell, used either as detector or amplifier 5.00
- No. UV199 .06 amp. 5.00
- No. WD12, same as WD11 with standard base 5.00

CUNNINGHAM TUBES

- No. C-300 Detector\$ 5.00
- No. C-301-A Amplifier .25 amp..... 5.00
- No. C-302 5-W Transmission 8.00
- No. C-303 50-W Transmission 30.00
- No. C-304 250-W Transmission110.00
- No. C299 .06 amp... 5.00
- No. C11 .25 amp. 1½-v., same as WD11 5.00
- No. C12, 1½-v. 5.00
- Same as WD12.



No. C301

Western Electric Power Tubes

Each \$12.00

NA-ALD SOCKETS



No. 499

For UV 199 and C299 Tubes.

No.499—Made of moulded bakelite and of good quality.

Price\$0.50

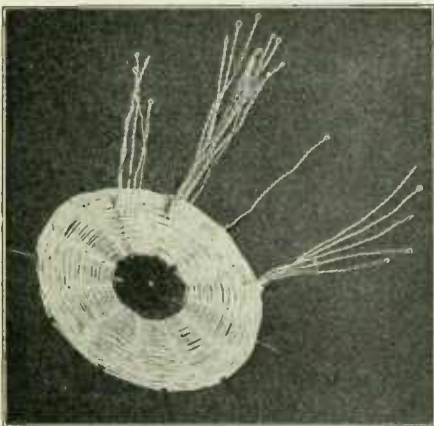
FADA VERNIER ATTACHMENT



Can be quickly applied to most any make of rheostat having a 3-16-inch shaft converting it into a vernier rheostat.

No. 151-A—Vernier Attachment.....\$0.50

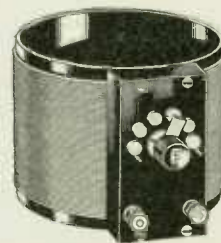
REINARTZ COILS



No. 2224

For Reinartz Circuit; of double green silk, very neat and efficient. No. 22 wire \$2.00

FROST INDUCTIVE UNIT



FROST-RADIO

No. 631—Bakelite Inductance Unit for short wave sets. Complete as shown.\$2.50

BRANSTONS MOUNTING ARE MADE OF GENUINE BAKELITE



No. R61—\$5.00

No. R61—Three Coil Geared type Front Panel Mounting—just what you have been waiting for. List price...\$5.00 Substantial gears give vernier adjustment no danger of stripping gears. Complete with flexible leads—Genuine Bakelite.



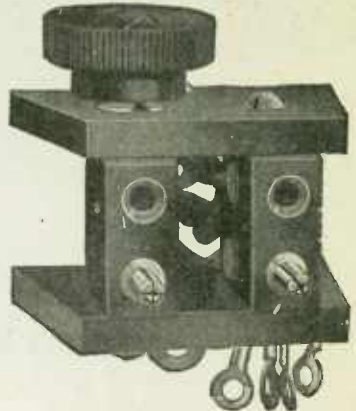
No. R73—\$4.50

No. R62—Three Coil Geared type Back of Panel Mounting. This is very compact and efficient mounting. Bevel gears give smooth movement of coils and vernier adjustment. Flexible Leads — Genuine Bakelite.



No. R62—\$6.00

No. R73—Regular Three Coil Mounting, the neatest and most efficient on the market.



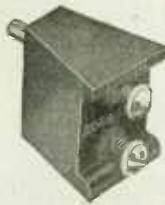
No. R71—\$3.25

No. R71—Standard Two Coil Mounting, complete with leads.



No. R74—50c

No. R74—Bakelite Coil support complete with clamps for fibroid Strip.



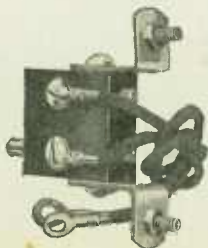
No. R75—50c

No. R75—Bakelite Single Panel Mounting with screws and washers at rear.



No. R77—50c

No. R77—Bakelite Single Panel Mounting with angle clamps.



No. R68-69—90c

No. R68—Single Movable Bakelite Plug with extension angle brackets and flexible leads.

No. R69—Same as No. R68 only stationary

REMLER BAKELITE COIL PLUGS

These plugs are molded from genuine bakelite and are given a highly polished black finish. Metal parts are uniform in size and all plugs are interchangeable.



PANEL PLUG

Metal bushings are fitted with two nickel-plated screws for panel mounting. This plug is needed in every radio set. Shipping weight about 4 oz.

No. 42—Price each 50c



COUPLING PLUG

Used in making two or three coil mountings with variable coupler. Plug is drilled to take extension handle. Shipping weight about 6 ounces.

No. 43—Coupling with 4 nuts. Price each.....90c

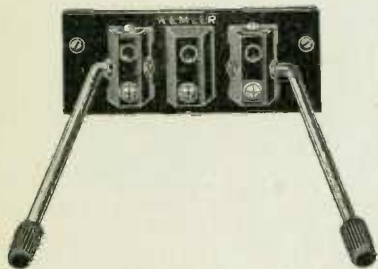


COIL PLUG

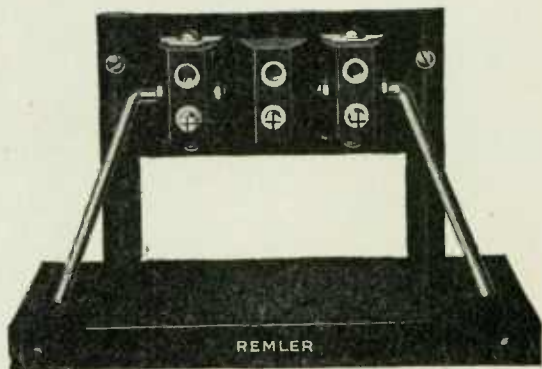
Same size as panel plug and fitted with two metal clamps used in connection with fibre strip for mounting coil. Shipping weight about 4 oz.

No. 40—Price each.....50c

REMLER 3 COIL MOUNTINGS



No. 410—Price\$4.00



No. 400—Price\$6.50

REMLER No. 44 EXTENSION HANDLE



This handle is used on the No. 400 Coil Mounting and fits No. 43 and 46 coupling plugs. The brass rod is nickel-plated and fitted with molded insulating handle. Two hexagon nuts provided for locking on plug. Length $5\frac{1}{4}$ inches.

Remler No. 44 Extension Handle\$0.30

BRANSTON INDUCTANCE HONEY COMB COILS



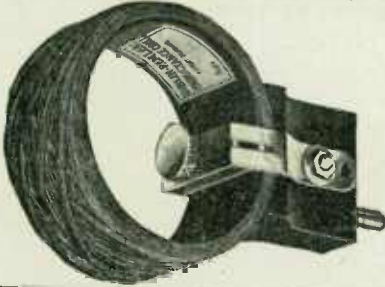
No. DL 250

All coils have an inside diameter of 2 inches, a width of 1 inch, and outside diameter varying from 2 1/4 to 4 1/2.

Catalog No.	Milhenries Inductance Appx.	App. Wave Length Range in Meters in shunt with ordinary .001 Mfd. Variable Air Condenser	Mounted on Plug Price	Unmounted
DL-25	.040	130-375	\$1.25	\$0.50
DL-35	.075	180-515	1.25	.50
DL-50	.15	240-730	1.30	.55
DL-75	.3	330-1030	1.35	.60
DL-100	.6	450-1460	1.40	.65
DL-150	1.3	660-2200	1.45	.70
DL-200	2.3	930-2850	1.55	.80
DL-250	4.5	1300-4000	1.60	.85
DL-300	6.5	1550-4800	1.70	.95
DL-400	11.	2050-6300	1.90	1.15
DL-500	20.	3000-8500	2.10	1.30
DL-600	40.	4000-12000	2.25	1.45
DL-750	65.	5000-15000	2.40	1.60
DL-1000	100.	6200-19000	2.80	1.90
DL-1250	125.	7000-21000	3.10	2.20
DL-1500	175.	8200-25000	3.40	2.50

HONEYCOMB COILS SUGGESTED FOR USUAL WAVE LENGTH RANGES

Type of Service	Wave Length Range (Meters)	Primary Coil Cat. No.	Secondary Coil Cat. No.	Ticker Coil Cat. No.	Condenser Series
Amateur	145-350	DL-35	DL-25	DL-35	Series
Special Amateur	305-710	DL-75	DL-50	DL-35	Series
Commercial	635-1660	DL-150	DL-100	DL-75	Series
Navy Calling	845-1970	DL-200	DL-150	DL-100	Series
Arlington Time	1420-2850	DL-300	DL-250	DL-150	Series
Navy Ship Arcs	2550-4250	DL-200	DL-300	DL-150	Parallel
Navy Station Arcs	4200-6300	DL-500	DL-400	DL-200	Parallel
Foreign and Press	6250-14500	DL-750	DL-1250	DL-400	Series
Foreign and Press	13600-21000	DL-750	DL-1250	DL-400	Parallel



GIBLIN-REMLER INDUCTANCE COILS

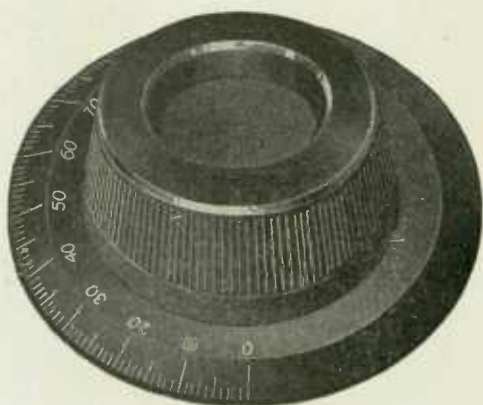
The new Giblin-Remler coil presented herewith was designed by Thomas P. Giblin, the inventor of both the Honeycomb and Duo-Lateral Coils, and is superior to either of these. It is equally effective on all wave lengths. The self capacity is far less than any previous compact inductance, thus giving selectivity and sharp tuning for a given coil.

Coil Only, Not Mounted				Coil and Plug, Mounted, Complete			
No. Catalog	turns Number of	weight Shipping	Each Price	No. Catalog	turns Number of	weight Shipping	Each Price
RG 25	25	6 oz.	\$.70	RG 25M	25	1 lb.	\$1.50
RG 35	35	6 oz.	.70	RG 35M	35	1 lb.	1.50
RG 50	50	6 oz.	.80	RG 50M	50	1 lb.	1.60
RG 75	75	6 oz.	.85	RG 75M	75	1 1/2 lbs.	1.65
RG 100	100	8 oz.	.90	RG 100M	100	1 1/2 lbs.	1.70
RG 150	150	8 oz.	.95	RG 150M	150	1 1/2 lbs.	1.75
RG 200	200	9 oz.	1.00	RG 200M	200	2 lbs.	1.80
RG 250	250	11 oz.	1.10	RG 250M	250	2 lbs.	1.90
RG 300	300	12 oz.	1.20	RG 300M	300	2 lbs.	2.00
RG 400	400	14 oz.	1.30	RG 400M	400	2 lbs.	2.10
RG 500	500	14 oz.	1.50	RG 500M	500	2 1/2 lbs.	2.30
RG 600	600	14 oz.	1.60	RG 600M	600	2 1/2 lbs.	2.40
RG 750	750	14 oz.	1.85	RG 750M	750	2 1/2 lbs.	2.65
RG 1000	1000	14 oz.	2.50	RG 1000M	1000	2 3/4 lbs.	3.40
RG 1250	1250	14 oz.	2.90	RG 1250M	1250	2 3/4 lbs.	3.80
RG 1500	1500	14 oz.	3.50	RG 1500M	1500	2 3/4 lbs.	4.40

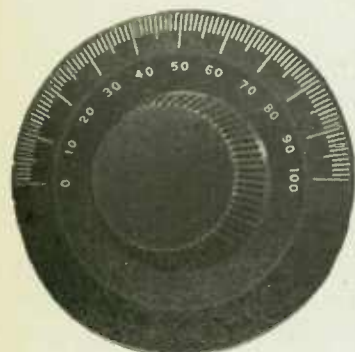
FEDERAL KNOB AND DIAL

The No. 7 Knob and Dial incorporates a generously large, well-shaped milled knob with carefully engraved dial—the whole unit being made of phenolic condensation material of extraordinary beauty and utility. The Knob is exceptionally large and makes unnecessary, because of its size and the ease of gripping, any such Vernier adjustment as has heretofore been necessary.

No. 7—With Wrench and Bushings	\$1.50
No. 3—3" .....	.65
No. 12—2" .....	.40



No. 7



No. 107-A

FADA INSTRUMENT DIALS

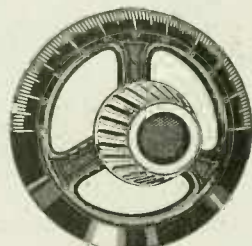
"These dials are different." Moulded bakelite, highly polished, extremely neat, graduated. Knobs shaped to meet most exacting conditions of experienced operators. Graduated 0—100 degrees, zero on left. The set screw is so placed that the dials will fit a short shaft.

No. 107-A—Instrument dial 3-inch, $\frac{3}{8}$ -inch shaft hole	\$0.75
No. 108-A—Instrument dial 3-inch, $\frac{1}{4}$ -inch shaft hole .....	.75
No. 136-A—Instrument dial 4-inch, 3-16-inch shaft hole .....	.90
No. 137-A—Instrument dial 4-inch, $\frac{1}{4}$ -inch shaft hole .....	.90

FROST SPIDER DIAL

Moulded from black bakelite and highly polished. Spider arms diamond knurled. Divided into 100 points over 180 degrees, numbers and divisions being filled with best grade white enamel. Fitted with brass bushing for $\frac{3}{8}$ -inch or $\frac{1}{4}$ -inch shaft.

No. 614—Frost 2½-inch Dial.....	\$0.50
No. 615—Frost 3 -inch Dial.....	.60

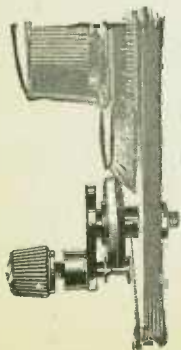


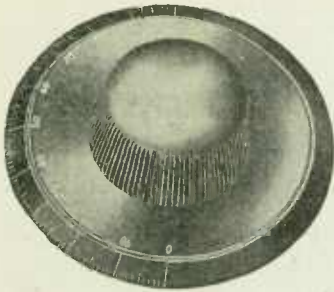
FROST-RADIO

TINY TURN KNOB

One of the greatest aids to fine tuning on the market. The gear ratio is 30 to 1, making it easy to tune in that elusive distant station. For either variometer or condenser dial. Easy to install; only one hole to drill.

Tiny Turn Knob.....	\$0.75
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**ELECTROSE
DIALS**

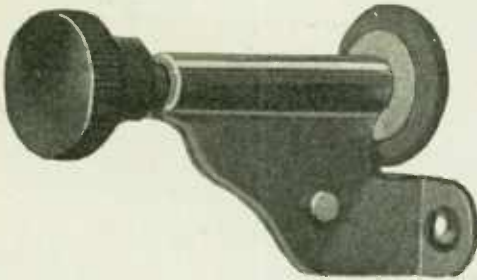
No. 14 — The
Electrose Dial is
of high quality,
being of bakelite.
Taper know and
marked 0 to 100.
Price\$1.50

KELLOGG DIALS



All Bakelite. Non-warp-
ing, reinforced construc-
tion. $\frac{5}{16}$ -in. shaft, with
bushings for $\frac{1}{4}$ -in. and
 $\frac{3}{8}$ -in. shafts included.

No. 501—3-in. Dial.....\$1.00
No. 502—4-in. Dial..... 1.25



No. 291

“Q-R” VERNIER ADJUSTER

No. 291—Once attached to panel, needs
no further attention and will last a life-
time. Practically eliminates capacity ef-
fects from the hands.....\$1.50

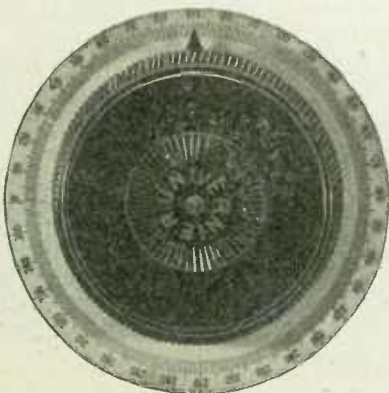
FLERON DIAL ADJUSTER

No. 2091—Absolutely
necessary for close tun-
ing. Will fit any dial.
A slight pressure oper-
ates this device.

Price\$0.65

No. 2092—Hayden
& Fenton Dial
Adjuster\$0.50

No. 2093—Walnert
Dial Adjuster25



No. 2096

No. 2096—The UNIVERNIER provides ultra
fine vernier adjustment and is an instrument
of precision. It is a tapered knob, well de-
signed, and made of moulded composition of
high dielectric quality. Inside this knob is a
simple mechanism so arranged that rotation
of the knob is nearly twelve times that of the
instrument shaft. Light pressure towards the
panel permits coarse adjustment and causes
the UNIVERNIER to function as the ordinary
knob, thus combining delicate and coarse ad-
justments in a single unit. The pointer rotates
with the shaft and indicates the TRUE posi-
tion of the instrument and rotates through 320
degrees.

No. 2096—Price\$1.00

No. 2097—With Silver Plated 360 Degree
Scale 1.25

No. 2098—Mahogany with Gold Plated
360 deg. Scale 1.50

BURGESS "B" BATTERIES

"Assure Clear Receiving"

No. 4156

Price \$1.50 each No. 2156

Price \$2.50 each



Size—Length, 3 $\frac{3}{8}$ ";
width, 2"; height,
2 $\frac{1}{2}$ ".
Weight, 1 pound.
Flexible wire ter-
minals. Normal

maximum voltage
22.5 with tap to give
18 volts from the
negative.

Approximate ca-
pacity at 3.0 milli-
amperes 150 hours,
but lightest in
weight of the block
batteries. Signal
Corps Type BA-2.

Excellent shelf life
and light weight
make it adaptable
for areoplane, port-
able and small sta-
tionary sets.



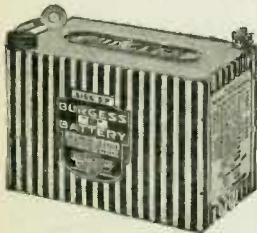
Size—Length, 6 $\frac{5}{8}$ "; width, 4"; height, 3".
Weight, 5 pounds.

Binding post taps. Normal maximum
voltage 22.5 with taps to give 16.5, 18, 19.5
and 21 volts from the negative.

Approximate service at 3.0 milliam-
peres, 1500 hours. The largest and long-
est "B" battery, usually referred to
as "Navy Type." Especially suited for
stationary sets where space and weight
are not an important factor.

No. 5156

Price \$1.90 each



Size—Length, 4 $\frac{1}{8}$ "; width,
2 $\frac{1}{8}$ "; height, 2 $\frac{3}{4}$ ".
Weight, 1 pound 9 ounces.
Flexible lead with flat
connector on positive ter-
minal, binding post on
negative terminal. Normal
maximum voltage, 22.5.

Approximate capacity at
3.0 milliamperes 400 hours.
This is an intermediate
type which will fit into
the cabinet of most sets
using dry cell electron
tubes.

VERTICAL TYPE

No. 2158

Price \$2.50 each
Size—Length, 4";
width, 3"; height,
6 $\frac{3}{4}$ ". Weight, 5
lbs.

Binding post
terminals. Normal
maximum voltage
22.5. Electrical
c h a r a c t e r i s t i c s
same as No. 2156.

The advantages
of this battery is
that it occupies
minimum table
space, will fit in-
side most receiv-
ing cabinets, and
can be used in
any position. Con-
venient in form
for use with dry
cell "A" batteries.



No. 2306

Price \$5.00 each



Size—Length, 7 $\frac{7}{8}$ "; width, 6 $\frac{5}{8}$ "; height, 3".
Weight, 0 $\frac{1}{2}$ lbs.

Binding post taps. Normal maximum
voltage 45 with taps to give 16.5, 18, 19.5,
21 and 22.5 volts from the negative.

This battery is the equivalent of two
No. 2156 wired in series. Electrical char-
acteristics are the same as the 2156.

No. 5158

Price \$1.90 each

Size—Length, 2 $\frac{1}{2}$ "; width
2 $\frac{1}{2}$ "; height, 6".
Weight, 2 pounds.

Binding post terminals at
top. Normal maximum vol-
tage, 22.5.

Approximate capacity at
3.0 milli-amperes, 400 hours.

This battery is designed
especially for use in sets
employing No. 6 dry cells
for filament current. Its
dimensions and weight are
those of the ordinary No. 6
"A" battery, and this fea-
ture of similarity in size
makes it possible to place
both the "A" and the "B"
batteries in the same cabi-
net without waste of space;
to interchange the positions
of these batteries in
self-contained sets; and to
set up a compact unit
containing both the "A" and
the "B" bat-
teries.



BURGESS "C" BATTERIES

No. 5360

Price \$0.40 each



Size—Length, 2 $\frac{1}{4}$ " width, $\frac{11}{16}$ " height, 2 $\frac{7}{8}$ ". 4.5 volts. Weight, 4 ounces. Flexible wire terminals.

Three cell, 4.5 volt battery of regular Burgess construction, which assures a long shelf life. Estimated life on "C" circuit of approximately 1000 hours.

No. 2370



Price \$0.60 each

Size — Length, 4"; width, 1 $\frac{3}{8}$ "; height, 3". Weight, 1 lb. Binding post terminals. Three cells. Normal maximum voltage 4.5.

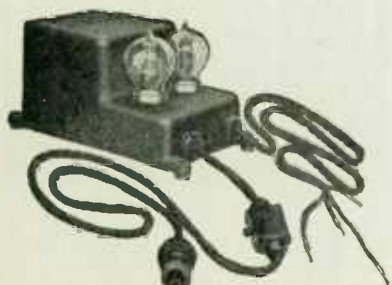
Estimated life on "C" circuit of approximately 1500 hours.

No. 5540



Price \$0.85 each
Size — Length, 4"; width, $\frac{7}{8}$ "; height, 2 $\frac{7}{8}$ ". Weight, 9 oz. Binding post taps and flexible wire terminal. Five cells, Normal maximum voltage 7.5 with taps to give 3.0, 4.5, 6.0 and 7.5 volts from positive.

Estimated life on "C" circuit of approximately 1000 hours.



No. 2A

No. 6 "A" DRY BATTERY

Size 2 $\frac{1}{2}$ -in. diameter, 6-in. high, weight 2 pounds. For use with dry cell tubes. No. 6—Price\$0.55



No. 6



No. 232

No. 232
Size 1 $\frac{3}{8}$ x7"
Three cells.
Normal voltage 4.5.
For use in portable sets on the "A" circuit on C299 and UV199 tubes
Price \$0.50



No. 5541—Burgess 6-volt "Hot Shot" "A" battery for No. 201A tubes\$2.50

WESTERN ELECTRIC POWER SUPPLY UNIT 2A

(For use with Western Electric Loud Speaker 10-A)

This Power Supply Unit connected to the lighting current takes the place of all batteries otherwise needed for Speaker 10-A, and is to be used only for this outfit. This unit can be connected with any 110 volt, 60 cycle power supply.

Western Electric Power Supply Unit 2-A (complete with tubes, cords and lightp lug)\$71.00

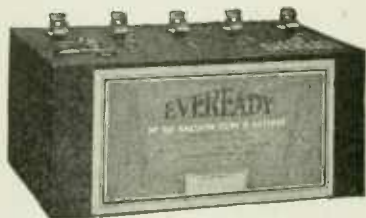
EVEREADY "B" BATTERIES



No. 763—22½ volts...\$1.50



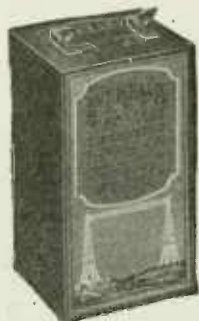
No. 768—22½ volts...\$1.90



No. 766—22½ volts...\$2.50



No. 767—45 volts.....\$5.00



No. 764—22½ volts...\$1.90

No. 771—(Eveready "THREE") contains 3 cells, 4½ volts, equipped with 5 Fahnestock Spring Clip Connectors, giving variable voltage at 1½, 3, 4½ volts. Length, 4 in.; Width, 1¾ in.; Height, 3 in.; Weight, 14 oz. Price.....\$0.70



EVEREADY DRY CELL RADIO "A" BATTERIES

1½ VOLTS



No. 7111

A single 6-inch Dry Cell having Fahnestock connectors and put up in an attractive round fibre or square paper jacket. price\$0.50



No. 7211

A two-cell battery connected in multiple, having two insulated knurled terminals and put up in a fibre case. price\$1.10



No. 7411

A four-cell battery connected in multiple, having two insulated knurled terminals and put up in a handsomely lithographed steel case. Price\$2.50

WILLARD STORAGE "B" BATTERIES

These "B" Batteries possess many advantages not found in others. External electrical leakage is made practically impossible by a wide air gap between cells. It would take a pressure of about 2,000 volts to jump the gap between adjacent cells, and a still higher voltage to bridge the even wider gap between rows of cells.

In preventing electrical leakage, the use of glass jars as containers for the individual cells plays a big part, glass being a superior insulating material. They also enable one to see the condition of every cell at all times—when water should be added and just how much; when the plates are beginning to show signs of requiring recharging, and, also, when they are sufficiently recharged, as indicated by the "gassing" in the cell.

The connectors, too, are a feature of no little importance. They are many times the size of the wires commonly used between cells in a dry battery and much heavier than those used in the ordinary radio storage battery, so that they cannot be easily broken. For another, instead of being screwed or soldered on, they are burned on which makes connector and post virtually one piece. This means absolutely tight connections.

In each cell, extra heavy plates are used, and between them, instead of wood insulators as in the ordinary radio storage battery, there are Willard Threaded Rubber Insulators, made of hard rubber pierced with thousands of tiny threads. This is the same insulation as is used in the finest Willard automobile batteries. It lasts longer and permits a more uniform flow of the solution than does wood, and prevents "treeing" or internal leakage.

Recharging is easily and economically accomplished with the Colloid Rectifier.

Type	Capacity	Vlts.	Lgt.	Wdt.	Hgt.	Wt.	Price
CBR-124.	24	8	6¼	7¾	18	\$12.00
CBR-127.	48	12½	8⅞	7¾	35	23.00
CBR-125. 4.5 amp. at ¼	2	1⅝	Diam.	7¼	1¼	.82
CSR-124.	24	6⅞	4⅞	5¾	9½	9.50
CSR-127.	48	9⅞	6⅞	5¾	18	18.50
CSR-125. 2.5 amp. at ¼	2	1⅝	1⅝	5¾	0.7	.66
CTR- 12 amp. at 1	2	2½	Diam.	9	¾	2.50
Colloid Rectifier for charging the above						2.00



Type CBR-124, 24 Volts



Type CTR
2 Volts



Type CSR-124., 24 Volts

KIC-O STORAGE "B" BATTERIES

are made from Edison electrodes which do not sulphate and are not harmed by accidental short circuiting, charging at twice or three times their normal rate, or from a reasonable amount of overcharging. The elements are firmly and properly attached into couples and placed into extra heavy glass cells mounted in cabinets with treated racks. White mineral oil is supplied to cover the solution in each cell stopping creeping and rapid evaporation.

The panels are highly finished and engraved, containing the proper switches for adjustment of 1.4 volts each on the detector circuit and close adjustment of the amplifier circuits. High quality materials are used throughout, making a battery which will fit in with the most expensive equipment used. Series-paralled switches are mounted on the 100 and 145 volt panel type which make it possible to recharge the entire battery by simply turning the switch after connecting one of our rectifiers to two binding posts and turning on the 110 volt lighting current. The smaller panel batteries are also charged by connecting two binding posts. Plain batteries are supplied with clips for adjustment.

The advantage of KIC-O Storage "B" Batteries are many compared with the ordinary types. Many report clearer and louder signals immediately after installing, and it is not unusual for us to receive repeat orders for larger batteries from customers who have been using our batteries over one year. When used on detector and two or three stages of audio-frequency amplification, it is customary to get from two to six months on a single charge, as they do not discharge while idle. The continual replacing of deteriorated "B" batteries ceases and noises due to rapid deterioration are eliminated.

All that is needed is from one to two quarts of distilled water. A hydrometer is handy for filling the cells, but is not needed to tell the state of charge, as this is indicated by the voltage.

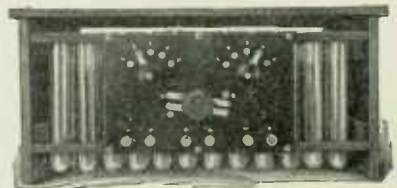


No. 619

		No. 619	Plain	With Panels
16 Cells	22 Volts.....		\$ 5.50	\$
24 Cells	32 Volts.....		7.25	11.75
36 Cells	48 Volts.....		9.50	14.00
50 Cells	68 Volts.....		12.50	17.00
78 Cells	100 Volts.....		17.50	22.50
108 Cells	145 Volts.....		23.50	28.50

Approximate shipping weights and dimensions:

Volts	Length Inch.	Width Inch.	Height Inch.	Weights	
				Panels Lbs.	Clips Lbs.
145	16½	10½	7%	28	26
100	17	7½	7%	20	18
68	13¾	6½	7%	17	15
48	11	5½	7%	16	14
32	9	5½	7%	12	10
22	7	5½	7%	....	10



No. 620
100 VOLT PANEL TYPE
 No. 620—Complete Unmounted
 Cells for "B" Batteries, 1.4
 volts each\$0.18
 No. 621—Rectifiers\$1.00
 No. 622—Mounted Rectifiers...\$2.50

WILLARD "A" BATTERIES

Type **WRR** Six Volt "A" Battery. Extra heavy plates with **Threaded Rubber Insulators** assembled in a **Hard Rubber Monobloc** container. Made in five sizes.
 Type **FR** Six Volt "A" Battery. A high-grade Battery with **Threaded Rubber Insulators**. Individual jars assembled in an acid proof case. Made in two sizes.



Type	Amp. Hrs.	Price
WRR 97	20	\$13.80
WRR 0	50	21.10
WRR 1	80	28.00
WRR 2	100	34.50
WRR 3	125	41.30
FR 3	80	21.80
FR 5	120	27.40

ALL WILLARD RADIO BATTERIES HAVE THREADED RUBBER INSULATION.

WESTINGHOUSE BATTERIES

Westinghouse Re-Chargeable "B" Batteries

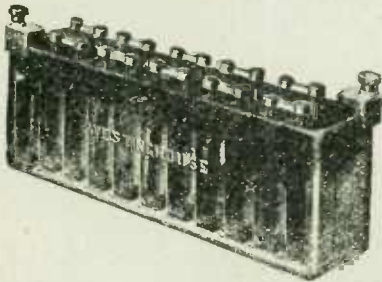
Westinghouse crystal-case "B" Batteries are plainly visible as to operation and interior. These batteries are very neat in appearance, compact and easy to keep dry and clean. They are entirely free from noise during operation.

Every "B" battery requirement is met by the Westinghouse types 22-MG-2 and 22-LG-2. Both of these batteries are contained in eleven compartment unit glass jars which have hard rubber covers imbedded in compound. They are thoroughly sealed.

Type 22-MG-2 is the proper type for the average receiving set and has ample capacity to operate a receiver consisting of a detector and two stages of amplification for three to four weeks on a charge.

One 22-MG-2 battery is necessary for the detector tube.

The 22-LG-2 battery has about four times the capacity of the 22-MG-2 battery and is recommended where the amount of current required is greater than that required in the average receiving set or where the user has no means of recharging and desires a battery which will require less frequent recharging.

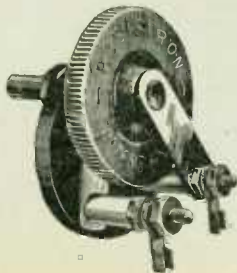


22-MG-2

PRICES:

Type	Volts	Amp. Hrs. at 3 Amp. Rate	Price
22-MG-2	22	1.2	\$ 7.95
22-LG-2	22	4.5	14.15

"RESISTRON" PRECISION VARIABLE GRID LEAK



It is the only variable resistance offering stability of range, low as required and high as necessary. It is not affected by time, use, nor climatic changes; is always constant and reliable.

"RESISTRON" enables the operation of the vacuum tube at its maximum efficiency as an amplifier of weak signals.

And Radio Engineer will tell you that the mutual conductance, space current, volume, distortion, sensitivity are all subject to control by the high resistance unit.

Increases selectivity. Softens the Radio voice and music. Enables the reception of true tone values. Price.....\$2.00

CAMEL RADIO "A" BATTERIES

Camel Radio "A" Batteries are made by expert labor and not by students, and each operation in their construction is rigidly inspected and each Battery thoroughly tested before being stocked, and again before shipment. Therefore Camel Radio Batteries are conscientiously guaranteed against any defect in material or workmanship for two years, by The Campbell Electric Co.

Camel Radio Batteries are encased in a solid oak case with a natural wood finish, and are carefully sealed with a high grade sealing compound. The positive post is plainly marked, besides being red, as is the negative, which is black. The Battery is fitted with a convenient carrying handle.

Camel Radio Batteries are better than most and as good as any other Radio Batteries built, and are better looking.



No. 60
The Real Radio Battery

TYPES S

6-V. 40	A. H.	.....	\$15.00
6-V. 60	A. H.	.....	17.00
6-V. 60	A. H.	.....	\$17.00
6-V. 80	A. H.	.....	19.00
6-V. 100	A. H.	.....	22.50
6-V. 120	A. H.	.....	27.00
6-V. 135	A. H.	.....	32.00
6-V. 150	A. H.	.....	37.00

American Radio Battery

6-volt, 100 ampere hours

No. 58—This is a high grade radio battery especially adapted for radio work. Built of finest materials, which are rugged in construction and will out last most batteries made.

This has a genuine Rub-Tex case and cover and equipped with handle.

FULLY GUARANTEED

Price\$20.00

No. 59— Without wood case cover.

Price \$18.00



EVEREADY STORAGE BATTERIES



EVEREADY STORAGE BATTERIES

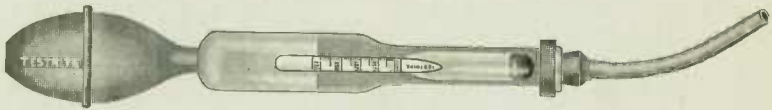
These batteries come up in every way to the same high quality for which all Eveready products are known. In addition their beauty of finish makes them especially popular for home use. They are specially designed and finished for radio use. Tapped to permit using 2, 4 or 6 volts.

- No. 6810— 50 ampere hour.....\$15.00
- No. 6860— 90 ampere hour..... 18.00
- No. 6880—110 ampere hour..... 20.00

GOODRICH STORAGE BATTERY MATS

No. 591—Radiomat, a flexible rubber mat for parlor use to set storage battery on. Very neat. Size 15x15 inches. Price\$125

TESTRITE BATTERY HYDROMETER



No. 110

- No. 100—Hydrometer. Price\$0.50
- No. 110—Hydrometer, medium. Price60
- No. 120—Large Hydrometer. Price75

BATTERY CLIPS

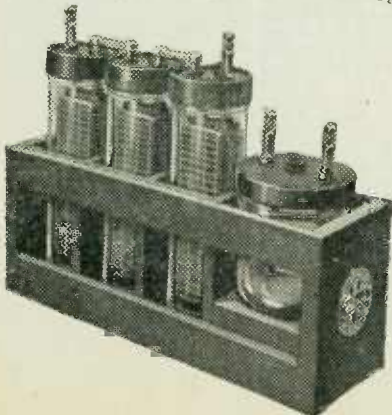


No. 151



No. 153

- No. 151—Lead coated for "A" Battery.....\$0.20
- No. 152—Morse Eureka, for "B" Battery10
- No. 153—Copper test clip20
- No. 653—Pee Wee Spring Clip for "B" Battery07
- No. 654—Lead Coated "A" Bull Dog Clips..... .15



WILLARD "A" BATTERY WITH RECTIFIER

Type CTR 97 Willard Battery, with rectifier in same case, for all "A" tubes. Also used for "199" tubes by using only two cells. An "A" battery with rectifier that lists at\$12.00

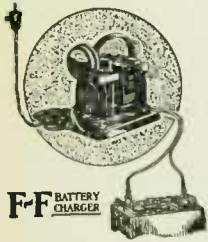
FF BATTERY CHARGER

Ten years of successful experience in the manufacturing of battery charging equipment entitles the makers of the F-F Battery Charger to the name of leaders in their line.

The F-F Battery Charger operates on 100-130 or 220 volts, 50 to 60 cycles, alternating current. The current is rectified by means of adjustable, non-fusible contactors that cannot stick. It is self-excited and will recharge a thoroughly run-down battery. It is shock proof.

Average charging rate 6 amperes. Prices on greater capacities furnished on application.

Price—Type A \$15.00
 No. 903—"B" Battery Attachment, price..... \$2.50
 No. 905—Type A-B for charging "A" and "B" Batteries.... 20.00
 No. 904—Valley Charger, price \$18.00



F-F BATTERY CHARGER

GOLD SEAL HOMCHARGER

A fool-proof, shock-proof, self-polarizing battery charger, producing from 5 to 7 amperes. Designed to charge "A" and "B" storage batteries. Approved by The National Board of Fire Underwriters. Fully guaranteed by both factory and distributor.

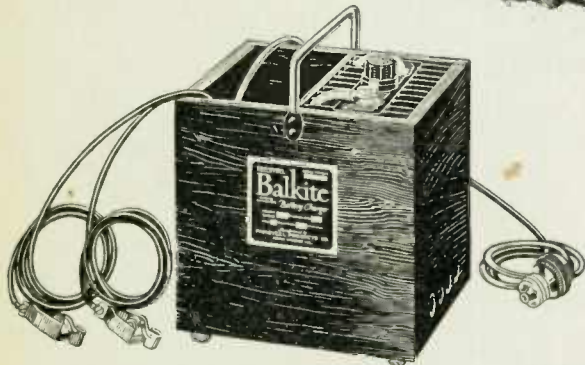
Gold Seal Radio Homcharger, built in mahogany finished cabinet with rubber feet, complete, ready to operate.
 Price \$18.50 each



Fansteel BALKITE BATTERY CHARGER

For Charging Radio "A"
Batteries.

Fansteel Balkite Battery Charger—Noiseless—Efficient—Practically indestructible—No springs—No contacts—No vibrators—No bulbs—No moving elements—Nothing to adjust—Nothing to replace—The Balkite cannot fail to operate.



Fansteel Balkite Battery Charger—A noiseless, fool-proof, efficient and practically indestructible battery charger. Especially designed for charging Radio "A" batteries in the home.

This charger cannot deteriorate through use or disuse. It is entirely noiseless in operation. It has no moving or fragile parts to wear out or break. There are no delicate vibrators or bulbs to replace. There is nothing to adjust. It requires no attention, except an occasional filling with distilled water. It cannot fail to operate, and the only operating instructions are that the charger be properly connected to the battery and that the line current be turned on.

It can be used while the radio set is in operation without danger of burning out tubes. This charger cannot discharge the battery. It cannot short circuit. It delivers a taper charge which decreases as the battery becomes charged, so that damage by overcharging is impossible. It is unaffected by fluctuations in line voltage or by extreme temperatures. It will charge a completely dead battery. It is the simplest and

most efficient charger made, ideal for home use, and indestructible except through abuse.

This type of charger is entirely new, and is constructed under the Fansteel Balkite Patents. It depends for its action upon Fansteel Balkite, a new and rare metal developed for this purpose. This metal serves as a valve which allows current to flow only in one direction, into the battery. Fansteel Balkite is the most efficient battery charger valve made. It is not attacked by wet corrosion of any sort, and cannot deteriorate in the electrolyte used.

The Fansteel Balkite Battery Charger will charge the ordinary 6-volt battery at a 3 ampere rate, the rate recommended by battery manufacturers. It operates on the ordinary 110-120 A. C., 60-cycle current. It is very economical consuming about the equivalent of a 75-watt lamp. Furnished complete with all necessary leads, etc., ready for use.

This charger may also be used to charge automobile batteries, and if instructions are carefully followed, to charge radio "B" batteries.

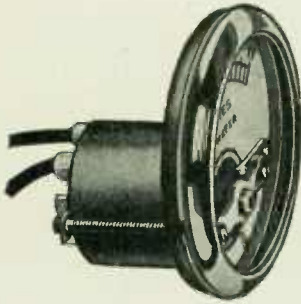
Price \$19.50

PANEL METERS—Hoyt Peep-Hole Meters

Hoyt meters are well built, by a reliable firm. Finish very attractive. Require only 3/4 inch hole in panel.

Peep-hole meters are real protection for vacuum tubes. You won't overload them when you mount this accurate meter on your panel.

The multipliers are built for the 0-10 volt instrument only. Connections of any of these in series changes the voltmeter to a two range instrument.



No. 3021

No. 3020—Hoyt Ammeter, range 0— .8	\$3.00
No. 3021—Hoyt Ammeter, range 0— 1.2	3.00
No. 3023—Hoyt Voltmeter, range 0— 6.	3.00
No. 3024—Hoyt Voltmeter, range 0—10.	3.00
No. 3025—Hoyt Voltmeter, range 0— 2.	3.00
No. 3026—Hoyt Multiplier, 3—1 (30 volts) .....	.75
No. 3027—Hoyt Multiplier, 5—1 (50 volts) .....	.75
No. 3028—Hoyt Multiplier, 10—1 (100 volts)	1.25

STERLING PORTABLE RECTIFIER

No. 900—For charging storage batteries from lamp sockets of 110 volt, 60 cycle. Alternating current. 6 volt, charging rate 6 amperes.

A high grade rectifier that saves expense and trouble. Very simple to operate and no possibility of overcharging or injuring battery. Charging rate automatically decreases as battery becomes charged. Weighs 8 pounds and is completely equipped with rubber covered charging leads and heavy spring clip terminals, and 10 feet twisted lamp cord and socket plug. Price, 60 cycle

No. 901—For 25 cycle



No. 900

TUNGAR RECTIFIERS

No. 2106—Made by the General Electric Co. Especially adapted for Radio batteries. Will deliver 5 amperes per hour. Complete with tube and all wire connections. Price

No. 2107—2-Ampere Tungar Rectifier, complete with tube and all connections. Price

Instructions for installing and operating with each outfit.

No. 2108—5-Ampere Bulb for No. 2106. Price

No. 2109—2-Ampere Bulb for No. 2107. Price



No. 2106

WESTINGHOUSE RECTIGON CHARGERS

No. 2110—Charges 2 amperes per hour

No. 2111—Charges 5 amperes per hour

No. 2112—Charges 2 amperes "A" battery with adapter for charging "B" batteries

No. 2113—Tube for No. 2110.....

No. 2114—Tube for No. 2111.....



No. 2110

SPECIAL BRANSTON APPARATUS FOR SUPER-HETERODYNE

The Engineers of the Branston Company have been developing these Transformers especially for this circuit and we know they are far superior to anything that has hitherto been available for this class of work.



The R93 Antennae Coupler

is especially designed for using antennae if desired instead of a loop. Price.....\$4.50

R90—Special Oscillator Coupler

Correctly designed to yield very best results. It covers a band of wave lengths from 150 to 800 meters and generates the maximum amount of current.

Price\$5.00



R91 and R92

R91—Intermediate Radio Frequency Transformer is designed to work on a high wave length, where there is no code interference. It is sharply tuned and completely shielded. Three of these are employed on a seven tube set, as well as one of the **R92 Special Transformer Couplers**, which is similar in appearance to our R91 but is arranged for the last stage of intermediate frequency.

R91—Price\$6.50

R92—Price\$7.50

BRANSTON KIT—Includes 1 R90, 3 R91, 1 R92, 1 R93 with complete Instruction Book and Template. Price.....\$36.50
Complete Parts for building Seven-Tube Set\$102.18

ERLA SELECTOFORMER**LESS INTERFERENCE—MORE VOLUME**

Erla Selectoformer is a scientifically designed transformer for improving the coupling between any antenna and any receiver, with material increase in selectivity and volume.

As the name implies, Selectoformer operates both as a transformer and selector or filter, picking off of the antenna the one wave to which it is tuned and amplifying it to normal strength.

SELECTIVITY IS INCREASED

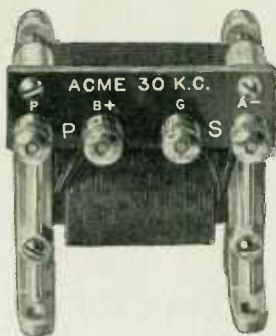
Thus is avoided the interference common to receivers that depend for selectivity upon tuning the coarse antenna system. Also, because of the amplification brought to bear, there is eliminated the loss of energy encountered in wave-traps of conventional type.



Replacing alike variocoupler and wave-trap, in all except single-tube reflex circuits, Selectoformer effects an important economy in receiving apparatus construction. And even where, as in single-tube reflex circuits, additional cost is incurred, the expense is well repaid, because of increased selectivity and signal strength.

UNEQUALED AS A WAVETRAP

PRICE \$5.00

SUPER-HETERODYNE LONG WAVE R. F. ACME 30 K. C. TRANSFORMERS

Many circuits are being devised for using long wave radio frequency transformers and, as transformer and radio engineers and manufacturers, the Acme Apparatus Company has developed the 30 Kilocycle Amplifying Transformers to fill the demand for an efficient unit of this type.

SPECIFICATIONS

TYPE—30 K. C.

COIL—Paper layer.

CORE—Special silicon steel complete iron core with definite air gap.

MOUNTING—Aluminum die castings with elongated holes in feet for fastening.

RANGE—Practically equal amplification over from 25 to 35 kilocycles.

CASCADE—May be used in cascade for several stages.

Price \$5.00 each



No. 34B

STERLING POCKET VOLTMETER

For Testing "B" Batteries

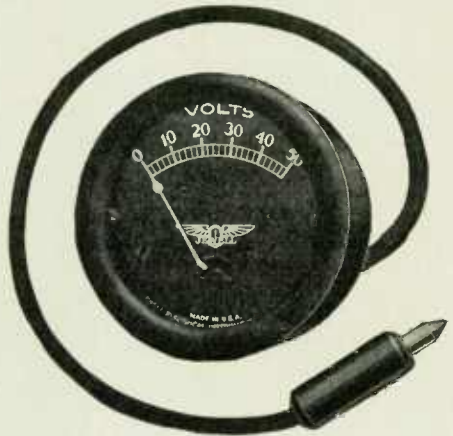
No. 34B—0 to 30 volts.....	\$2.25
No. 34C—0 to 50 volts.....	2.75
No. 24—Ammeter 0 to 35 amperes.....	1.00
No. 45—Voltammeter 0 to 50 volts and 0 to 35 amp.....	4.50
No. 44—Voltammeter 0 to 8 volts, 0 to 30 amperes.....	1.50
Flush type voltmeter, 0 to 10 volts, panel mounting.....	4.00

This little instrument is a low-priced voltmeter for the purpose of checking "B" battery voltage. It is enclosed in a black enamel case, 2¼ inches in diameter. The positive terminal is the wire, as shown, which is equipped with a small prod for taking the voltage of the various positive terminals of a "B" battery. The negative terminal is a pointed prod, permanently attached to the back of the instrument.

While not having the high accuracy of our Pattern No. 57 instrument, it is nevertheless superior to the ordinary "watch case" type of iron vane indicators being sold at very low prices. It is calibrated accurately at the 45 and 22.5 volt points, thus giving a very definite check on "B" battery conditions.

Price\$2.75

JEWELL PATTERN No. 84



JEWELL DOUBLE RANGE PORTABLE VOLTMETER



No. 541

Our double range Pattern No. 541 instrument shown fills the need for a low priced portable instrument for checking battery voltages. 0-12-120 volts is the range usually supplied, which takes care of the "A" battery under all conditions and the "B" battery up to the highest commonly used for receiving. Other ranges, such as 0-10-100, 0-10-50 or 0-8-80, can be supplied.

No. 541—Price\$10.00

JEWELL WAVEMETER

No. 90—Indications are observed by brilliancy of a small lamp which is loosely coupled to coil. Standard calibration is from 150 to 625 meters.

Price\$20.00

BRACH LIGHTNING ARRESTERS

FOR LIGHTNING PROTECTION OF RADIO RECEIVING CIRCUITS

These Arresters should be in every Radio Circuit as a protection not only against a direct lightning bolt, but against the inductive effects of lightning which more often occurs.

The function of the lightning arrester may be compared to a safety valve in a steam system. When the voltage becomes too high for the circuit to safely carry, the lightning arrester will operate, sidetracking this high voltage into the earth.

Brach Arresters have been used by the U. S. Government during the war, and since by a number of the oldest and largest radio manufacturers as regular equipment. (Approved by the National Board of Fire-Underwriters, page 101). Rule 86, Section C, of the National Board of Fire Underwriters.

"In radio stations used for receiving only, the grounding switch may be replaced by a similarly mounted and grounded short-gap (1/8 inch or less) vacuum type lightning arrester. The current carrying parts of devices must be kept five (5) inches clear of the building wall."



No. 950

By referring to the rule mentioned above, it may be noted that the Brach Arresters may be used in place of the grounding switch, thereby protecting the circuits automatically.

No. 950—Outdoor Suspended Model. Price each\$2.50
Storm King 1.00



No. 951

LITTLE JOE ARRESTER

No. 952—Little Joe Arrester, outdoor type. A well made lightning arrester that will give satisfaction and protect your set and home. Complete with bracket and screws.

Approved by Board of Underwriters.

Price\$1.25

Teleradio Lightning Arrester

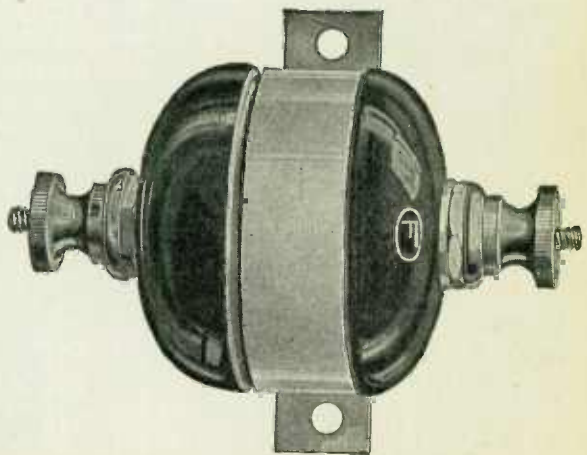


No. 949—Approved by the Board of Underwriters. Fuses can be replaced when blown.
Price\$1.00

JEWELL LIGHTNING ARRESTER

Case is moulded in one piece from porcelain with brown glazed finish. Aerial and ground connections are made to 1/4-inch brass screws and secured between specially turned up washers and heavy hexagon brass nuts. Designed for radio work.

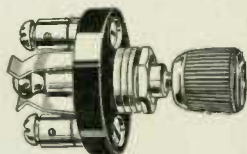
No. 951—Jewell Lightning Arrester.....\$1.10



No. 952

FROST BATTERY SWITCH

The neatest, most efficient battery switch made. Has the advantage of one-hole panel mounting, adjusting sleeves being fitted with thickness washers for panels of varying thickness. Highly nickeled brass metal parts, except springs, which are best grade nickel silver. Formica base, highly polished. No. 608—Battery Switch. List.....30c



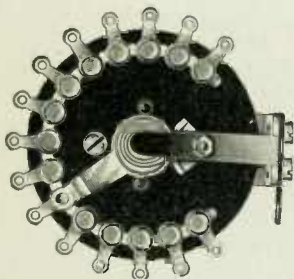
FROST-RADIO

Carter Inductance Switch

MOUNTS BACK OF PANEL

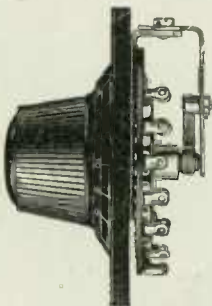
Price\$2.00

(Cuts One-half Size)



Rear view showing how terminals may be formed parallel with panels.

No sliding contacts; panel numbering eliminated; positive connections; easy to install; 15 good contacts; adjustable stop pin.



New type knob dial; large tapered knob and small dial.

Side view showing terminals at right angles with panel.

STERLING INDUCTANCE SWITCH

No. R304—Requires but three holes drilled in panel. Has twelve points.

Complete with Dial.....\$1.50



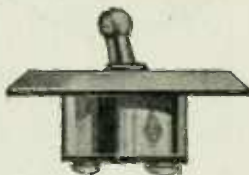
No. R304

HANDY LEVER TYPE

Toggle "A" Battery Switch, panel mounting.

C-32—Black\$0.35

C-34—Nickel plated40



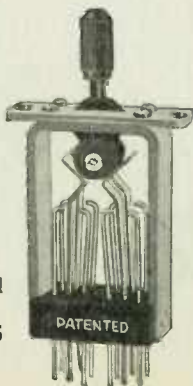
No. C32

Anti-Capacity Federal Switches

Four-Pole, Double Throw

No. 1424—Electrostatic capacity between springs is so low as to be practically immeasurable. Designed for panel mounting.

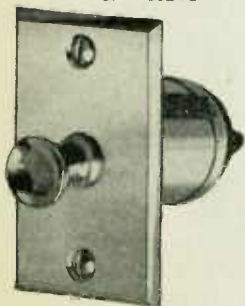
Price\$3.35



B. & S. PUSH-PULL BATTERY SWITCH

Nickel plated, panel mounting.

No. 1976\$0.45



No. 1976



No. 1150

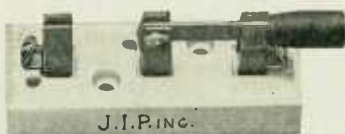
No. 1150—Knife switch, porcelain base\$0.25

HEAVY GROUND SWITCH



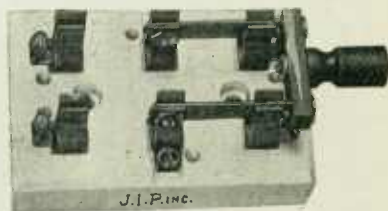
No. 1155

No. 1155—600 volt, 100 ampere, single pole, double throw. Has 6 inch lightning gaps. Approved by underwriters\$2.50



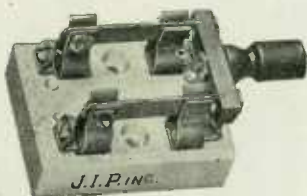
No. 1151

No. 1151—Knife switch, porcelain base\$0.35



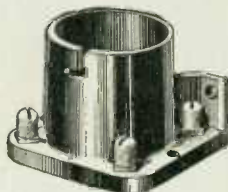
No. 1153

No. 1153—Knife switch, porcelain base\$0.50



No. 1152

No. 1152—Knife switch, porcelain base\$0.40

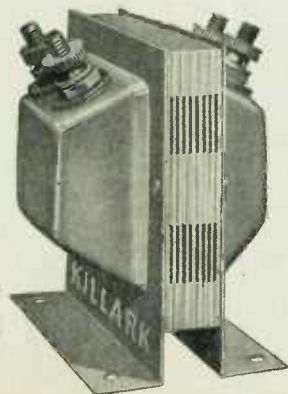


**ALL-AMERICAN
BAKELITE SOCKETS**

Red bakelite for either base or panel mounting. Cushion felt insulator.

Price75c

**“KILLARK” AUDIO-FREQUENCY AMPLIFYING
TRANSFORMERS**



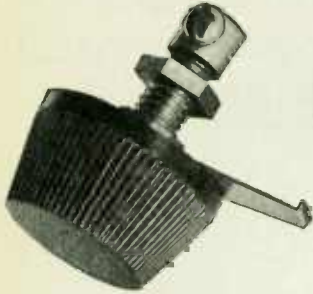
Killard audio-frequency amplifying transformers are made to operate successfully on any amplifying tube on the market. They are completely sheathed, which makes it possible to place two or more close together without any interference or howling. The ratio is four to one.

All terminals are clearly marked so that the amateur will have no difficulty when installing Killard amplifiers in his set. A diagram showing correct hook-up is packed with each amplifier.

Killard audio-frequency transformers are especially recommended for use with the new 201A and 301A tubes. These new tubes consume only one-fourth the current required for the old style tubes.

They are put up individually in neat boxes and packed fifty to a carton.
List Price, each\$4.50

Fada Switches



No. 114-A

Knob—The easiest and most convenient knob. Moulded insulating material with threaded 8-32 metal insert. Top diameter 1 inch, bottom 1 1/4 inch, height 3/4 in. Black with highly buffed finish.



No. 2141

Fit - the - Fingers
No. 114-A - "Fit-the - Fingers Knob"\$0.16

Price No. 2141—Small Knobs\$0.10

No. 111-A Inductance Switch—Varies the turns of an inductance in place of the old-fashioned slider arrangement.

Wherever a single circuit needs to be broken and other connections made the Fada inductance switch can be used to advantage.

No. 111-A—Inductance Switch\$0.40

No. 112-A—Inductance Switch, complete with eight switch points and two switch stops..... .60

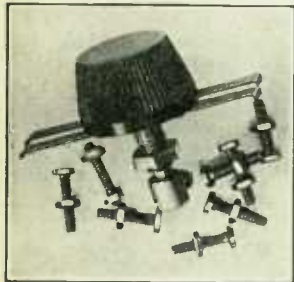


WALNERT INDUCTION SWITCH

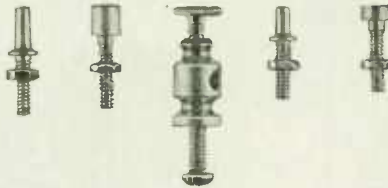
10-Point Induction Switch, with knob and dial. Requires drilling of only one hole. List price\$1.25

Switch Points and Stops

No. 11—Switch points nickel plated\$0.02
No. 12—Switch Stops, nickel plated03
No. 77 - Nickel-plated binding post05



No. 110-A



No. 77

Switch Arms

No. 252—Switch arm, 1 inch and 1 1/2 inch radius\$0.40

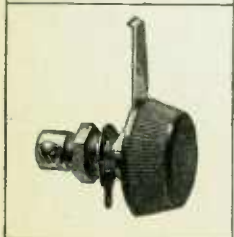


No. 252

Series-Parallel Switch—The handiest switch an experimenter can have. Designed specially to shift the primary variable condenser to parallel connection with primary inductance. Also used to change over from sending to receiving—from long wave to short wave or medium wave tuner—from audion detector to crystal detector, etc. Panel bushing, 5-16-in. shaft, 1/2-in. collar.

No. 109-A—Series-Parallel Switch.....\$0.55
No. 110-A—Series-Parallel Switch, complete with eight switch points and two switch stops.....\$0.75

HOWARD Small Knob Inductance Switch



No. 691

No. 691—Howard small knob switch arm. Very neat; radius 1 9-32-inch. Highly finished.....\$0.50

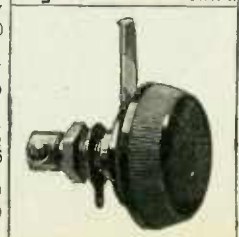
No. 692—Howard, same as No. 691, only with large knob.....\$0.50

No. 253—Kellogg, 1 9-32-inches Switch Arm, Knob. Same as shown on Kellogg Rheostat, Coil Spring Tension\$0.75

No. 254—Searde Switch Levers50

No. 255—King Switch Levers50

HOWARD Large Knob Inductance Switch



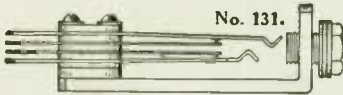
No. 692

KELLOGG JACKS

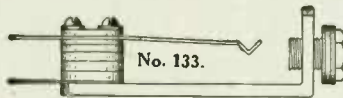
No. 501—4	Conductor	.....	\$1.10
No. 502—2	Conductor	.....	.75
No. 503—3	Conductor	.....	.80
No. 504—4	Conductor	.....	1.10
No. 505—6	Conductor	.....	1.25



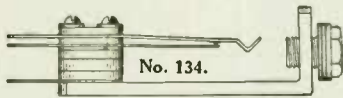
No. 501



No. 131.



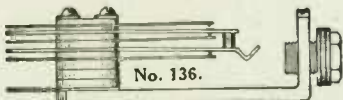
No. 133.



No. 134.



No. 135.



No. 136.

FROST PLUGS AND JACKS

The smallest, neatest, most perfectly finished jacks and plugs that have ever been offered to the Radio trade. They have been specially designed for panel work and are interchangeable with other standard makes.

A particularly desirable and exclusive feature of the FROST-RADIO Jack is the "spread" arrangement of the spring terminals which allows twice the usual amount of space for soldering to the wiring. These terminals are heavily tinned.

Our No.	Price
130, Radio Jack for neutrodyne circuit.....	\$0.90
131, Radio Jack only, two circuit.....	.80
133, Radio Jack only, Open circuit.....	.60
134, Radio Jack only, Closed circuit.....	.70
135, Radio Jack only, Filament control.....	.85
136, Radio Jack only, Filament control.....	.90
137, Radio Plug	1.25
138, Multiple Plug for 4 pr. phones.....	2.50
139, Radio Plug .....	.50
140, Two Way Plug .....	.60
Frost Extension Cord, Plug and Jack with 10 ft. twisted stranded cord.....	2.00
Each additional 10 ft. up to 50 ft.....	.25



Frost No. 137



Frost No. 139

WALKER FIVE CIRCUIT PLUGS

Accommodates Headset and Loud Speaker or two headsets—permitting instant choice of FIVE circuits without removing plug or changing tips. Made of genuine Bakelite.

Phones, Loud Speaker, Series, Parallel, Shunt.



Price **\$1.50**

FEDERAL RADIO JACKS

Federal jacks are acknowledged the standard jack for telephone use. They are standard equipment on many of the highest quality radio receiving sets. The contacts are of pure silver.



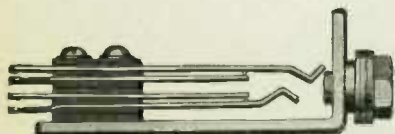
No. 1421-W

No. 1421—Open Circuit, each.....\$0.60



No. 1422-W

No. 1422-W—Closed Circuit, each.....\$0.70



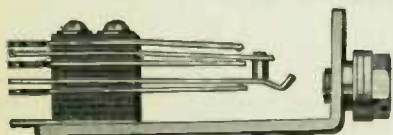
No. 1423-W

No. 1423-W—Double Circuit, each.....\$0.80



No. 1435-W

No. 1435-W—Filament Control,
each\$0.85



No. 1438-W

No. 1438-W—Filament Control,
each\$1.00

CHELTEN JACKS

No. 700—Open Circuit\$0.60
No. 701—Closed Circuit70
No. 702—Two Circuit80
No. 703—Single filament control85
No. 704—Double filament control 1.00

All Chelten Jacks are standard and the pure silver contacts are mounted on German silver spring blades.



Open-Circuit Jack
CTR. 700



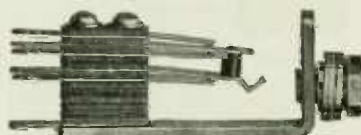
Closed-Circuit Jack
CTR. 701



Two-Circuit Jack
CTR. 702



Single-Filament Control Jack
CTR. 703



Double-Filament Control Jack
CTR. 704

American Jacks

No. 2—Two Circuit\$0.50
No. 1—Open Circuit40



Front View

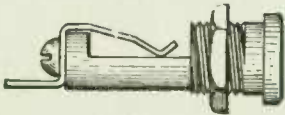
**UNION RADIO
TELEPHONE
TIP JACKS**

No. 2112—No need of binding posts. Also does away with buying expensive Jack and Plug. Used in hundreds of ways.

Price per pair\$0.25



Rear View



No. 2143—Carter "Imp." Jack.....\$0.35
Will take any cord tip.



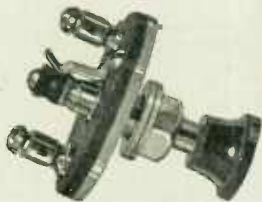
No. 2144—Carter "Imp." Plug.....\$0.15
Will take any tinsel or tip.

**IMPROVED ANTI-CAPACITY
JACKS AND SWITCHES**

They are designed to overcome the usual disadvantages of the old type jack. In the first place they are less than half as long as the old jack yet any standard plug fits them. This eliminates long parallel leads and thus reduces capacity effects.

Another important feature is that NO SOLDERING is necessary in connecting Improved Jacks. Small neat binding posts take the place of the usual soldering leaves. This feature saves time and annoyance and eliminates the possibility of connections becoming broken.

Improved Jacks are used in a circuit just like the old telephone jacks.



No. 2143



No. 2140

- No. 2138—Open Circuit Jack.....\$0.70
- No. 2139—Closed Circuit Jack..... .85
- No. 2140—Double Circuit Jack..... 1.00
- No. 2141—Single Circuit Fil. Control 1.00
- No. 2142—Double Circuit Fil. Control 1.25
- No. 2143—Single Throw "A" Battery Switch\$1.00
- No. 2145—Single Pole Double Throw Switch 1.25
- No. 2146—Detector Amplifier Switch 1.50
- No. 2147—Series Parallel Switch..... 1.50
- No. 2148—Double Pole Double Throw Switch 1.60
- Assortment one each on display board (10 pieces), price.....\$11.65
- Complete hookup circuits furnished with jacks and switches.

**DUCON SOCKET
AERIAL**

No. 808—Just screw into lamp socket. Needs no further attention. Does the work of the outside aerial. Sold on five-day trial.

Price\$1.50

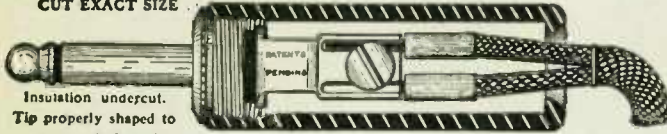


No. 808

Carter *TU-WAY* Radio Plug

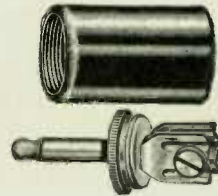
Special designed terminal permits two phone sets to be connected at the same time. Positive contact made with any type of cord terminal or wire.

CUT EXACT SIZE



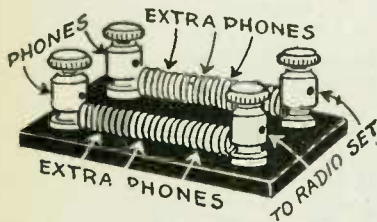
No. 2142—Price\$1.00

PILOT PLUG



No. 747

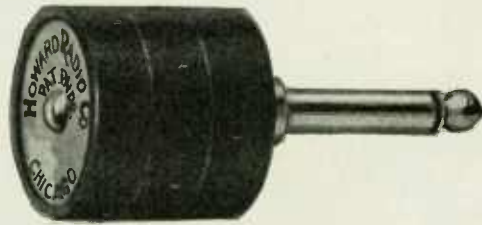
No. 747 — A large round, well made plug for either one or two pair of phones. Very good quality\$0.50



No. 2717

No. 2717—Gem Phone Connector. Will accommodate up to six pair of phones at a time. Price50c

HOWARD MULTI-TERMINAL TELEPHONE PLUG.



No. 777

FEDERAL PLUG



No. 15

No. 15—Universal Plug is a radical departure from the ordinary telephone plug. Unlike others of similar designs, spade terminals, pin connections, stranded or solid wire may be used without soldering.

HOWARD MULTIPHONE PLUGS

No. 777—From one to six pairs of phones can be used at once with this plug.

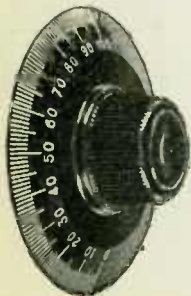
Price\$2.00

NA-ALD DIALS

have graceful lines and are a pleasing sight to the eye as well as being made of genuine Bakelite and is of light durable construction. Practically unbreakable. They are beautifully polished and have a taper knob. Hole for 1/4-inch shaft.

No. 1918—3-inch35c

No. 1919—3 3/8-inch75c



FRESHMAN VARIABLE LEAKS



No. 1966



No. 1965

- No. 1966—Micon variable grid leak and condenser combined. From zero to 5 million ohms. Absolutely noiseless and insures clarity of tone. Price.....\$1.00
- No. 1965—Panel mounting with condenser.....\$1.00
- No. 1967—Micon variable grid leak, without condenser75

A Bushel of Assorted Grid Leaks in the
ELECTRAD VARIOHM



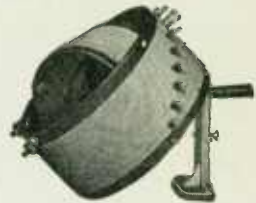
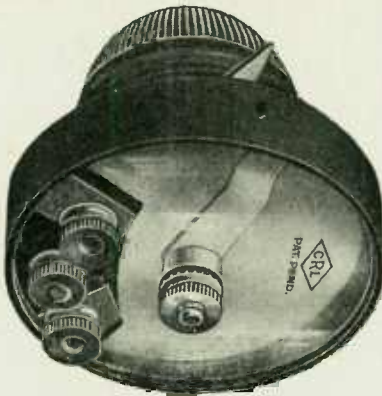
ELIMINATES NOISES

The Variohm will not only help to eliminate circuit noises but will also conserve "B" Battery current. The device can be arranged for panel or table mounting.

Resistance Range 1-10 to 5 Megohms. Price of Variohm.....\$0.75

CRL NON-INDUCTIVE POTENTIOMETER

TWIN VARIOCOUPLERS



A well made 180 degree coupler with strong bracket for either panel or base mounting. Green silk wound. Range 180 to 600 meters. Price.....\$1.50

The new CRL Non-Inductive Potentiometer has the same resistance on alternating current as it does on direct current, and permits the free flow of the radio wave, and there is absolutely no choking or loss of energy.

The contact shoe does not bear directly on the resistor, so that there is no tendency to wear.

The resistor element consists of a slightly yielding, impregnated strip, which is absolutely non-inductive and non-microphonic, so that it is noiseless in operation.

The mounting is the same as that used with our grid leak, so that it is only necessary to drill one hole in the panel.

Each instrument is carefully tested, both with a meter to determine the amount and uniformity of the resistance and also with phones to make sure that it is quiet.

- No. 110—Max. 400 ohms; list price \$1.75
- No. 111—Max. 2,000 ohms; list price..... \$2.00



No. 749

ERLA FIXED DETECTOR

No. 749—A perfect fixed detector for crystal sets and especially adapted for reflex circuits. Jolt and jar proof.
Price\$1.00

KING'S GOLD SEAL CRYSTAL TESTED—SEALED—GUARANTEED



Entire surface super sensitive. Eliminates finding "Hot Spot." Polished Brass Rim insures contact both sides and bottom of cup. Rough surface keeps "Cat-whisker" in place.

The outstanding superiorities of KING'S GOLD SEAL CRYSTAL are the result of practical exper-

ience and careful study to produce a RADIO CRYSTAL of REAL MERIT. Constructed of the highest Quality of materials, has wonderful power of Detection and Rectification with a LOUD, FULL, CLEAR TONE. Price.....\$0.50

YELLOW TIP Micrometer Adjusting CRYSTAL DETECTOR

MICROMETER ADJUSTING CRYSTAL DETECTOR.

Table or Panel mounting. IDEAL for REFLEX.

The slightest turn of the glass cover moves the cat-whisker over the surface of the crystal until signals are loudest. The YELLOWTIP finds the sensitive spot almost in a moment and keeps it until you change the adjustment again. Adjust with micrometer fineness to the thousandth of an inch. Simple, nothing to wear out or get out of order.

DUST AND VIBRATION PROOF

Adjusted without removing glass so that dust nor moisture cannot enter to destroy the sensitivity of the crystal. Carefully protected against vibration.

Spring tension on the whisker keeps pressure uniform at every point on the surface. Metal cap protects glass cover from breakage.

The Yellowtip Detector is a more readily adjusted part of your set than the old-fashioned detectors which the Yellowtip is displacing. The greatest improvement ever effected in the crystal detector. Increases the power and flexibility of your set. Results or Your Money Back! Price\$2.00



AMERICAN SUPER-SENSITIVE CRYSTALS

A High Grade synthetic super-sensitive crystal that is unequalled for clearness, distance and volume. These crystals can be sold on an absolute guarantee of satisfaction. Cat-Whisker cannot slip owing to the rough surface. Crystal enclosed in brass rim to insure proper contact. Hot all over. Secret formula of special minerals makes the American crystal the finest for rectification. Recommended for Reflex sets. Guaranteed against burning out. Price.....\$0.35



No. 700

Gold Grain Fixed Detector.....\$1.00
Especially adapted for Reflex Circuit and all crystal sets.



A Twist of the Wrist **IT'S SET**

"SIGNAL" RECEIVING TRANSFORMER

No. R23—A high grade receiving transformer for wave reception up to 1,800 meters. Coils are green silk wound and on non-shrinkable tubes.

Price\$6.20

No. R24—"Signal" Jr. Loose Coupler. Same as No. R23 and receives up to 600 meters.

Price\$4.25



No. R23



No. R24



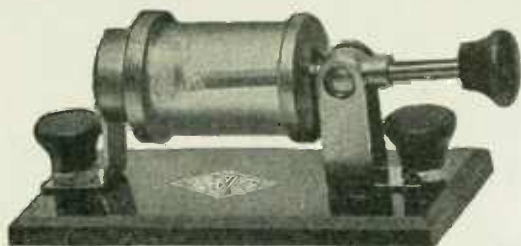
No. 264

NICKELED SLIDERS

No. 264—For 1/4-inch and 5/8-inch rods.....\$0.15

SLIDER RODS

No. 276—1/4x12-inch and 1/4 and 5/8x8-inch drilled.....\$0.15



No. 156

DETECTORS

No. 156—American, glass enclosed crystal detector, with mounted crystal\$0.50

No. 154—M. G., with rubber base.. .40



No. 708

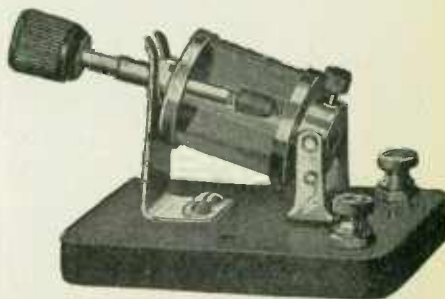
GREWOL CRYSTAL DETECTOR

No. 708—A highly efficient crystal detector. No fussing or adjustment, as contact point is permanent. Glass may be removed if readjustment is necessary. Guaranteed for one year.

Price\$1.25

CHELTON CRYSTAL DETECTOR

No. 750—Chelton Crystal Detector.....\$2.00
 No. 751—Cat Whisker10

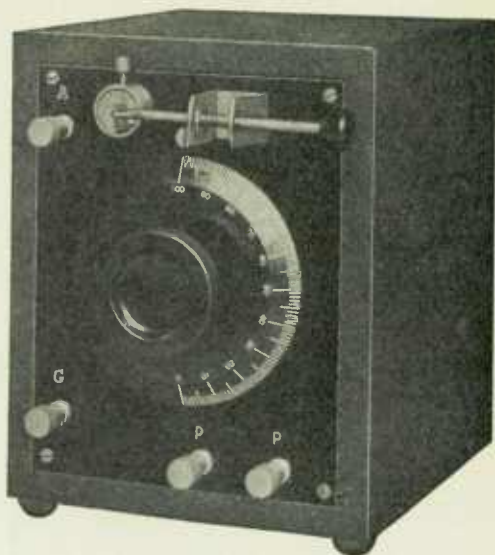


No. 750

AMERICAN Jr. CRYSTAL SET

No. 3239—A moderate priced set made to fill the demand for a good set at a reasonable price. Tuner consists of a high grade variometer. Equipped as shown with non-removable binding posts and dial. All that is needed is aerial and headset. Walnut finish cabinet and rubber feet.

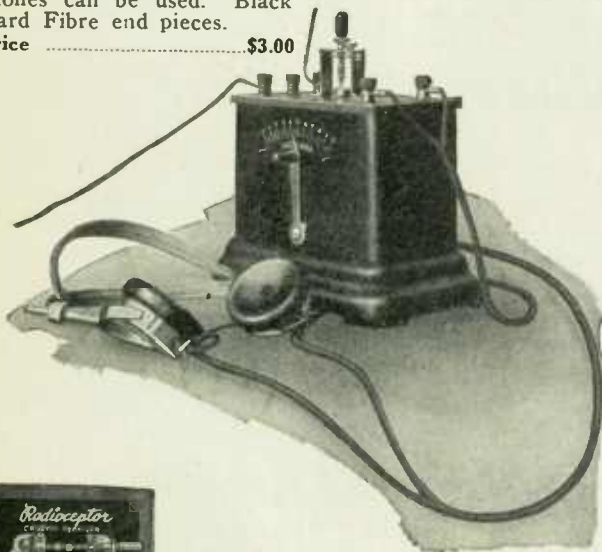
Price\$5.00



CRYSTAL SETS

"American" double slide close tuning coil. All parts nickel-plated. Double binding posts so two sets of phones can be used. Black Hard Fibre end pieces.

Price\$3.00



No. 2940

FEDERAL Jr. CRYSTAL RECEIVER

The Federal Jr. is built of highest grade materials throughout, and has been designed with highest type of engineering skill with the aim of making it of highest possible efficiency for this type of receiver. The entire unit is mounted on a polished black phenol panel which fits the metal case. The two tuning units, as well as the super-sensitive crystal detector, are easily operated. The beauty of appearance of the Federal Jr. is equalled only by its excellent workmanship and efficient operation.

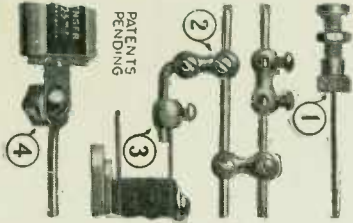
- No. 2940—Federal Jr. Crystal Receiver with Federal Headset\$20.00
- No. 2941—Federal Jr. without Headset\$13.00

RADIOCEPTER CRYSTAL SET

A High Grade instrument beautifully finished in metal cabinet.
Price\$5.00



ERLA SOLDERLESS CONNECTIONS



METRO ELEC. SOLDER IRON



An extra high grade iron, has removable tip. Guaranteed.
 Price Complete\$2.50

Every connection in radio apparatus assembly, including the difficult attachment of variocoupler taps to their respective panel contact points, is now successfully accomplished without the dangerous use of soldering irons.

Instances in which costly apparatus has been irreparably damaged through soldering heat or the spilling of solder or acid paste are too numerous to mention.

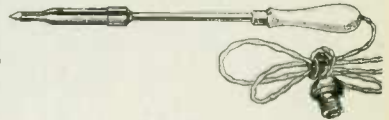
Erla connections eliminate such difficulties forever, saving untold hours of trying labor, as well as the cost of a soldering iron and its accessories. Made in four types, shown at the top, from right to left, as follows: No. 1, Variocoupler; No. 2, Bus Bar; No. 3, Jack; No. 4, Condenser.

Price, each\$0.05

ELECTRA-HOT SOLDERING IRON

This electric iron is so low in price that no experimenter can afford to be without one. For 110 volts, A.C. or D.C. Complete with cord and detachable plug.

Electra-Hot Iron. Price.....\$2.50



No. 3113

B-D ELECTRIC SOLDERING IRON

No. 3114—A well made electric iron suitable for all light soldering and guaranteed. Complete with cord and plug. A can of paste and a strip of solder with outfit.

Price\$2.00



No. 1314



American Beauty

AMERICAN ELECTRIC SOLDERING IRONS

The finest high grade Electric Solder Iron made. Will last indefinitely. Fully guaranteed and manufactured by the American Electric Heater Co.
 Complete\$8.00

AMERICAN ROSIN CORE SOLDER

Per Foot\$0.10 Per Pound.....\$1.00

COMPLETE RADIO TERMINAL ASSORTMENT

Consisting of 4,600 high grade terminals shown above, in an attractive, easy-to-get-at display carton. The colored display carton measures 7½x7½x1½" and will make an attractive addition to any show window or counter display.

Per carton\$16.00
 Per 100 Assorted Terminals......80



CONDENSITE CELERON

Formica



Bakelite

Standard Size Radio Panels

Condensite Celeron, Formica and Bakelite are of particularly high type, high test material (approved by the Navy Dept. Bureau of Engineering and the U. S. Signal Corps (qualifies as the leader of radio insulations because of (1) its high surface and volume resistivity; (2) its high dielectric strength; and (3) its low dielectric losses.

We are now making it possible for you to buy Radio panels without the usual delay and extra cost of having panels cut to order. These Radio panels are trimmed and wrapped in glassine to protect the surface, are all ready to work and finish. Celeron Mahogany as shown in cut below.

Black one side, Mahogany other side. Combination Celeron, Formica and Bakelite. Special sizes cut when cash accompanies order in any of the above in $\frac{1}{8}$ -inch only. Price \$0.03 per square inch.

	$\frac{1}{8}$ -inch	$\frac{3}{16}$ -in.thick	Goodrich Hard Rubber $\frac{3}{16}$ -in.thick
6x 7 inch	\$0.71		
7x 9 inch	1.01	1.51	\$0.85
7x12 inch	1.32	1.74	1.15
6x14 inch	1.32	1.96	1.20
7x14 inch	1.53	2.29	1.35
7x18 inch	1.97	2.95	1.65
7x22 inch	2.40	3.60	2.00
7x21 inch	2.28	3.43	2.05
7x24 inch		3.93	2.30
7x26 inch	2.84	4.26	2.50
7x30 inch		4.91	2.70
12x18 inch		4.66	
14x18 inch		5.54	3.80

Condensite Celeron, Black, Solid, Round Rods

No. 4618— $\frac{1}{4}$ in., per inch.....	\$0.04
No. 4619— $\frac{3}{8}$ in., per inch.....	\$0.05



No. 4612

Radion Mahoganite Panels

Radion Mahoganite closely resembles the characteristic grain of fine, highly polished mahogany. The use of these panels on the usual hardwood cabinets adds materially to the beauty of their appearance. Mechanically RADION is easily sawed, drilled, machined and otherwise worked by the amateur.

In any of the above sizes in 3-16-inch only. Same price list as Celeron or Formica.

Tin Foil

For lining panels. In sheets 8x18-in., per lb.\$0.50

AMERICAN RADIO MFG. CO.

ELECTRASOTE RADIO PANELS

A new panel material developed after several years of research and found by recognized authorities to possess the properties making it highly desirable for Radio Uses.

Electrasote is furnished with a beautiful satin-grained surface on one side and a polished surface on the other side thereby conveniently filling the demand of the User.

Because of the absence of abrasive material Electrasote machines well and easily without the usual dulling effects on tools.

REAL FACTS ON ELECTRASOTE PANELS

1. High quality.		Standard
2. New low price level.	All 3/16-in. thick	List.
3. Fine finish, polished one side, grained dull satin other side.	7x 9-in.	\$0.90
4. Individually packed in envelopes.	7x12-in.	1.15
5. High surface and volume resistivity.	7x14-in.	1.35
6. Approved by Bureau of Standard for radio use.	7x18-in.	1.65
7. Drills easily without dulling drills.	7x21-in.	1.90
	7x24-in.	2.20
	7x26-in.	2.40
	7x30-in. x 1/4-in. thick	3.35

BRUNO PANEL TRANSFERS

Replaces unsightly metal markers, makes any set assume factory-made appearance. Set comprises assortment of engravings, vial of varnish and complete instructions.

Assortment No. 2.....	\$0.35
Assortment No. 1.....	.50
Assortment No. 5—Neutrodyne.....	.40

QWIK-ENGRAVO PANEL TRANSFERS

75 Engravings	\$0.25
---------------------	--------



LIST PRICE \$7.00
 Horn and Base.
 Complete with Loud Speaker
 Unit **\$10.00**

Nathaniel Baldwin Loud Speaker Phonograph Attachment

Baldwin Products need no introduction. We therefore present the Baldwin Phonograph Unit with the special Corrugated Metal Diaphragm. Price...**\$10.00**



DIAMOND STATES HARD FIBRE TUBES

	Price
2- $\frac{3}{8}$ " I. D. x 1/16" wall x 3" long, per inch.....	\$0.10
2- $\frac{3}{8}$ " I. D. x 1/16" wall x 4" long, per inch.....	.10
2- $\frac{3}{8}$ " I. D. x 1/16" wall x 6" long, per inch.....	.10
2- $\frac{5}{8}$ " I. D. x 1/16" wall x 3" long, per inch.....	.11
2- $\frac{7}{8}$ " I. D. x 1/16" wall x 3" long, per inch.....	.12
2- $\frac{7}{8}$ " I. D. x 1/16" wall x 4" long, per inch.....	.12
2- $\frac{7}{8}$ " I. D. x 1/16" wall x 6" long, per inch.....	.12
3- $\frac{3}{8}$ " I. D. x 1/16" wall x 3" long, per inch.....	.13
3- $\frac{3}{8}$ " I. D. x 1/16" wall x 4" long, per inch.....	.13
3- $\frac{3}{8}$ " I. D. x 1/16" wall x 6" long, per inch.....	.13
3- $\frac{7}{8}$ " I. D. x 1/16" wall x 3" long, per inch.....	.14
3- $\frac{7}{8}$ " I. D. x 1/16" wall x 4" long, per inch.....	.14
3- $\frac{7}{8}$ " I. D. x 1/16" wall x 6" long, per inch.....	.14
2- $\frac{5}{8}$ " O. D. x 1/16" wall x 3" long, per inch for neutroformer.....	.11
2- $\frac{7}{8}$ " O. D. x 1/16" wall x 3" long, per inch for Neutroformer.....	.12

BLACK CELERON BAKELITE TUBES

2- $\frac{7}{8}$ -in. x 1-16-in. thick x 3-in, 4-in., or 6-in. long, per inch.....	\$0.14
3- $\frac{7}{8}$ -in. x 1-16-in. thick x 4-in., or 6-in. long, per inch.....	.16

SPAGHETTI TUBING

Io. 270—Mica Oiled Cambric for No. 14 wire, per foot.....	\$0.08
Io. 271—Composition Tubing, red, amber, black or green, per foot.....	.05
Io. 272—Special tubing for No. 14 wire, yellow or black.....	.04



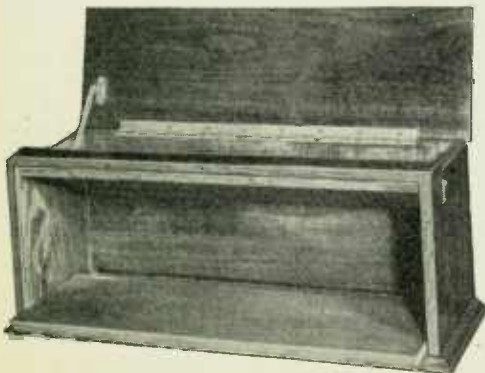
No. 21A

KELLOGG TRANSMITTER

The Kellogg Company's microphone has proved to be the best on the market. It is exceptionally reliable for radio work and is a standard product of many years' manufacture. The particular type for wireless work is known as 21A.

No. 21A—Microphone, each	\$8.90
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HIGH GRADE POLISHED WALNUT CABINETS



Panels Set In Flush.

Genuine kiln dried walnut, hand rubbed piano finish. Made to fit standard size panels. These are very beautiful and durable, with removable base board. Piano hinge lid. N. P. side hooks and catch.

No. 88—7x 9x7 inches deep.....	\$ 5.00
No. 89—7x12x7 inches deep.....	6.00
No. 90—7x14x7 inches deep.....	6.50
No. 91—7x21x7 inches deep.....	9.00
No. 92—7x18x7 inches deep.....	8.00
No. 93—7x22x7 inches deep.....	9.00
No. 94—7x26x7 inches deep.....	10.50
No. 95—7x30x7 inches deep.....	12.00
No. 96—7x24x7 inches deep.....	9.50



No. 1142

ETCHED NAME PLATES

These are of sheet brass, etched, laquered and silver plated.

The two upper plates are Type "A" and are etched as follows: Ground, Antenna, A Battery +, A Battery -, B. Battery +, B Battery -, Phone, Input, Output. For use with binding posts.

The two lower plates are Type "B" and are etched as follows: Ground, Aerial, Phones, Coupling, A Battery+, Tickler, B Battery+, 1st Step, 2d Step, 3d Step, Detector Tube, Audion, Input, Output.

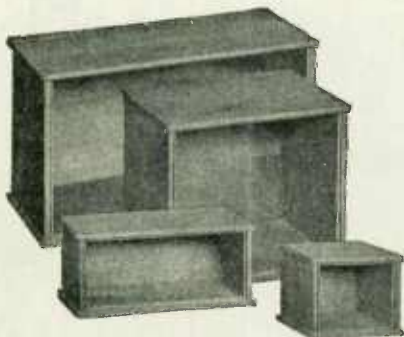
Type A Plates	\$0.06
Type B. Plates .....	.05
Increase Current Plate .....	.10
Ninety Degree Plate .....	.15

No. 1143—Name plates for Jacks, Detector, first stage, second stage and third stage.

Price\$0.10



No. 1143



No. 288

SIGNAL RADIO CABINETS

These cabinets are made of gum and are finished in mahogany. Have hinge lid and removable base board.

No. 288—7x 9x7 inches deep.....	\$3.25
No. 289—7x12x7 inches deep.....	3.60
No. 290—7x14x7 inches deep.....	4.25
No. 292—7x18x7 inches deep.....	4.50
No. 293—7x22x7 inches deep.....	5.00
No. 294—7x26x7 inches deep.....	5.75
No. 295—7x30x7 inches deep.....	6.00
No. 296—7x21x7 inches deep.....	4.75
No. 297—7x24x7 inches deep.....	5.10

CELERON MAHOGANY CABINETS

Made of genuine Celeron, in mahogany finish! 3-16-inch thickness panels, trimmed in highly polished nickel-plate. Lid slides in and out. Complete with Celeron panel and baseboard.

Size 7x18-in.List \$14.10
Size 7x26-in.List 18.45




No. 869

ERLA BEZELS


The screened bezels of highly nickeled brass add 100 per cent to the neatness and attractiveness of any radio panel. Measuring 1½ inches in diameter, will fit any thickness panel.

No. 869—Price	\$0.20
No. 870—¾-inch nickeled bezels, without screen.....	.15
No. 868—Same as No. 869 only 1 inch diameter.....	.20


USE




ANT
Ant



GND
Grid



A
BAT
+



B
BAT
-

Read'em

Copyrighted


Binding Posts

JUNIORS


THE **750** SET

They Insure Correct Hook-up


MANUFACTURED BY
The Marshall-Gerken Company
27-29 Ontario St. Toledo, O.
15 John St. New York




TEL
Telephone



TEL
Telephone



B
BAT
+



B
BAT
-

No. 74

“READ-EM” BINDING POSTS

No. 74—The following also supplied: Var. Cond., Cond., Prim., Sec., Det., Tick., Plate, Grid. Each\$0.12



No. 410

No. 411

No. 410—Plain black composition top with nickel plate base\$0.08
 No. 411—Same as No. 40, small size..... .07
 No. 74—Set of 8 posts, price..... .75

ACME BINDING POSTS

No. 78—Has non-removable top and lug slides up and down when top is turned. Nickel plated.

Price\$0.07
 No. 79—Double Binding Post. Price10



No. 78

FAHNESTOCK SPRING BINDING POSTS

No tools required to make connections. Just press down and insert wire. Loose connections eliminated.

No. 400—Single, small size\$0.05
 No. 401—Single, medium size05
 No. 403—Double10
 No. 45—Binding Post05



R 77

KING BAKELITE BINDING POSTS

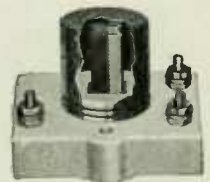
No. R-77—With Slots for Phone Tips...\$0.12
 King Switch Points04

FROST RADIO PROTECTOR

The requirement for a protective device to be connected between the antenna and ground terminals of the receiving set is for the purpose of carrying lightning discharges or less violent discharges to the ground with a minimum chance of damage to the receiving apparatus, building or operator.

Lightning arresters may be used inside the building, and in such a case they will receive better protection from moisture and mechanical injury than lightning arresters placed on the outside of a building wall.

Frost Protector. Price each..... \$1.50




“Read'em” Binding Posts



ANT



GND



A
Bat
+



B
Bat
-



FONES



FONES



A
Bat
-



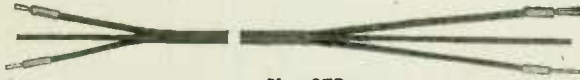
22
Volts
+



45
Volts
+

The Marshall-Gerken Co. Toledo

Irremovable Knobs
 No. 741—Per set of 10.....\$1.50



No. 978

**HI-GRADE
PHONE CORDS**

- No. 977—5-ft. cord for single receiver. Black.....\$0.50
- No. 978—6-ft. single cord75
- No. 979—6-ft. cord for double receiver, with either plain or spade..... .75
- No. 980—Brandes Cord, 6 ft..... .75
- No. 981—6 ft. Double Cord, for any phone......60
- No. 984—Head Bands for standard phones..... 1.00
- No. 985—Special 5-ft. Double Cord for any phones..... .60



No. 978

Phone Parts	Caps.	Diaphragms.
Federal, Hard Rubber.....	\$0.50	\$0.15
Brandes, Superior or Navy.....	.40	.20
Murdock, Frost.....	.25	.15
Red Head, Blue Streak.....	.30	.15
Schwarze.....	.30	.15

J. K. F. COUPLER

This is a phonograph attachment that can be used with Baldwin, Brandes or a Frost Fone unit. It is adaptable to any make of phonograph so that the phonograph horn and tone arm may be made into a loud speaker.

To fit a phone unit into this device, simply remove the cap and screw the attachment on in the place of the cap just removed. Then connect the unit to any good receiving set and you will have a device that is superior to most phonograph attachments on the market.

No. 869—J. K. F. Coupler.....\$2.50

SUPER-HETERODYNE HILCO PARTS

Special wound honey-comb of finest green silk. Hilco brand insures satisfaction.

Oscillating Coupler\$7.00

Special Adjustable Antennae
Coupler 8.00

Hilco Neutrodyne Multiformer.... 3.00

**AMERICAN PHONOGRAPH
ADAPTER**

No. 1306—"Attachphone" phonograph attachment. Will fit any standard make phonograph. For use with double headset. Easily attached. Made of polished aluminum. Price.....\$0.75

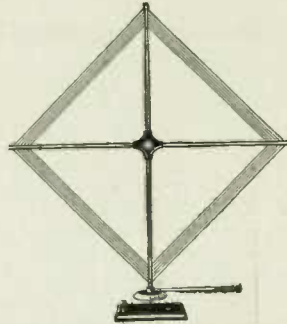


No. 1306

RA-DI-UN LOOP

The use of Radio Frequency amplification allows loop aerial to be used instead of outdoor antenna. This permits greater selectivity as the loop is directional in operation. Static is eliminated to a great extent and all danger from lightning is entirely done away with. Center brace polished aluminum. Arms hardwood finished in dead black. Neat base with felt covered bottom. Automatic switch disconnects when loop is removed from base.

T-747, 96-ft. green silk covered wire, each span 2 ft. Price.....\$8.50

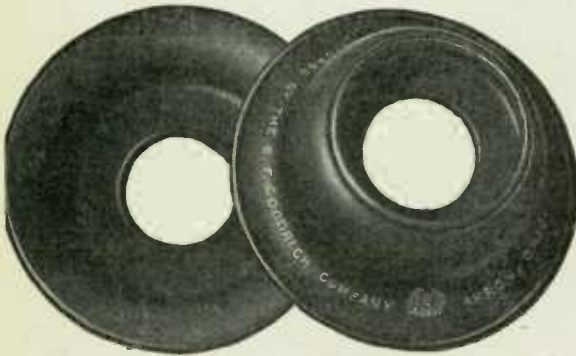


HEAD BANDS

- No. 192—Head band for double head set. Each\$1.25
- No. 195—Receiver Shell only. Each..... .25
- No. 196—Receiver Cap only. Each..... .25

FROST FONE DIAPHRAGMS

- Selected Ferrottype metal, specially treated to render non-corrosive. Uniform thickness of exactly .008-in.
- No. 177—Diaphragms. Each.....\$0.10



No. 1337

EAR EASE PHONE CUSHIONS

No. 1337—Soft Goodrich rubber ear cushions to fit any phone. These are very comfortable on the head and eliminates all foreign noises when tuning in stations. Price per pair.....\$0.80



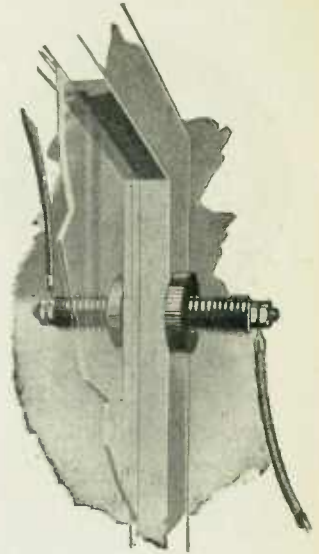
DEITRICKSON LONG RANGE ONE TUBE SET

COAST TO COAST receiving on this wonderful efficient receiver. Plenty of volume with clear tones. Very selective and economically to operate. Either dry cell or storage battery tubes can be used satisfactorily. Price\$10.00

M. & M. LEAD-IN INSULATOR

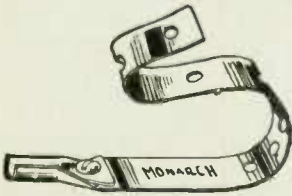
No. 1314—Made of hard rubber and threaded, so that by turning up the nuts, an airtight connection can be made.

No. 1314—4-inch size. Price.....	\$0.40
No. 1315—10-inch size. Price .....	.80
No. 1316—Porcelain Lead-in Insulators, 3-inch, 4-inch, 6-inch. Price.....	.10
No. 1317—Porcelain Knobs for Lead-in Wire.....	.05
No. 2936—Antenna Connector, for 4 wires.....	.30
Electrad Lead-In Insulator .....	.40



No. 1314

GROUND CLAMPS



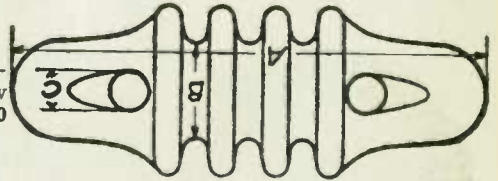
No. 2110

No. 2110—Ground clamp. Complete with galvanized bolt and nut.

Price	\$0.10
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INSULATORS

No. 198—Brown ribbed porcelain insulator. These are very high grade at a low price of



No. 198



No. 190

AMERICAN INSULATORS

These insulators will stand considerable tension, are unaffected by ordinary degree of heat and cold, moisture and acid, and have the highest insulating properties.

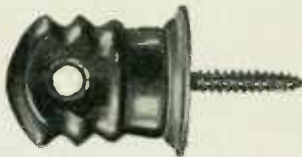
Size—Four inches	\$0.36
Size—Ten inches .....	.60

ROTORS

No. 294—To fit tubing 3 7/8-in., 9 D., with or without shafts.....

WALL INSULATORS

Large size and in big demand.
Price



\$0.50

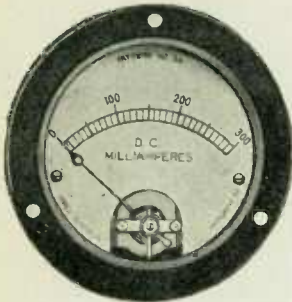
ESBY CLARIFIER

A very efficient devise that practically eliminates static and increases selectivity and volume. Price



No. 294

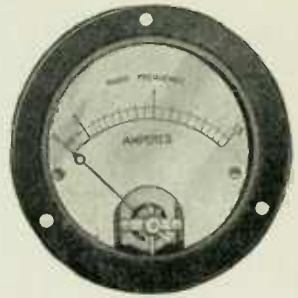
JEWEL INSTRUMENTS



TYPE 54



TYPE 64



TYPE 74

This new line includes radio frequency ammeters, and ammeters and voltmeters for direct current and alternating current of commercial frequencies in a wide range of standard capacities.

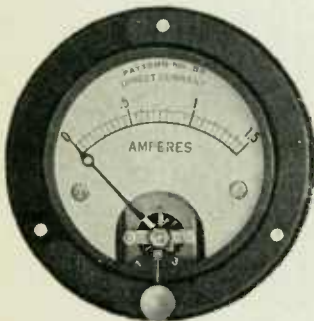
The radio frequency ammeter pattern No. 64 is a new development of the thermocouple type, adapted to this small size case. It embodies all the good features of our high grade new miniature direct current movement with an internal thermo-couple in the high frequency circuit.

The direct current instruments, Pattern No. 54, are entirely new and give a very large deflection for their size, resulting in accurate readings.

The alternating current instruments, Pattern No. 74, have been on the market for some little time and have found much favor because of their simplicity of construction and accuracy of readings.

The above instruments have a case diameter of 3 inches with a diameter over the flange of 3 3/4 inches.

Pattern No. 53, combination filament ammeter is a single instrument with a self-contained switch for reading the current in the filament of any tube of a group of three without breaking the circuit. The advantage of this feature is apparent to every amateur. These instruments are recommended for all small panel radio work, including receiving panels. Milliameters are usually used for late currents, ammeters for filament current, voltmeters for plate voltage and radiation ammeters for antenna current in any small sending sets. In ordering meters always give second choice.



TYPE 53

PRICES

		No. 54
For direct current, standard readings.....		\$ 7.50
For direct current, 500 volts.....		15.50
For direct current, 1000 volts.....		22.50
For direct current, 1500 volts.....		28.50
	No. 64	No. 74
For radio frequency, standard readings.....	\$12.00	
For alternating current, standard readings		\$ 7.50
Type 53—1.5 ampere, price.....		10.00
Type 33—2 1/2 in. diameter, 3/4 in. flange....		6.00

STANDARD RANGES

Pat. 33			Pat. 54			Pat. 64	Pat. 74	
D. C. Milli-Amps.	D. C. Amps.	D. C. Volts	D. C. Milli-Amps.	D. C. Amps.	D. C. Volts	Radio Freq. Amps.	A. C. Amps.	A. C. Volts
0-10	0-1	0-3	0-3	0-1	0-3	0-1	0-1	0-10
0-15	0-1.5	0-7.5	0-5	0-1.5	0-7.5	0-1.5	0-1.5	0-15
0-20	0-2	0-10	0-10	0-2	0-10	0-2	0-2	0-20
0-30	0-2.5	0-15	0-15	0-2.5	0-15	0-2.5	0-2.5	0-25
0-50	0-3	0-20	0-20	0-3	0-20	0-3	0-3	0-30
0-75	0-4	0-25	0-30	0-4	0-25	0-4	0-4	0-40
0-100	0-5	0-30	0-50	0-5	0-30	0-5	0-5	0-50
0-200	0-8	0-40	0-75	0-8	0-40	0-8	0-8	0-75
0-300	0-10	0-50	0-100	0-10	0-50	0-10	0-10	0-100
0-500	0-20		0-200	0-30	0-75		0-15	
	0-30		0-250	0-40	0-100		0-20	
	0-40		0-300				0-25	
			0-500				0-30	
Add 2 cents for every volt above.....	100			100				100

Special Radio Magnet Wire

Prices Per Spool

One-Pound Spools

B. & S. Size	Enamel	Sgl. Cotton	Dbl. Cotton	Green Sgl. Silk	Green Dbl. Silk
14.....			\$0.75		
18.....	\$0.70	\$0.80	.85	\$1.10	\$1.60
20.....	.60	.85	1.00	1.20	1.70
22.....	.70	.90	1.20	1.45	2.00
24.....	.75	1.05	1.45	1.65	2.50
26.....	.90	1.30	1.80	1.90	3.10
28.....	.95	1.60	2.10	2.20	4.00
30.....	1.00	2.00	2.50	2.90	5.60

Half-Pound Spools

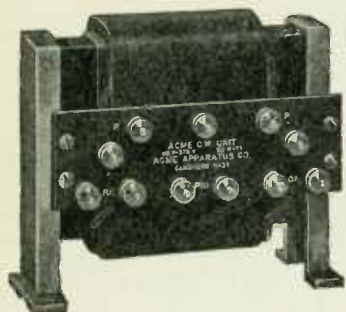
18.....	\$0.35	\$0.40	\$0.45	\$0.55	\$0.80
20.....	.40	.40	.50	.65	.85
22.....	.40	.50	.60	.75	1.10
24.....	.40	.60	.75	.85	1.30
26.....	.45	.70	.90	.95	1.60
28.....	.50	1.05	1.10	1.15	2.05
30.....	.55	1.05	1.35	1.55	2.85

Quarter-Pound Spools

18.....	\$0.25	\$0.25	\$0.30	\$0.35	\$0.45
20.....	.25	.25	.30	.40	.50
22.....	.25	.30	.35	.45	.60
24.....	.30	.35	.40	.55	.70
26.....	.30	.40	.50	.65	.85
28.....	.35	.45	.60	.70	1.10
30.....	.35	.50	.75	.85	1.68

Complete wire table:

Ga:	Lbs. per 1000'	Feet per pound	Ohms per 1000' 77-F
18.....	4.197	203.4	6.51
20.....	3.092	323.4	10.35
22.....	1.945	514.2	16.46
24.....	1.223	817.7	26.17
26.....	.7692	1300.	41.62
28.....	.4837	2367.	66.17
30.....	.3042	3387.	105.2



ACME TRANSFORMERS FOR C. W.

These transformers have been especially designed for the highest possible efficiency of C. W. transmission with modern power vacuum tubes. Acme C. W. transformers were the first on the market and they have successfully withstood the tests of time. They are made in several types for plate supply, filament heating, and combination plate and filament. All are for use on 110 volts, 60 cycles. Quotations on special transformers will be given on request.

C. W. TRANSFORMERS

The transformers listed below are combination plate and filament type, for use with electrolytic or vacuum tube rectifiers as the source of power.

No. 5601—75-watt, Mounted	\$15.00
No. 5603—200-watt, Mounted	20.00
No. 5605—200-watt, Mounted	25.00
No. 5607—600-watt, Mounted	33.00

FILAMENT TRANSFORMERS

Alternating current on the filaments gives longer tube life and freedom from battery troubles. Acme filament heating transformer (mounted) are equipped with rheostat to enable close control of current, and have extra terminals giving two voltages for different type tubes. They are also equipped with R. F. bypass condensers and neutral center tap. In appearance they are similar to the C. W. Transformer illustrated.

No. 5610—75-watt, Mounted	\$12.00
No. 5612—150-watt, Mounted	16.00
No. 5614—300-watt, Mounted	20.00

ACME C. W. FOR PLATE VOLTAGE AND CURRENT

Size	Plate volts each side of center	Plate current Max.	For No. of tubes	Price mounted	Price unmounted
No. 5616—500-watt	1500, 1000	.400	Two 50's	\$25.00	\$20.00
No. 5617—250-watt	1100, 550	.200 and .400	Five 5's, one 50	20.00	16.00

ACME CHOKE COILS



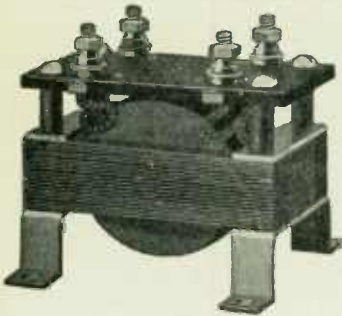
In order to smooth out the pulsations in the direct current supply to keep the direct current constant when modulating, and to prevent the high frequency from getting into the power supply, it is essential that a choke coil be inserted in the direct current leads.

When used for smoothing out pulsations in the direct current supply, it is advantageous to have a choke coil in each side of the line. The double choke coil is used for this purpose.

No.	Henries	Current	Type	Prices	No.	Henries	Current	Type	Price
No. 5618	1½	.150	Single	\$ 4.00	No. 5623	6	.300	Single	\$14.00
No. 5619	1½	.150	Double	6.00	No. 5624	6	.600	Single	18.00
No. 5620	1½	.500	Single	6.00	No. 5625	30	.150	Single	18.00
No. 5621	1½	.500	Double	8.00	No. 5626	30	.300	Single	25.00
No. 5622	6	.150	Single	10.00	No. 5627	30	.600	Single	33.00

TRANSMITTING CATALOG ON REQUEST

FEDERAL MODULATION TRANSFORMERS



No. 236-W

Federal No. 236-W Modulation Transformer is designed particularly for grid modulation for use in connection with Federal Microphones to properly modulate the voice frequencies and produce clear speech. **This transformer should not be used for constant current modulation.**

In performance covering a considerable period during its development this transformer has proven its efficiency in radiophone service.

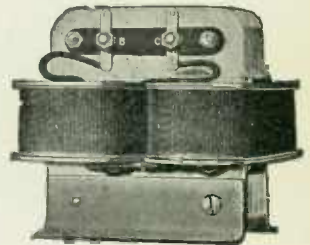
It is the shell core type, ratio 9 to 1 turns, and provided with an insulating panel on which are mounted convenient nickel binding posts and lugs.

No. 236-W Modulation Transformer, each.....\$7.00

FEDERAL FILTER COIL

In order to smooth out the pulsations in the D. C. supply, to keep the D. C. constant when modulating, and to prevent the high frequency from getting into the power transformer or generator, it is essential to employ a choke coil of proper design. The Federal No. 300-W 1.5 Henry Filter Coil has a capacity of 800 milli-amperes and is highly recommended for use with both transformer and generator plate voltage supply.

No. 300-W Federal Filter Coil, each.....\$7.50

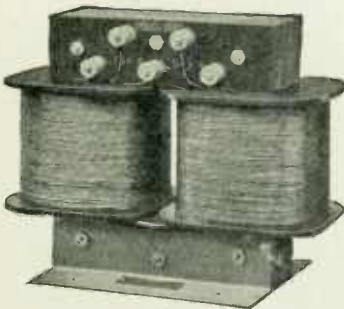


No. 300-W

FEDERAL 500 WATT C-W POWER COMBINATION TRANSFORMER

The Federal No. 315-W 500 Watt C-W Power Combination Transformer is designed to economically replace the usual motor generator set as a source of 500 volt supply for plate potential. With the Federal Filter circuit and two rectifier tubes it furnishes a dependable source of high voltage D. C., also a 12 volt source of supply for oscillator tube filaments Primary, 60 cycle, 110 volts.

No. 315-W Federal 500 Watt C-W Power Transformer\$32.00



No. 315-W

FEDERAL 150 WATT FILAMENT LIGHTING TRANSFORMER

The advantages of A. C. over storage batteries for filament heating in C-W circuits are well known. Convenience and low cost of operation are features of the Federal No. 311-W 150 Watt Filament Lighting Transformer. This transformer has two 12 volt windings, so that both rectifier and oscillator tube filaments may be heated.

No. 311-W Federal 150 Watt Filament Lighting Transformer\$15.00



No. 311-W

THORDARSON C. W. TRANSFORMERS

FILAMENT—SHELL TYPE

The newest and most complete line of shell type filament transformers. Both primary and secondary winding assembled on the center core. Secondary is made of heavy copper ribbon and wound in pancake form. Tap brought out at center point.

Transformers are supplied unmounted or mounted in a heavy durable frame. Bakelite terminal boards. Standard primary 110 volts, 60 cycles.



**No. 600
FILAMENT
SHELL TYPE**

	Capacity Watts	Sec. Volts	Price Mounted
No. 600—	80	8½	\$ 7.00
No. 599—	150	12	10.00
No. 598—	300	12	15.00

Rated for continuous duty

PLATE SUPPLY—SHELL TYPE

We encourage the use of shell type transformers for high voltage plate supply transformers because of their high efficiency and good regulation.

These transformers are supplied either unmounted or mounted in a heavy black steel case. All leads brought out through porcelain bushings.

Two secondary coils on every transformer. Standard primary 110 volts, 60 cycles.

	Capacity Watts	Each Side of Neutral	Price Mounted
No. 601—	100	350 and 550	\$13.00
No. 602—	450	1000 and 1500	18.00
No. 603—	900	1000 and 1500	30.00



**No. 601
PLATE SUPPLY
SHELL TYPE**

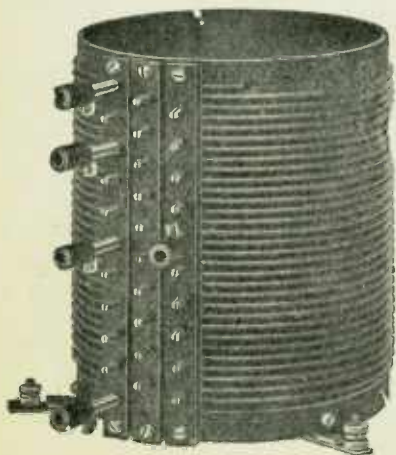
No. 518—Transformer with a filament voltage of 10 volts and plate supply of 650 volts designed for use with one 5-watt tube. Built shell type, unmounted only. Price \$7.50

ACME OSCILLATION TRANSFORMER

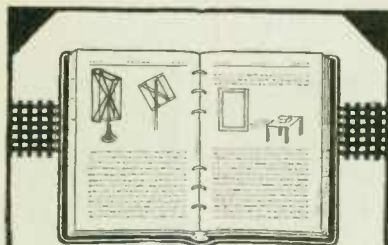
The C. W. Inductance (Oscillation Transformer) illustrated consists of 30 turns of No. 12 B & S copper wire wound on a five inch slotted bakelite tube. Taps are brought out at each turn, and 5 insulated terminals are supplied. By means of these terminals five separate connections may be made on the inductance, each one capable of being varied one turn at a time while the tubes are excited. Three feet are provided for fastening to panel or baseboard.

For circuits requiring a grid coil the Acme Type G-1 is recommended. It consists of 25 turns, tapped at 15 turns, wound on a bakelite tube. It readily fits within the Acme C. W. Inductance.

No. 5620—Acme C. W. Inductance.....	\$8.00
No. 5621—Acme Grid Coil G-1.....	2.00



No. 5620



LEFAX
NEVER GROWS OLD

**the One Best
BOOK
on RADIO**

A perpetual up-to-date radio book. The buyer receives direct from the Lefax Co. all the latest hook-ups and information at periodical times, each week or month.

Price \$5.00

KENNETH HARKNESS BOOK—Radio Frequency Amplification \$1.25

HOW TO BUILD—Neutrodyne—Hazeltine's Circuit Radio Receiver.

A very complete 32-page booklet describing in detail the construction of both four and five-tube FADA-Hazeltine sets. Includes assembly details, full size panel drilling templates, wiring diagrams, adjusting directions and method of tuning.

Per Copy 50c

SUPER-HETERODYNE BOOK \$1.00

Complete instructions and information with template and diagram.

LATEST RADIO MAPS—Poates Folding Map

Names all Broadcasting stations, giving wave length, zones, etc. Price 35c

**UNIVERSAL
RADIO
TIME TABLE**



Price \$1.50

A Complete Call Book of nine separate tables. Contains all U. S. and Foreign stations, wavelengths, hours of broadcast, programs and foreign time changed to U. S. time. Any station can easily be found.



BLUE PRINTS AN INSTRUCTIONS FOR

- Milplex \$0.50
- Reflex DeLuxe50
- Reinartz50
- Neutrodyne50
- Super-Heterodyne50



5052—50c



5053—50c



5054—50c



5055—50c

RADIO BOOKS AND BLUE PRINTS



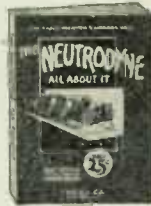
5030—25c



5031—25c



5032—25c



5033—25c



5050—\$3.00



5034—25c



5035—25c



5036—25c



5037—25c



5038—25c



5039—25c



5040—50c



5041—50c



5042—50c



5046—50c



5045—50c



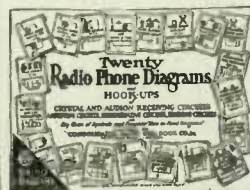
5044—50c



5043—50c



5051—50c



5049—50c



5048—50c



5047—50c

- Radio News Amateur Handbook\$1.00
- Experimental Electricity Course in 20 Lessons..... 1.25
- Wireless Course in Twenty Lessons..... 2.00



- No. 603—Federal Century High Frequency Buzzer.....\$2.50
- No. 604—Federal Buzzer Modulator 4.50

No. R48—Signal Wireless Key. A light constructed key for the amateur. Contacts are of $\frac{1}{16}$ -inch pure coil silver. $\frac{1}{4}$ K. W.



No. R48

Price\$2.50

SIGNAL BELL RINGING TRANSFORMER

No. 49—Can be reduced from 110 volts to either 6, 8 or 14 volts.

Price\$1.50

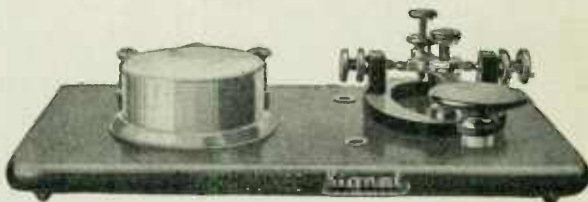


No. 49

R68 "Signal" Wireless

R68 "Signal" Wireless Practice set.

List Price\$3.75



HOPEWELL AIR GAP TRANSMITTING INSULATORS

- No. 197 4-inch. Price\$0.50
- No. 199 8-inch. Price 1.00

HOPEWELL LEAD IN INSULATORS FOR TRANSMITTING

- No. 2007 With $1\frac{1}{4}$ -inch Rod. Price.....\$2.25
- No. 2008 With $4\frac{1}{2}$ -inch Rod. Price..... 1.20
- No. 2009 $3\frac{3}{4}$ -inch Rod. Price..... 1.00

MICROPHONE

- No. 260W—Federal Hand Microphone. Nickel plated. Complete with 6 foot cord.....\$7.00
- No. 261W—Federal Microphone. Desk type.. 6.50
- No. 262W—Federal Microphone, panel mounting 5.25



No. 260W



No. 261W

MIDGET INSULATOR

Made of composition with heavy galvanized ring in both ends. A sturdy insulator which will withstand any reasonable strain.

No. 178—Midget Insulator.....\$0.15



AERIAL CONNECTOR BLOCK

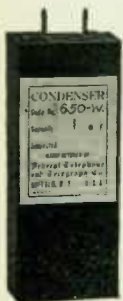
For attaching four-wire antenna to lead-in wire. Eliminates soldered connections. Made of solid brass and furnished with set screws.

No. 438—Each\$0.30

FROST RADIO HAND MICROPHONE

Well made from standard telephone parts. Carbon chamber especially constructed for radio telephone work. Metal parts are nickel plated and polished. Has black knurled handle.

No. 281—Price each\$6.00



No. 650W

FEDERAL FILTER CONDENSER

No. 650W—650 v., 1 mf. capacity.....\$1.65
No. 1000W—Federal Filter Condenser, 1000 volts 1 mf. 2.00



No. 1000W



No. 701

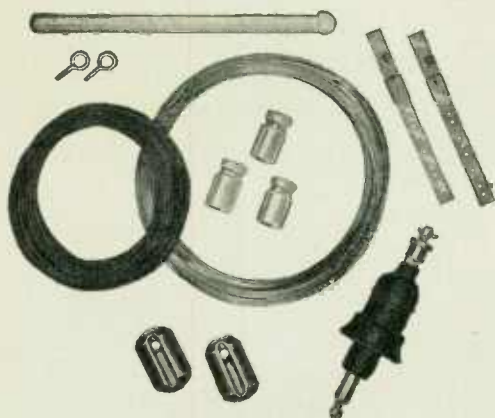
The A-A Power Tube Socket illustrated is specially designed for use with 50-watt tubes. It is excellently constructed mechanically and electrically, and has a beautiful appearance.

No. 701—A-A Power Tube Socket.....\$3.00

COPPER RIBBON AERIALS

Made of 10 oz. pure copper ribbon 1/2-inch wide with spring snaps to hook into insulator. Has adjustable buckles.

No. 50—50 ft. long—Price\$1.00
No. 75—75 ft. long—Price..... 1.50
No. 100—100 ft. long—Price..... 2.00



No. 2129

AMERICAN ANTENNA ASSEMBLY

American Antenna Assembly No. 2129. Consists of 200 ft. 7-strand No. 14 Copper Aerial Wire, 50 ft. heavy lead-in and ground wire, 4 porcelain insulators, 3 knobs, 1 porcelain tube, 2 ground clamps and out-door lightning arrester.
 Price\$4.75

AERIAL WIRE

No. 14, 7-strand copper wire, per 100 feet\$0.75

A very flexible wire of high conductivity.

No. 14 7-strand tinned wire, per 100 feet.....\$0.85

No. 14, Bare copper wire, per 100 feet.....\$0.60

No. 14 7-strand enameled, 100 ft.....\$1.00

Springfield hollow braided loop aerial wire, 100 ft.....\$2.50

Signal Corps, 7-strand tinned, 100 ft.\$0.85

LEAD-IN WIRE

No. 2932—No. 14, heavy insulated; very durable and weather proof. Rubber covered. Price per foot.....\$0.02

No. 2930—In white color, per ft..... .02½

No. 2933—Annunciator Wire02

No. 2931—No. 18, R. C. lead-in, 100 ft. 1.75

ASSORTED SCREWS

This assortment is ideal for the Radio Dealer, as there is practically every type of screw in this display box that the builder will need. All nickel plated and includes assortments of bushings, knurled and plain nuts, washers, etc.; 4,100 pieces to the carton.

Price\$19.50
 Assorted screws per 100 .95

HOOKUP WIRE

No. 14 Round Tinned Copper 25 ft \$0.25

No. 14 Round Tinned Copper, 200 ft 1.40

No.14 Square Bus Tinned Copper, 24 ft. 30

No. 14 Square Bus Tinned Copper, 200 ft. 2.40

Square in 2 ft. lengths.

No. 14 Square Cambric Covered Special High Grade, Red or

Black, 25 ft. 1.60

100 ft. 2.00

GROUND WIRE

No. 295—No. 6 heavy ground wire. Price per foot.....\$0.10

No. 296—No. 14, Ground R.C..... .02

No. 997—Special White No. 14 Ground02½

Green Lamp Cord, per ft. dbl......05

Pigtail Copper Ribbon, per ft......03

SCREWS AND NUTS

No. 4806—Kellogg assortment, nickel plated screws, nuts, washers, soldering lugs etc. in generous quantities, for building of radio sets.... 50



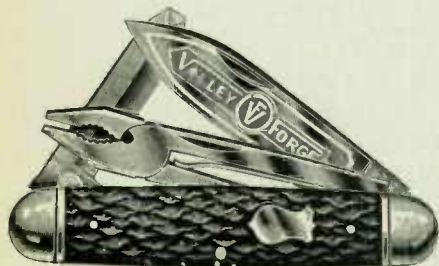


**DEITRICKSON
TRANSFORMER**
Type "R"

For Use in a Special Reflex Circuit

A set constructed with the use of these transformers will give extraordinary volume and most selective tuning, the one tube performing the duty of three tubes.

Price—Set of two\$4.00



No. 1776

**VALLEY FORGE RADIO POCKET
KNIFE**

A handy combination knife, screw driver and pliers, all-in-one. Bone handle and steel of highest quality.

Price\$2.00

**LONG REACH SIDE CUTTING RADIO
PLIERS.**

No. 1777—Polished jaws, box joint, 5½ inches long; gunmetal finished handle\$1.50

**DEITRICKSON
STATIONARY COUPLER**

Range 200-600 Meters

The inductance and coupling of this unit is so designed and fixed at certain values, that it eliminates the necessity of rotor and taps. The tuning is accomplished with two 11-plate condensers. Hook-up diagram with each unit.

Price \$3.00



No. 942

RED DEVIL PLIERS

These pliers are forged from special steel and will be found the best for all electrical work. Fully guaranteed. Shipping weight 1 pound.

No. 24 Slip Joint Pliers, 5-inch Price\$1.00
No. 942 Diagonal Cutting Pliers, 5-inch. Price 1.40



No. 27

RED DEVIL SCREW DRIVER

A first class tool, insures a good grip. No. 27 Screw Driver, 3½-inch blade.

Price40c
No. 28 Screw Driver, 4½-inch blade. Price45c
No. 29 Screw Driver, 6½-inch blade. Price50c



No. 560

SOLDERALL

A new metal solder. Complete with flux. A drop of Solderall and a match or candle are all that is needed to make a permanent connection.

- No. 568—Solderall Torch\$1.75
- No. 569—Price, pertube..... 25
- No. 570—Rosin Core Solder. No flux needed. Per foot......10
- Per pound 1.00



No. 568



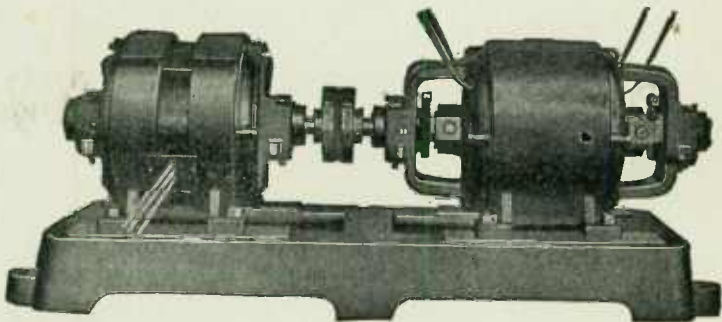
- No. 571—Soldering Compound\$0.30
- No. 572—Hand Soap 0.20



BOYER'S RADIO CEMENT

A cement for all radio work. Makes coils and windings hold their shape. Insulating, resisting and quick drying. Price per bottle\$0.35

ESCO MOTOR-GENERATORS



We are in position to supply all sizes of Esco motor-generators and generators. Esco ranks foremost in building high-grade motors and we can highly recommend these to you. Prices and literature on application.

COILED SPRING AERIALS

Made of Phosphor Bronze wire. An excellent antenna where it is inconvenient to erect an outside installation.

- 100 Foot Coil, No. 1.....\$0.75
- 125 Foot Coil, No. 3..... 1.00



EVERY DAY ELECTRICAL ITEMS

These items have been carefully selected. Staple material. Every user of electricity has need for one or more of them.

Ajax Plural Socket Plugs multiply the outlets without any change. Made of heat resisting composition, highly polished, all metal parts, nickel-plated.



No. 33—3-Light

Correctly designed for real service. Guaranteed against ordinary breakage. Electrically and mechanically correct.

Approved by testing laboratories of "Good Housekeeping" and "Modern Priscilla."

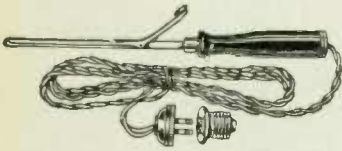


No. 22—2-Light

Ajax Plural Plugs permit the use of ordinary shade holder leaving lamp in original downward position. Can be screwed into any Edison flush receptacle without interfering with door.

No. 22—2-Light, packed 10 in handsome two-color display box. List, each.....\$0.75

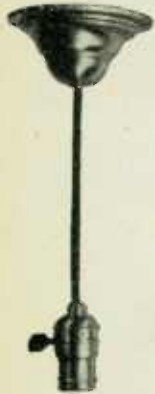
No. 33—3-Light, packed in handsome two-color display box. List, each..... 1.00



No. 250—STA-WAVE CURLING IRON

A superior Curling Iron, not only from standpoint of correct design, fine workmanship and material, but distinctive features that win instant favor and warrant satisfaction. Size 11½ inches long with 6 ft. cord and plug. Price.....\$2.00

Fully guaranteed for one year.



AJAX JUNIOR PLURAL SOCKET PLUG

No. 2-4-1

Screw into flush receptacles without interfering with door.

This plug is constructed in the same way and of the same grade of materials as our No. 22 and No. 33, but a saving has been made in the design. List Price, each.....60c



DROP CORD OUTFIT

All ready for installing. Handsome brass canopy, 2½ feet. Heavy reinforced cord with good grade brass key socket. One in carton. List\$1.00



Two-Way Triple Duty Plug
List 80c



Two-Way Three Way Plug
List 75c



Turn Light Plug
List 75c

PLUGS AND SOCKETS



No. C1—Iron Plug
List \$1.00



No. F1—Iron Plug
List 50c

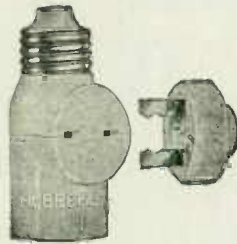


No. 41—Any Light Dimmer
Seven Changes of Light
List \$1.30

G1 and F1 Fits all Standard Irons



No. K1—Extension Iron
Cord
6 ft. Cord, Sep. Iron Plug,
List \$1.00
10 ft. Cord, Sep. Plug, key
socket. List...\$1.00



No. 192
Current Tap. List 50c



No. D2
Feed-Through Switch
List 50c



No. 116—2 Piece At-
tachment Plug. List 25c



No. K3—Iron Cord
List \$2.00



No. A3—Canopy Switch
List \$1.00

Brush Brass Sockets

No. 1552

- Key, 1/8 Cap 33c
- Key, Pendant Cap... 33c
- Keyless, 1/8 Cap..... 30c
- Keyless, Pendant... 30c
- Pull Chain, 1/8 Cap... 55c



Porcelain Sockets

No. 2532

- Key, 1/8 Brass Cap... 46c
- Key, Pendant Cap... 36c
- Pull Pendant Cap... 85c

MISCELLANEOUS ELECTRICAL EQUIPMENT

PORCELAIN ROSETTES



No. 2551—1 Piece.....10c



SNAP SWITCHES

No. 4000—Non-Indicating, each.....40c
Per 100\$37.00
No. 3000—Indicating, Each45c



No. 25—Rosette
No. 2500—2 Piece Cleat16½c
2 Piece Concealed16½c



No. 9366—PORCH PORCELAIN

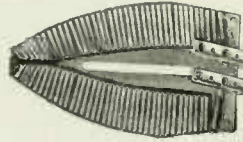
Weatherproof Sockets22c

No. 43310
Mica Weatherproof Sockets18c



Porcelain 1-Piece Receptacle12c

IRON ELEMENT
Nichrome Wire Used



No. E-76

Fits 93 per cent of irons, including Hot Point, General Electric, Westinghouse, Sunbeam, Universal, Marion, Royal Rochester, White Cross. Price.....\$1.50



NICHROME REPAIR COIL
No. E-78

A valuable addition to the dealer's repair equipment. Repairs a large variety of electrical appliances. Simply cut the necessary length as specified on spool label, stretch to required length, and insert in Element. Price.....\$5.00



FUSE PLUG

10, 15, 20, 25, 30-Ampere.
Each\$ 0.08
Per 100 6.00
Per 1,000 50.00



No. 14—R. C. Solid Black wire, per 1000 ft.\$15.00

No. 14—R. C. Solid White wire, per 1000 ft.\$15.00

Twisted Black or Gray 250 ft. Per C

No. 18—Heater Cord.....\$8.00
No. 16—Heater Cord..... 9.00

Less Than Coil Per Ft. \$0.09 .10

ELECTRICAL ITEMS THAT SELL

AJAX No. 1012 MOST POPULAR OFFICE PORTABLE



Made with utmost care and best materials to stand rough usage. Furnished complete as shown in either Brush Brass or Statuary Bronze finish.

No. 1012B—With Yost Socket, cotton cord and one-piece attachment plug each\$3.25

AJAX No. 305—BANKERS DESK PORTABLE



With 12-inch Flexible Arm. Finished in Statuary Bronze. Complete with cord, plug, shade, socket, etc.

No. 305B—With cotton cord, Yost socket and one-piece attach. plug, each\$3.25

AJAX HEATER CORD SET



Will fit 90 per cent of all standard irons sold. Universal type. 6 feet, high-grade asbestos covered heater cord with separable 2-piece plug. One in carton. Each\$1.00

No. 1503 AJAX PORTABLE
Wired complete with shade



This is a very popular type for office use as well as for the home. Made solid to last a lifetime. Brush Brass finish is standard. No. 1503B—with 9-inch flex. steel arm and Yost Socket, cotton cord and one-piece attach. plug, complete, each\$3.50

EXTENSION CORD SET

Needed in Every Home

B1—Set made with 8 feet high grade heavy reinforced cord. Composition socket and 2-piece plug. One in carton.

Each\$0.75

B2—Set same as above, except 10 foot cord. Each85



THE JUNIORLITE

Here's a real high grade portable lamp you can sell to your customers who want something better.

Finished in ivory enamel, with rose and other pleasing designs.

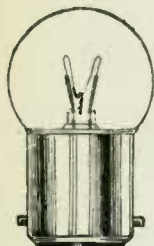
J375—List Price\$5.50

NITROGEN AND TUNGSTEN MINIATURE LAMPS

FOR AUTOMOBILES

These lamps maintain their rated candle power through life and do not blacken.

AUTO LAMPS—These lamps are guaranteed to be equal to any other standard make. The following prices are standard list prices.



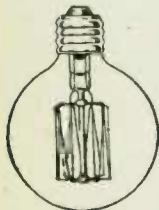
Bulb G6
Tipless

S.D.	D.C.	Description	Volt	C.P.	Bulb	Type	Unit Pkg.	List
61	62	Rear or Dash.....	3-4	2	G 6	Tungsten	10	\$0.20
63	64	Rear or Dash.....	6-8	2	G 6	Tungsten	10	.20
1101	1102	Head or Spot.....	6-8	21	S 11	Nitrogen	10	.35
1133	1134	Head or Spot.....	6-8	32	S 11	Nitrogen	10	.55
67	68	Rear or Dash.....	12-16	2	G 6	Tungsten	10	.20
1111	1112	Head or Spot.....	12-16	21	S 11	Nitrogen	10	.45
1143	1144	Head or Spot.....	12-16	33	S 11	Nitrogen	10	.55
71	72	Rear or Dash.....	18-24	2	G 6	Tungsten	10	.30
1145	1146	Head or Spot.....	18-24	27	S 11	Nitrogen	10	.65

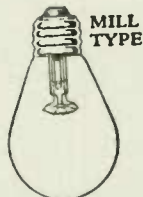
Following for FORD Magneto Systems:

S1	S2	Headlight	9	18	S 11	Tungsten	10	.35
S3	S4	Headlight	9	27	S 11	Nitrogen	10	.40
S5	S6	Double Filament..	6-8	4-21	S 11	Nitrogen	10	.45

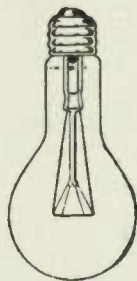
TIPLESS LAMPS



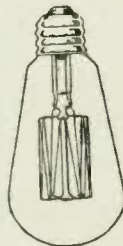
G-25 Bulb
25 and 40 Watts



P-19 Bulb
25 and 50 Watts



PS-22 Bulb
75 Watts



S-19 Bulb
40 and 50 Watts

TIPLESS lamps are the equal of any lamps on the market and are mighty fast sellers. People just naturally like the "Tipless" feature.

TYPE "B"—TUNGSTEN

Watts	Volts	Std. Pkgs.	List	Watts	Volts	Std. Pkgs.	Finish	List
10	115	120	\$0.30	50	32	60	Clear	.45
15	115	120	.30	75	32	60	Clear	.55
25	115	120	.30	100	32	24	Clear	.70
40	115	120	.30	50	115	60	White	.45
50	115	120	.30	75	115	60	White	.55
60	115	120	.35	100	115	24	White	.65
25	32	120	.30	75	115	60	Bowl Frost	.55
40	32	120	.30	100	115	24	Bowl Frost	.65
				150	115	24	Bowl Frost	.80
				200	115	24	Bowl Frost	1.10
				75	115	60	Blue	.70
				100	115	24	Blue	.90
				150	115	24	Blue	1.15
				200	115	24	Blue	1.50

ROUND FROSTED AND FLAME TINT

Watts	Volts	Std. Pkgs.	Finish	List
25	115	120	Frosted	.45
25	115	120	Flame Tint	.55
40	115	60	Frosted	.55
40	115	60	Flame Tint	.65

TYPE "C"—NITROGEN

50	115	60	Clear	.45
75	115	60	Clear	.50
100	115	24	Clear	.60
150	115	24	Clear	.75
200	115	24	Clear	1.00
300	115	24	Clear	1.60
300	115	24	Clear	1.60
500	115	12	Clear	1.85

TYPE "C"—MILL TYPE

25	115	120	Clear	.35
25	115	120	Blue	.47
50	115	120	Clear	.35
50	115	120	Blue	.47

CARBON LAMPS

Size	Volts	Std. Pkgs.	Finish	List
2 c. p. Nite Lite	25	25	Clear	.25
16 c. p.	250	250	Clear	.25
32 c. p.	250	250	Clear	.38

WESTINGHOUSE HEATING APPARATUS



Six Pound Westinghouse Irons

Beveled base, permitting greater working surface; sharp point permitting easy ironing of fine work.

- "H" Iron—List, each \$5.50
- "K" Iron—List, each 6.75

Curling Irons



Highly Polished Nickel, handle is ebonized black. Swivel plug.
List each \$5.75

Warming Pads

Soft and pliable, encased in fawn colored felt covers; three heat control switch. Complete, each \$8.50



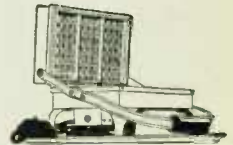
7-Cup Coffee Percolators

Copper base, nickered. Includes cord and plug.
List, each \$14.50

Waffle Irons

The grids are cast aluminum, permitting one to bake three crisp waffles in three minutes. No grease is needed.

- List, each \$18.00



Waffle Iron

Toaster Stove

Complete with toasting rack, aluminum griddle and frying plate, tray and cord complete.

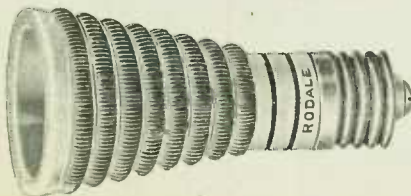
- List, each \$5.75



FITSRITE HEATER ELEMENT

No. E-77

Scientifically Constructed—Nichrome Wire Used



Its cone shape radiates heat waves parallel to the reflector, which increases heating efficiency and reflects heat to a greater radius. This is the last word in Bowl Element construction. Fits all Screw Type Heaters. Guaranteed for one year. Price \$1.30

HOTPOINT ELECTRICAL APPLIANCES



List Price

- No. 114P17—9-cup Percolator, only...\$25.00
 - No. 100Y33—Sugar and Creamer..... 10.00
 - No. 100Y34—Tray 9.25
- Set sold complete or in parts.



List Price

- No. 114P4—Percolator only\$22.50
 - No. 100Y33—Sugar and Creamer..... 10.00
 - No. 100Y34—Tray 10.00
- Sold complete or in parts.



List Price

- No. 114P17—9-cup Percolator, only...\$25.00
 - No. 100Y38—Tray 9.00
 - No. 100Y32—Sugar and Creamer..... 10.00
- Sold complete or in parts.



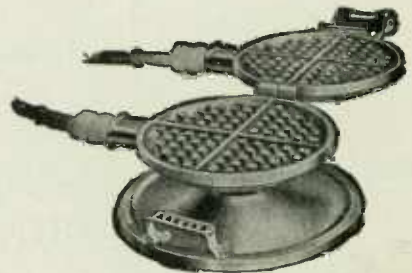
- No. 20621—Percolator, 6 cup, nickel, \$13.00
- No. 20620—Percolator, 5 cup, nickel, \$12.00

HOTPOINT WAFFLE IRON



List Price

- No. 20622—Cup Percolator, only.....\$16.75
 - No. 100Y33—Sugar and Creamer..... 10.00
 - No. 100Y34—Tray 9.25
- Sets sold complete or in parts.



List Price

- No. 116Y23—Waffle Iron\$15.75
- Standard package—1.

Hotpoint appliances are known everywhere as the leading line of their kind. No other appliance is so well known as the Hotpoint Iron. Many other items in the Hotpoint line find a ready sale if you yet your customer know you are the Hotpoint dealer.

GIANT TOASTER

A well made extra large size, guaranteed toaster. Highly finished. Complete with cord and plug.
Price \$5.95



SUPERIOR PERCOLATORS



Eight cup size. Colonial Panel Style, with glass top. Made of heavy aluminum, highly finished. Complete with cord and plug. Guaranteed.
Price \$7.00

MARION ELECTRIC IRON

For the buyer who demands a well-built iron at a moderate price the Marion fully meets every requirement.

While low in price this iron in no way lacks any of the requirements necessary to make a fine iron.

Its heating element is of unusually high quality which heats quickly and maintains the iron at an even degree of temperature.

Two substantial metal projections built in the end of the iron serve as a stand, a feature greatly appreciated by the user.

From a standpoint of appearance the Marion is decidedly attractive. The top is fully nicked and beautifully polished and the base polished to a high lustre.

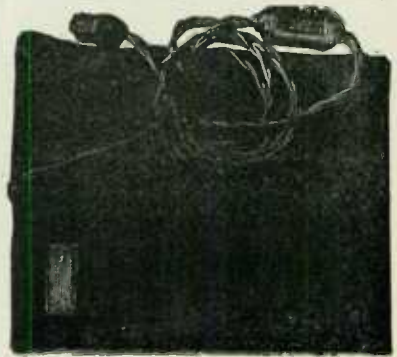
Equipped with No. 18 Asbestos Heater Cord and socket plug.

Fully guaranteed for one year.
List Price \$5.00

STA-WARM WAFFLE IRON



No. 800
A perfect quick baking iron that will not burn or smoke. Constructed of cast Polish-ed Aluminum and equipped with smooth ebony knobs. Will not discolor and easy to keep clean. Complete with cord and plug.
Price \$12.00



HOTPOINT ELECTRIC IRONS



ROHNE ELECTRIC HEATING PAD

The World's Best—No. 205

The Heating Pads That Are 100 Per Cent Safe.

A heating pad that fully meets every demand of the most critical buyer.

A feature of special importance is its C-H 3 heat switch which enables the user to secure three separate and distinct degrees of heat.

The pads are covered with an especially fine quality of Eider Down which in turn is covered with a removable slip which may be laundered.

Size, 12x15. Equipped with 8 ft. cord and plug. Fully guaranteed for one year.

List Price \$8.00

ROHNE HEATING PAD No. 307

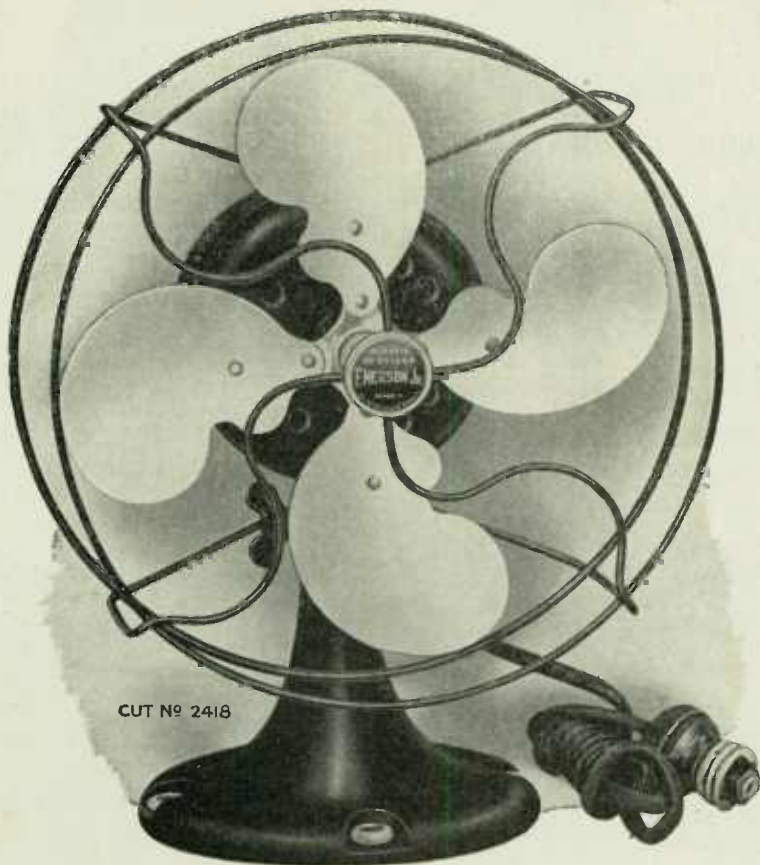
Virtually the same as the World's Best, except that it is adjusted to but on heat. A serviceable pad that appeals to the economical buyer. Size also 12x15. It is equipped with a multiple Heat Thermostat. Fully guaranteed for one year.

List Price \$5.50

- | | | |
|---------------------|-------------------|--------|
| No. 115F17—6 | lb. 110 volt..... | \$6.75 |
| No. 115F5 —5 | lb. 110 volt..... | 6.75 |
| No. 113F22—3 | lb. 110 volt..... | 6.25 |
| Standard package—6. | | |

THE EMERSON JUNIOR

With the 5-Year Guarantee



No. 2363

9-INCH NON-OSCILLATING

A real Emerson Fan, having all the essential features of the regular Emerson Fans, and at a price within the reach of everyone.

The Emerson Junior is made for 105 to 115 Volts alternating current. It has a straight induction motor with no brushes or moving contacts to get out of order as in most low priced fans.

The blades of the Junior are heavily pitched, and the fan throws a surprisingly large volume of air.

Shipping weight, boxed 16 lbs.

Price\$10.50

SIGNAL

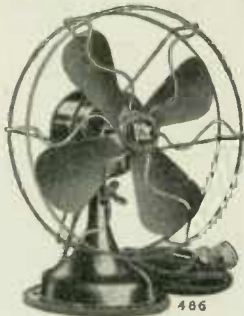
Junior \$7-list Eight inch Fan



FEATURES

1. Blades full eight inches, brass finish.
2. Self-aligning bronze bearing—cannot bind.
3. Eight foot cord. Seperable plug.
4. "On and Off" Hart & Hegeman Toggle Switch (one speed) in base.
5. Two thousand revolutions per minute, plenty of breeze.
6. Housing pressed steel. Base polished cast iron. Baked on black Japan finish (no die castings to crack or break.)
7. Sturdy pressed steel swivel joint, permits fan to be adjusted to any angle.
8. Rubber feet, for table use. Base slotted for wall mounting.
9. Generous size, self-lubricating oil wicks—no cups or springs.
10. Runs smoothly and noiselessly. Few parts, nothing to get out of order.
11. Universal motor runs on either AC or DC current—25 to 60 cycles, 110 volt. (Can be supplied for high voltages at slightly increased cost.)

ROBBINS & MYERS FANS



No. 4100

The Robbins & Myers Fan was one of the first electric fans placed upon the market. Many of these fans, manufactured a quarter of a century ago, are still found in use the world over, giving reliable, efficient service. And every season throughout this quarter century, improvements in design and construction have been made which have maintained for the R. & M. Fan the reputation for quality it earned at the start. The present season has been no exception, and in the 1924 line of R. & M. Fans we have a product which is a step ahead of anything that has been produced in the past.

RELIABILITY AND LONG LIFE

Every R. & M. Fan has a reputation of a quarter of a century standing to maintain, and the success of the manufacturers is based upon this reputation the product has earned for reliability. They as well as we, cannot afford to have any user dissatisfied with his purchase, and they stand back of us with a guarantee to make good on any fan which is not entirely satisfactory to the purchaser. You take no chances whatever when you select an R. & M. Fan.

No. 4100—8-INCH NON-OSCILLATING

This fan is especially adapted for use in small offices, homes or any place where only a small fan is needed. Made to R. & M. standard.

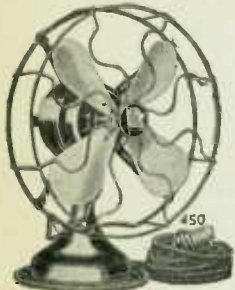
No. 4100—For use on 110 volts alternating current.

No. 3504—For use on 110 volts alternating or direct current.

No. 3503—For use on 32 volt farm lighting plants.

Shipping weight, boxed—12 lbs.

Price\$10.00



No. 3704

9, 12 AND 16-INCH ALTERNATING CURRENT FANS

Four-Blades, Three Speeds, Drawn Steel Frame,

Non-Oscillating

This fan is suitable for all services where a good breeze is required in a fixed direction. The trunnion permits the blades to be tilted to any angle of elevation and adapts the fan for desk or bracket mounting. The swivel makes it possible to turn the blades in any direction horizontally to direct the breeze as desired.

The induction type motor is used, and there is no centrifugal starting switch or delicate starting winding to cause trouble.

- No. 3000—9-inch Non-Oscillating for 110 volt alternating or direct current. Shipping weight, boxed—14 lbs. Price.....\$17.50
- No. 3002—9-inch Non-Oscillating for 32-volt Farm Lighting Plants. Shipping weight, boxed—14 lbs. Price.....\$17.50
- No. 3704—12-inch Non-Oscillating for 110-volt alternating current. Shipping weight, boxed—35 lbs. Price.....\$23.50
- No. 3754—16-inch Non-Oscillating for 110-volt alternating current. Shipping weight, boxed—43 lbs. Price\$27.00

ROBBINS & MYERS FANS

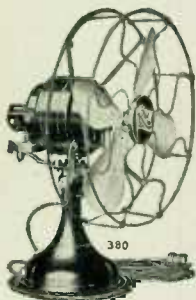
9-INCH ALTERNATING-DIRECT CURRENT FAN

Four-Blades, Three Speeds, Drawn Steel Frame

The 9-inch oscillator is the ideal fan for the home, small office or any place where a moderately strong breeze is desired. It is light in weight and can be easily carried from room to room.

Model 31 is supplied for operation on 220 volts direct or alternating current, and 32 volts direct current.

Model 36 is supplied for 110 volts direct and alternating current, any frequency from 25 to 60 cycles, and any voltage from 110 to 120.



No. 3600

OSCILLATING TYPE

No. 3600—9-inch Oscillating for use on 110 volts alternating current. Shipping weight, boxed—16 lbs. Price\$22.00

No. 3103—9-inch Oscillating for 32 volt Farm Lighting Plants. Shipping weight boxed—16 lbs. Price\$22.00

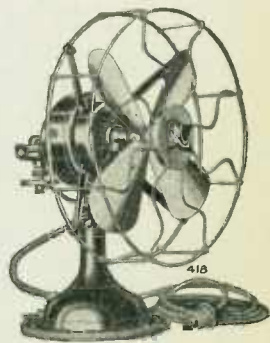
12 AND 16-INCH ALTERNATING CURRENT FANS

Four-Blades, Three Speeds, Drawn Steel Frame, Oscillating Type

This fan is in general use in stores, theatres, restaurants, offices, schools, public buildings, large rooms in homes—everywhere that a strong breeze is desired. When oscillating the fan will direct the breeze to every part of a large room.

The fan can be adjusted to any desired elevation and can be used either in desk or bracket position. It can also be used as an oscillating or stationary fan as desired.

Model 38 is supplied for 110 volts, 60 cycles, and Model 24 is supplied for other voltages and frequencies.



No. 3854

No. 3804—12-inch Oscillating for 110 volt alternating current. Shipping weight boxed—36 lbs. Price\$30.00

No. 3854—16-inch Oscillating for 110 volt alternating current. Shipping weight, boxed—44 lbs. Price\$35.00

No. 2534—12-inch Oscillating for 32 volt Farm Lighting Plants. Shipping weight, boxed—36 lbs. Price\$30.00

Announcing THE SIGNAL "COOL SPOT"

A Chaste, White, Sanitary, Light Weight
ALUMINUM FAN

That Sells on Sight—Straight and Oscil-
lating Types for Wall or Table
Mounting.

Just what the cultured discriminating
women of the day have been wishing for.

A fan that is light in weight, easily
portable; and finished in a soft neutral
aluminum that harmonizes with the in-
terior color-scheme of any room.

An ideal Desk Fan for offices and
factories.

Pedestal and Motor Frame are sturdy
aluminum castings, scratch satin finish.

SPECIFICATIONS (Both Types)

BODY—Pedestal and Housing for Motor
and Gearing are cored aluminum cast-
ings; satin finish.

MOTOR—Ventilated Induction type, for
AC Service only. DC Type now in pre-
paration. Write for data.

BLADES—9-inch diameter, Standard
curve, formed from polished sheet
aluminum.

GUARD—4-point suspension on plain
type. 2-point suspension on oscillating
type.

BRACKET—Wing nut and joint permit
placing motor at any desired angle.
Suited to either table or wall mounting.

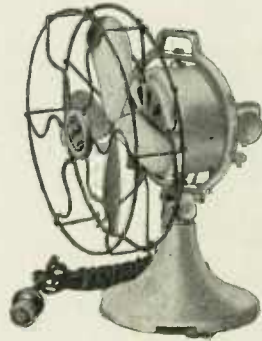
GEARING—In oscillating type, gearing
is brone, double strength teeth; Pin-
ions tool steel with cut double strength
teeth.

LUBRICATION—Wick oiled, automatic,
noiseless.

SWITCH—In base—single speed.

CORD—8 ft., bright green, with separate
plug.

PACKING—Each fan is packed complete,
with 8 ft. of green cord and separable
plug, in a separate carton, for ocnven-
ience in stocking and display.



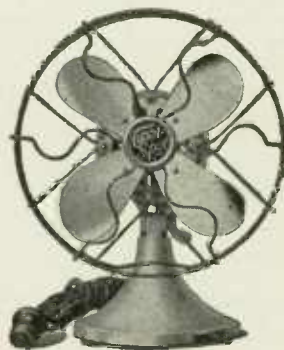
OSCILLATING TYPE No. 901

Fan swings through a wide arc, is me-
chanically driven by worm gear on mo-
tor shaft. Convenient knurled nut at
rear controis oscillation by friction-con-
tact at disc-wheel.

Gearing is bronze with double-strength
cut teeth; Pinions are cut from tool
steel.

For other details, see specifications.

List Price \$16.00



No. 900—NON-OSCILLATING TYPE

Same as No. 901 without the oscillat-
ing mechanism. Guard has 4-point sus-

For other details, see specifications.
pension; very sturdy.

List price \$10.00

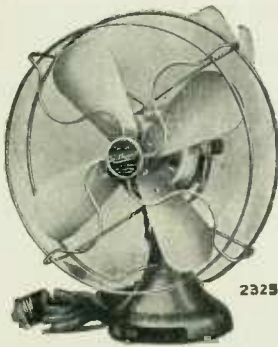
NORTHWIND FANS

FOR ALTERNATING OR DIRECT CURRENT

The 8-inch Northwind desk fan (non-oscillating) is an efficient, smooth-running fan, light enough to be easily handled, but so substantial that there is no vibration of the motor. This size is large enough so that excessively high speed is not needed to procure a breeze of satisfactory volume.

All rotating parts are carefully balanced. The motor is mounted in a trunnion, which permits adjustment vertically, and has swivel adjustment in the base, allowing the breeze to be directed to either side.

This Northwind may be re-adjusted for wall bracket use in a moment without extra parts, by removing a set screw in the read of the upright portion of the base, re-adjusting the base to the angular position and replacing the set screw. A slotted hole is provided in the bottom of the base to receive the head of a small wood screw or any small hook to support the fan. The swivel and trunnion adjustment is particularly convenient when the fan is used in the bracket position.



Type 44—8-Inch

No. 44—8-inch oscillating for use on 100 to 120 volts alternately or direct current. Finish—Mat brass, closely resembling Brush Brass.

Shipping weight, boxed—6 lbs.

Price\$8.00

TYPE 450—10-INCH, 3-SPEED OSCILLATING

This Northwind Oscillator is quiet in performance and throws a large volume of air. It has three running speeds, controlled by the starting switch in the base. The design is unuaually graceful, light and pleasing, but sufficiently substantial to insure smooth operation.

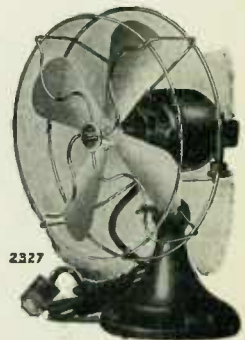
The motor has unusually high electrical efficiency. The speed regulation is exceptionally good. Northwind fans have rigid and substantial cast frames which entirely enclose the working parts. They operate quietly and smothly, without vibration.

No. 450—10-inch oscillating for use on 100 to 120 volts alternately or direct current.

Finish—Motor and stand dull black, blades mat brass.

Shipping weight, boxed—17 lbs.

Price\$18.50



Type 450—10-Inch

EMERSON FANS

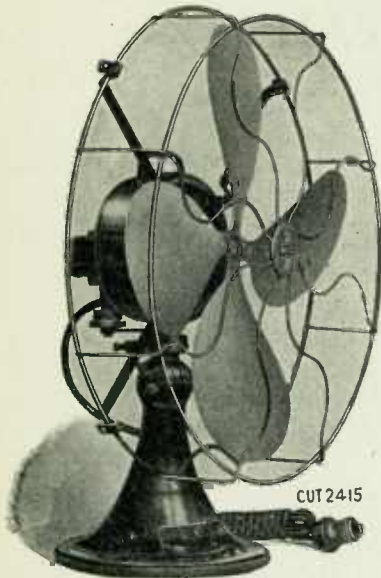
With the 5-Year Guarantee

It isn't necessary to say much about the quality and efficiency of Emerson Fans. Most everyone who has ever handled electric fans knows that the Emerson is the most popular and the easiest fan to sell.

Every Emerson Fan is covered by a 5-year guarantee, a guarantee backed by one of the oldest and largest manufacturers of electric fans and motors. This guarantee is your assurance that when you buy an Emerson Fan you are getting the best that money can buy.

The following is a brief description of the most popular sizes and types of Emerson Fans for the home, office or store.

All for Alternating Current.



No. 29648

EMERSON 9-INCH OSCILLATOR

A small, quiet, oscillating fan, but large enough to give a breeze quite satisfactory for small rooms. Light weight—only 13 lbs.—but heavy enough to be stable and smooth-running.

The Emerson adjustable device gives a smooth, steady swing from side to side, through 90 degrees or any smaller angle, as you need it. This is a big convenience.

Shipping weight, boxed—24 lbs.
Catalog Number 29645

Price\$24.00

EMERSON 12-INCH OSCILLATOR

This four-blade, medium-speed fan gives most breeze for electricity consumed and is by far the popular type for general use. Blades of heavy pitch project a strong breeze, which may be reduced by the speed-regulating switch in the base.

Emerson oscillators all have a reliable oscillating device which has been used successfully for years with only minor improvements. The fan may be set in a moment to blow through any angle up to 90 degrees, or to stop oscillating.

The 12-inch oscillator is especially suited for the home; is also very popular as an office or store fan.

Shipping weight, boxed—39 lbs.
Catalog Number 29646

Price\$31.40

EMERSON 16-INCH OSCILLATOR

This big, medium-speed, four blade fan throws a powerful breeze to a great distance. It is the standard adopted by many stores, factories and large offices—well suited for buffets, restaurants and large public rooms.

The cost of operating even such large fans is relatively low—less than one cent per hour.

Shipping weight, boxed—48 lbs.
Catalog Number 29648

Price\$36.00

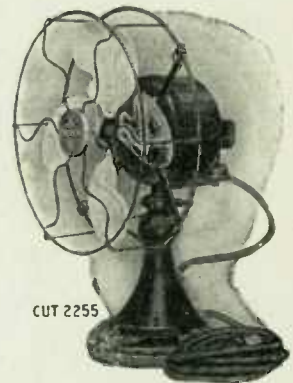
EMERSON 12-INCH NON-OSCILLATING FAN

Although oscillating styles grow more popular each year, some prefer the simpler style throwing a steady breeze. This type is a four-blade, medium-speed fan, with excellent speed regulation and at a relatively low price.

These fans are as efficient and well-made as any Emersons, and have swivel-hinged bases permitting adjustment up or down or to either side.

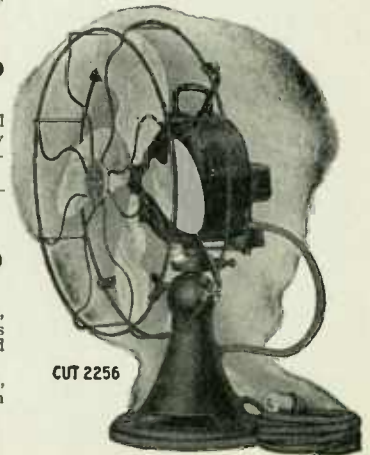
Shipping weight, boxed—36 lbs.
Catalog Number 28646

Price\$24.40



CUT 2255

No. 29645



CUT 2256

No. 29646

ERLA REFLEX CIRCUITS

United States Patents Applied For.

The efficient principle of reflex amplification, regarded by many of the foremost scientists and investigators as the ultimate in radio development, is carried to amazing perfection in the advanced Erla reflex circuits here illustrated and described.

Tube for tube, these circuits demonstrate a decisive superiority over other types, whether measured in terms of range, selectivity, ease of control, or volume and purity of reproduction.

Unequaled Range and Volume

Even the single-tube circuit normally operates a loud speaker over an extensive range, while with the three-tube circuit, costliest multi-stage amplifiers are surpassed in transcontinental loud speaker reception. The two-tube circuit is correspondingly effective, providing full loud speaker volume for all but the most distant stations.

Due to the tremendous efficiency of these circuits and the apparatus especially developed for their construction, an inside aerial may be successfully employed. Also, because of low current consumption, dry cells are quite practical, achieving ready portability at minimum cost.

Absolute Stability Is Realized

Outstanding among the notable advantages of these circuits is absolute stability, unique in reflex work, and a complete absence of distortion and parasitic noises. Tuning is extremely sharp and selective, even powerful local broadcasting being excluded at will. Simple controls provide maximum ease of operation.

In developing these circuits to their present unparalleled efficiency, the scientific reflex principle has been given new and advanced application, resulting in a more effective utilization of vacuum tube energy than has ever been heretofore attained.

Tubes Do Triple Duty

In Erla circuits, tubes do triple duty, providing simultaneous amplification of received radio, reflex radio and reflexed audio frequency currents. Yet, so precise is the manipulation of this complex current flow, that the resultant tremendous gains are achieved without a single drawback.

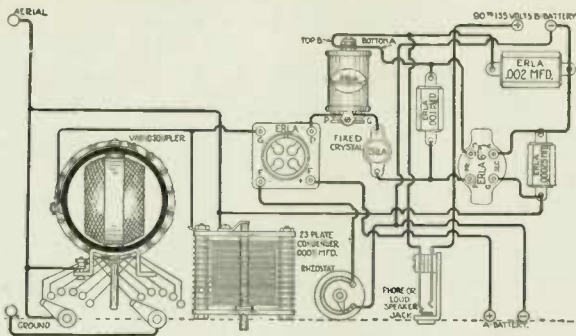
First, the received impulse is amplified at radio frequency, and then, through the special transformer employed, it is stepped up and passed through the tube again. Finally, after rectification, it is passed through an audio transformer and back to the tube once more, completing the triple cycle.

One Tube Replaces Three

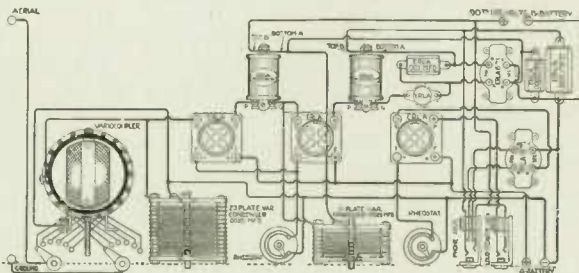
Thus, in Erla reflex circuits, increased range and volume are attained with less than half the number of tubes commonly employed. The single-tube circuit, for example, provides the efficiency of the conventional three-tube circuit, for example, provides the efficiency of the conventional three-tube circuit, using one stage of radio and one stage of audio amplification. Not only is there no loss from the substitution of a Crystal for the conventional vacuum tube as detector, but an additional gain is realized in improved stability and purity of reproduction.

Though they are sometimes regarded as identical by the uninformed, several radical points of divergence exists between reflex action and the principle of feedback or regeneration.

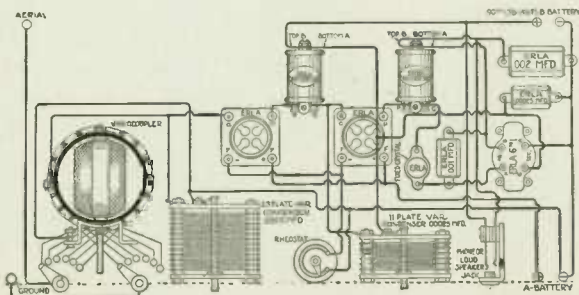
ERLA REFLEX CIRCUITS



Erla Duo-Reflex Circuit, the Most Powerful Single-Tube Circuit Ever Built.



The Two-Tube Erla Reflex Circuit Provides Ample Loud Speaker Volume for All But the Most Distant Stations.



The Erla Triplex Circuit Surpasses the Most Elaborate Multi-Stage Hook-Ups in Range and Volume.

Prices of Parts for ERLA REFLEX CIRCUITS

ERLA ONE-TUBE REFLEX PARTS

	List
1 Hilco Variocoupler	\$ 7.00
2 Switch Arms .....	.40
12 Switch Points, 2 for 5c.....	.30
1 Erla Socket .....	.75
1 .0005 Rathbun Variable Cond.....	3.50
1 Federal Rheostat No. 22.....	1.50
1 Jack No. 1421 Federal.....	.60
1 Erla 6-1 Transformer.....	5.00
1 Erla Fixed Detector.....	1.00
1 Erla Reflex No. 1 Transformer....	5.00
1 Dubilier Condenser .002 .....	.40
1 Dubilier Condenser .001 .....	.40
1 Dubilier Condenser .00025 .....	.35
15-ft. No. 14 Buss Wire.....	.15
15-ft. Spaghetti .....	.90
1 7x12x $\frac{1}{8}$ Panel	1.75
6 Read 'em Binding Posts.....	.90
\$29.90	

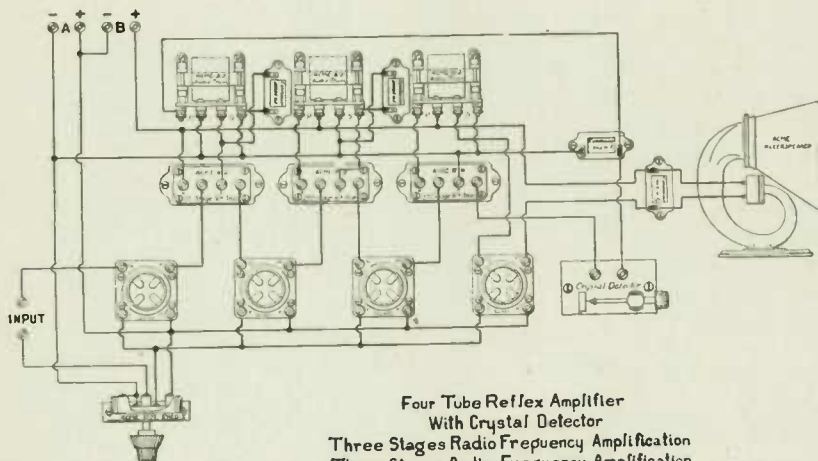
ERLA TWO-TUBE REFLEX PARTS

	List
1 Hilco Variocoupler	\$ 7.00
10 Switch Points, 2 for 5c.....	.30
2 Switch Arms	1.50
1 23-Plate Cond. .0005 Rathbun....	3.50
1 11-Plate Cond. .00025 Rathbun....	3.00
1 Jack No. 1423W .....	.60
1 Erla Fixed Detector.....	1.00
1 Dubilier .001 .....	.40
1 Erla 6-1 Transformer.....	5.00
1 Dubilier .00025 Condenser.....	.35
1 Dubilier .002 Condenser.....	.40
2 Erla Reflex No. 1 & No. 2 Trans.	10.00
1 Rheostat, Federal, No. 22.....	1.50
2 Erla Tube Sockets	1.50
25-ft. No. 14 Buss Wire.....	.25
24-ft. Spaghetti	1.44
1 7x18x $\frac{1}{8}$ Panel	2.95
6 Read 'em Binding Posts.....	.90
\$41.59	

ERLA THREE-TUBE REFLEX PARTS

	List		List
1 Hilco Variocoupler	\$ 7.00	10 Switch Points, 2 for 5c.....	.25
3 Tube Sockets, Erla.....	2.25	1 Erla Fixed Detector.....	1.00
1 .0005 Condenser, Variable.....	3.50	1 1423W Jack, Federal.....	.80
1 .00025 Condenser, Variable.....	3.00	1 1421W Jack, Federal.....	.60
2 Federal Rheostat, No. 22.....	3.00	6 Read 'em Binding Posts.....	.90
1 Erla 3-1 Transformer.....	5.00	1 Erla No. 1 Reflex Transformer....	5.00
1 Erla 6-1 Transformer.....	5.00	1 Erla No. 2 Reflex Transformer....	5.00
1 .002 Dubilier Condenser.....	.40	1 7x18x $\frac{1}{8}$ Panel	2.95
1 .00025 Dubilier Condenser.....	.35	24-ft. Spaghetti	1.44
1 .001 Dubilier Condenser.....	.40	25-ft. No. 14 Buss Wire.....	.25
2 Switch Arms	1.50	\$49.59	

ACME 4-TUBE "REFLEX" AMPLIFIER USES LOOP ANTENNAE FOR ANY LOUD SPEAKER



Four Tube Reflex Amplifier
With Crystal Detector
Three Stages Radio Frequency Amplification
Three Stages Audio Frequency Amplification

The above "Reflex" Circuit is designed for use with a loop and any good loud speaker exclusively. It should give the maximum results using but four tubes, obtainable at the present stage of the radio art.

PARTS REQUIRED

	List		List
3 Acme A. F. Transformers.....	\$15.00	1 .002 Mf. Mica Condenser.....	.40
3 Acme RF Transformers, Type R-2, R-3 and R-4.....	15.00	1 .005 Mf. Mica Condenser.....	.60
1 Acme Pot-Rheo	3.00	10 ft. No. 14 Solid Wire.....	.10
4 Good Sockets	3.00	8 Binding Posts .....	.60
1 Faad Crystal Detector	2.00		
2 .00025 Mf. Mica Condensers.....	.70		
		Total	\$40.40

FREE—Full directions and Acme Books with each outfit.

**ACME 3-TUBE REFLEX WITH
TUBE RECTIFIER**

	List
4 Federal Sockets	\$ 4.00
2 Acme A-2 Transformers.....	10.00
1 Acme R-2 Transformer	5.00
1 Acme R-3 Transformer.....	5.00
1 Acme R-4 Transformer.....	5.00
2 Acme Pot-Rheo	6.00
1 .00025 601 Micadon.....	.35
1 .00025 601G Micadon.....	.45
1 .005 601 Micadon.....	.60
1 2 Meg. Leak .....	.35
1 1 mfd. Condenser.....	1.75
25-ft. No. 14 Buss Wire.....	.25
25-ft. Spaghetti	1.75
7 Binding Posts .....	.49
	\$40.99

**ACME 4-TUBE REFLEX WITH
CRYSTA RECTIFIER**

	List
3 Acme A-2 Transformers.....	\$15.00
1 Acme R-2 Transformer.....	5.00
1 Acme R-3 Transformer.....	5.00
1 Acme R-4 Transformer.....	5.00
1 Acme Pot-Rheo	3.00
2 .00025 601 Micadons .....	.70
1 .002 601 Micadon .....	.40
1 .005 601 Micadon .....	.60
4 Federal Sockets	4.00
1 Erla Crystal Rectifier	1.00
35-ft. No. 14 Buss Wire.....	.35
35-ft. Spaghetti	2.45
7 Bind Posts .....	.49
	\$42.99

**ACME 2-TUBE REFLEX WITH
TUBE RECTIFIER**

	List
1 Acme A-2 Audio Transformer....	\$ 5.00
1 Acme R-2 Radio Transformer....	5.00
1 Ecme R-3 Radio Transformer....	5.00
3 Federal Sockets	3.00
2 Acme Pot-Rheo	6.00
1 .00025 601 Micadon.....	.35
1 .005 601 Micadon .....	.60
1 .00025 601G Micadon .....	.45
1 2 mrg. Leak .....	.35
1 2 mfd. Condensers	1.75
6 Binding Posts .....	.42
25-ft. No. 14 Buss Wire.....	.25
25-ft. Spaghetti	1.75
	\$29.92

**ACME 3-TUBE REFLEX WITH
CRYSTAL RECTIFIER**

	List
2 Acme A-2 Audio Transformers....	\$10.00
1 Acme R-2 Audio Transformer....	5.00
1 Acme R-3 Audio Transformer....	5.00
1 Acme R-4 Audio Transformer....	5.00
3 Federal Tube Sockets.....	3.00
1 Acme Pot-Rheo	3.00
1 Fada Detector	2.50
1 .00025 601 Micadon .....	.35
1 .005 601 Micadon .....	.60
1 .002 601 Micadon .....	.40
6 Bind Posts .....	.42
25-ft. No. 14 Buss Wire.....	.25
25-ft. Spaghetti	1.75
	\$37.27

**PARTS FOR ACME 1-TUBE REFLEX
CRYSTAL RECTIFIER**

	List
1 .002 601 Micadon	\$.40
1 Acme A-2 Transformer	5.00
1 Acme R-2 Transformer.....	5.00
1 Acme Twin Rheo.....	3.00
1 Federal Tube Socket	1.00
1 Erla Crystal Detector	1.00
1 .005 601 Micadon .....	.50
1 .00025 601 Micadon .....	.35
10-ft. No. 14 Buss Wire.....	.10
10-ft. Spaghetti .....	.50
9 Binding Post .....	.63

\$17.48

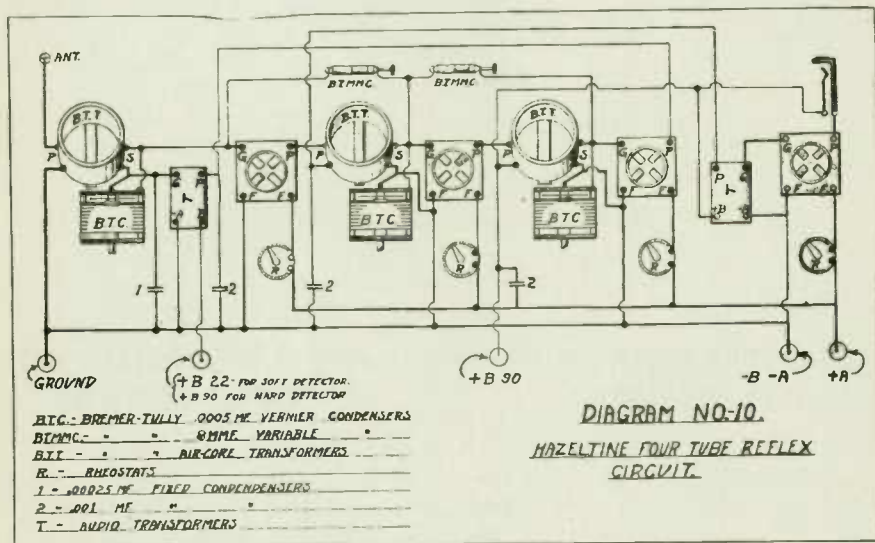
**PARTS FOR ACME 1-TUBE REFLEX
TUBE RECTIFIER**

	List
1 Acme A-2 Transformer	\$ 5.00
1 Acme R-2 Transformer	5.00
1 Acme Pot-Rheo.	3.00
2 Federal Sockets	2.00
1 .00025 601A Micadon & meg. Leak	1.20
1 .005 601 Micadon.....	.60
1 2 mfd. Condenser	1.75
20-ft. Buss Wire, No. 14.....	.20
20-ft. Spaghetti	1.00
7 Binding Posts .....	.49
1 .00025 601 Micadon .....	.35

\$23.59

HAZELTINE FOUR TUBE REFLEX RECEIVER

Tuned radio frequency amplification has not been used to a very great extent because of the difficulty encountered in keeping the amplifying tubes from oscillating due to the internal capacity of the tubes. However Prof. L. A. Hazeltine's method operates without the usual distortion due to oscillating amplifiers. This method merely makes use of two or more very small condensers, B. T. M. M. C., connected as shown in the following diagram.



The amateur who wants a receiver for code, will find that this circuit, with a variometer in series with plate of the detector tube, will more than fulfill his expectations of a real DX receiver. However for broadcast reception the variometer should be omitted.

	List
3 Bremer Tully Aircore Trans- formers	\$ 7.50
3 Rathbun .0005 Condensers	10.50
4 Bakelite Sockets	3.00
2 Bremer Tully Neutrodons	1.90
2 Fada Rheostats	2.00
2 All American Audio Transform- ers	9.50
2 Jacks	1.65

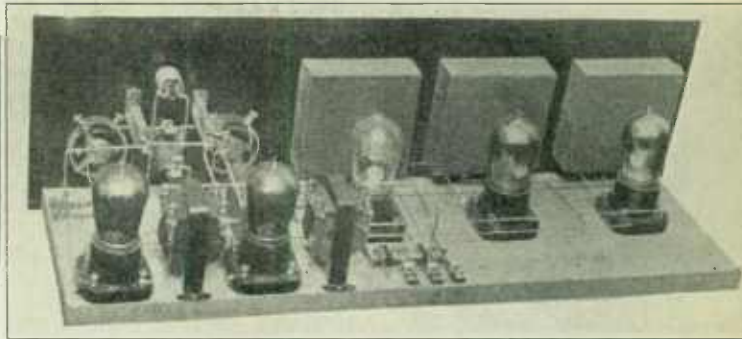
	List
3 .001 601 Micadon.....	1.20
1 .0025 601 Micadon.....	.35
6 Read 'em Binding Posts.....	.90
1 7x26x7 Formica Panels.....	4.26
1 7x26x7 Mahogany Cabinets.....	5.75
Hookup Wire and Spaghetti with a book of instructions.....	1.25

\$49.76

COSMOPOLITAN PHUSIFORMER
"The Missing Link in Radio"
\$9.50 Each

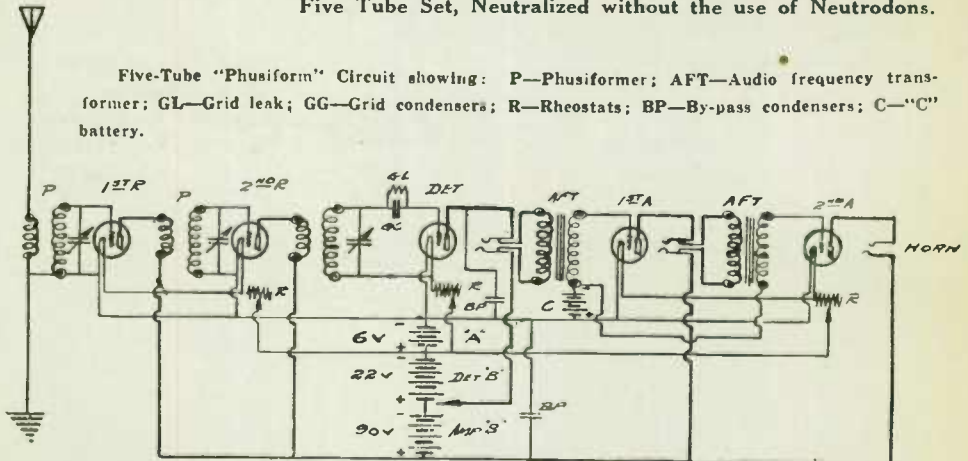


The First and Original Phusiformer



Five Tube Set, Neutralized without the use of Neutrodons.

Five-Tube "Phusiform" Circuit showing: P—Phusiformer; AFT—Audio frequency transformer; GL—Grid leak; GG—Grid condensers; R—Rheostats; BP—By-pass condensers; C—"C" battery.



The Phusiformer is being hailed by the greatest Radio engineers in the country as the year's greatest achievement. It is a Non-Oscillating—Non-Radiating Radio Frequency Transformer, built upon a principle heretofore thought impossible of achievement in Radio. That of a closed magnetic field. With two North and two South Poles.

The Phusiformer is composed of an 11-plate Rathbun Condenser and four coils. The coils are wound in opposite direction in such a manner as to cause automatic neutralization of any tube the instant it is placed in the socket. No adjustment of any kind is necessary.

Three Phusiformers, two sockets and a rheostat will convert any Regenerative Set into the equivalent or better than a Non-Oscillating Neutrodyne Set without the use of objectionable neutrodons.

OPINIONS OF EXPERTS

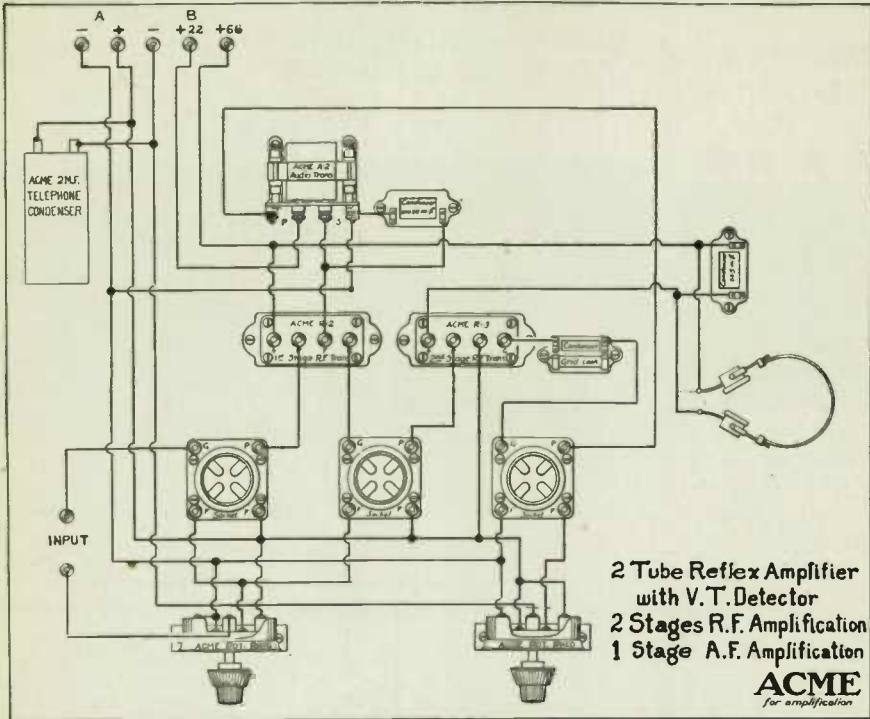
"Year's greatest achievement."—New York Daily Mail.

"Superior to Neutrodyne."—Literary Digest.

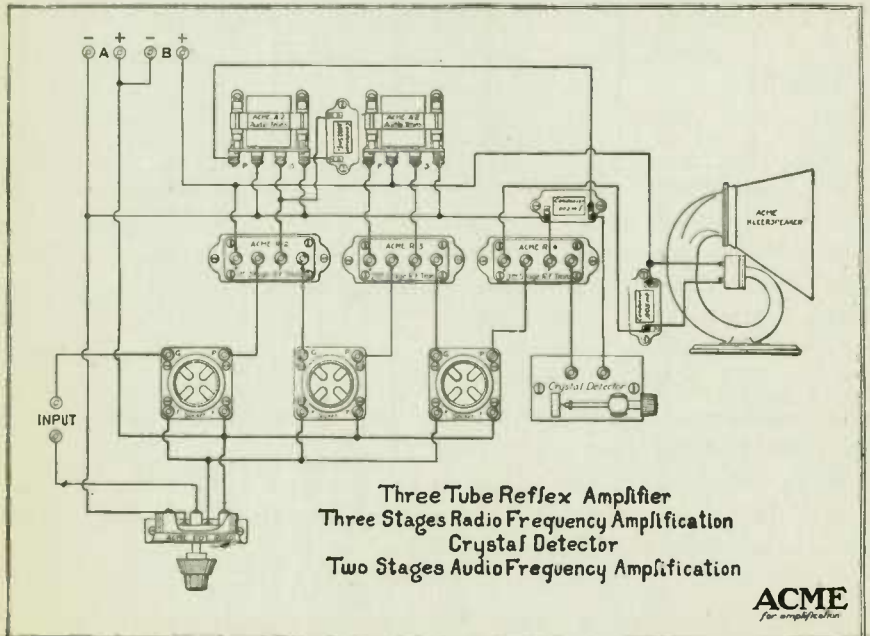
"The Best Yet."—Chicago Tribune

"Truly remarkable. Building a set for use in our operating room."—K. C. Star.

WRITE FOR MANUAL OF INSTRUCTIONS.



The above Reflex amplifier is designed for use by the novice desiring to hear distant stations reliably with a minimum expenditure. It may be used with either an antenna or loop. If loud speaker signals are desired a two stage audio amplifier shown on another page should be added.



The above Reflex amplifier will give the maximum results obtainable with three tubes. A crystal detector is used to insure distortionless tone quality, ease of adjustment and freedom from foreign noise. While it may be used on antenna, excellent results will be insured by using a loop exclusively.

PARTS FOR FADA 4-TUBE REFLEX NEUTRODYNE

PRICE LIST FOR PARTS FOR 5-TUBE NEUTRODYNE SET

	List
1 Panel 7x26x3-16	\$ 4.91
4 Fada 118 Single Sockets.....	4.00
1 Set Fada Neutrodyne Parts.....	25.00
2 No. 65 Federal Transformers.....	14.00
1 Toggle Switch .....	.50
3 Fada Dials No. 137-A.....	2.70
1 Fada Rheostat No. 121A	1.20
1 Fada Rheostat 150-A	1.25
7 Hard Rubber Binding Posts.....	.56
1 1435 W. Federal Jack.....	.85
1 1438W Federal Jack	1.00
27 Ft. Spaghetti Tubing	1.75
27 Ft. Buss Wire .....	.54
2 .006 Cond. (Micon)	1.50
1 Federal Leak, 2 meg. ....	.75
1 Federal Leak, Mtg. and Cond. .00025 .....	.75
1 Pkg. Nuts, Bolts, Screws, term.	.50

	List
1 Panel 7x26x3-16	\$ 4.91
1 Fada No. 123-A Triple Socket....	2.70
2 Fada No. 118-A Single Sockets....	2.00
1 Set Fada Neutrodyne Parts.....	25.00
2 No. 65 Federal Transformers.....	14.00
1 Toggle Switch .....	.50
3 Fada Dials No. 137A.....	2.70
1 Fada Rheostat No. 121A.....	1.20
1 Fada Rheostat No. 150A.....	1.25
7 Hard Rubber Binding Posts.....	.56
1 No. 1435 W. Federal Jacks.....	.85
1 No. 1438 W. Federal Jacks.....	1.00
27 Ft. Spaghetti Tubing	1.75
27 Ft. Buss Wire.....	.54
2 .006 Cond. (Micon)	1.50
1 Federal Leak, 2 meg. ....	.75
1 Federal Leak, Mtg. & Cond., .00025 .....	.75
1 Pkg. Nuts, Bolts, Screws, term....	.50

Total\$61.76

Total\$62.56

Circuits and Panel Templates Furnished with Parts.

PARTS FOR BRANSTON SUPER-HETERODYNE 7-TUBE TUBE RECEIVER

SPECIAL KIT CONTAINING

	List
1 R90 Oscillating Coupler.....	\$ 5.00
3 R91 Intermediate R. F. Trans.....	19.50

	List
1 R92 Special Transfer Coupler....	7.50
1 R93 Special Coupler (Antennae)	4.50

With instructions and template for drilling panel.

	List
1 Panel 10½x40x¼ Celeron	\$12.60
2 Vernier Cond. (Acme) .0005.....	13.00
3 4-in. Dials, Federal No. 7.....	4.50
1 Two Circuit Jacks No. 1423W....	1.80
9 Read 'Em Binding Posts.....	1.35
7 Federal Sockets No. 16.....	7.00
1 Audio Transformer No. 65 Ped....	7.00
1 No. 18 Federal Rheostats.....	1.10
4 No. 22 Federal Rheostats.....	6.00
1 No. 24 Federal Potentiometer....	1.50
2 No. 87025 Federal Switches.....	1.50

	List
14 Switch Points .....	.14
1 MF. Cond., Dubilier.....	1.25
2 .5 MF. Cond., Dubilier.....	1.80
1 .002 MF. Cond., Dubilier.....	.40
1 .0005 601G Micadon .....	.45
1 .005 MF. Cond., Dubilier .....	.60
1 .00025 MF. Cond., Dubilier 601G	.45
2 1½ Meg. Grid Leaks.....	1.50
Spaghetti, hookup wire, etc.....	1.50

Total\$100.74

If more volume is desired, it is merely necessary to add one R91 Intermediate Transformer.

ACCESSORIES THAT ARE DESIRABLE BUT NOT ESSENTIAL

1 0-500 M. A.	\$ 6.00
1 0-10 Voltmeter D. C.	6.00

1 0-10 Ammeter	6.00
1 1424W A. C. Switch	3.35

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