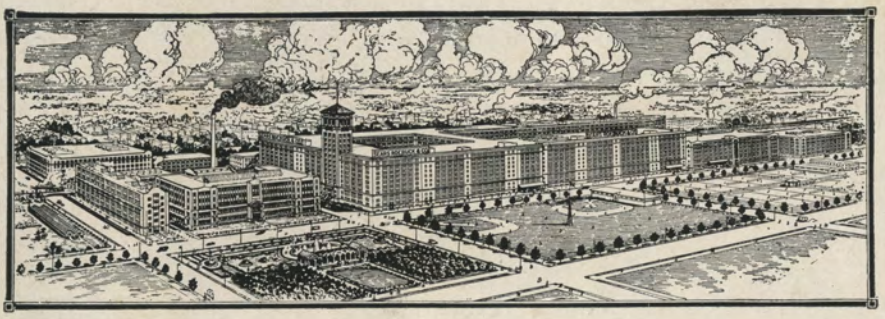
RADIO
APPARATUS

Sears, Roebuck and Co., Chicago.

459



We Guarantee

That each and every article in this catalog is exactly as described and illustrated.

We guarantee that all our instruments are built on correct mechanical and electrical principles; that they are built by skilled workmen, and are high grade throughout.

We guarantee that any article purchased from us will satisfy you perfectly; that it will give the service you have a right to expect; that it represents full value for the price you pay.

While it is impossible to guarantee the range of any wireless apparatus, we have given ours a conservative rating which does not make any extravagant claims.

If for any reason whatever you are dissatisfied with any article purchased from us, we expect you to return it to us at our expense.

We will then exchange it for exactly what you want or will return your money, including any transportation charges you paid.

Sears, Roebuck and Co.

Chicago

Read These Letters

Our Apparatus

is licensed by

The Marconi Wireless Telegraph Company of America

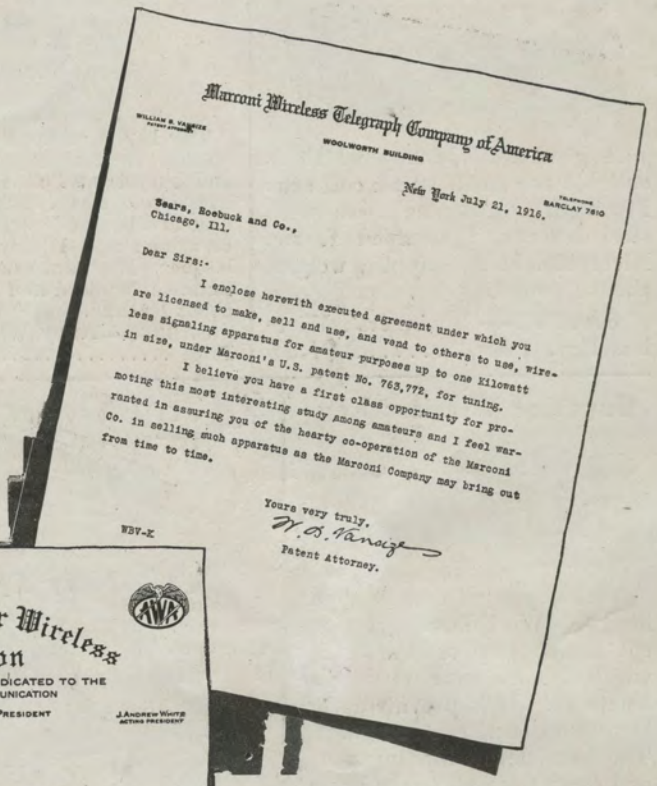
Endorsed by

The National Amateur Wireless Association

And the

American Radio Relay League, Inc.

Low Prices



Marconi Wireless Telegraph Company of America

WOOLWORTH BUILDING

New York July 21, 1916.

Sears, Roebuck and Co.,
Chicago, Ill.

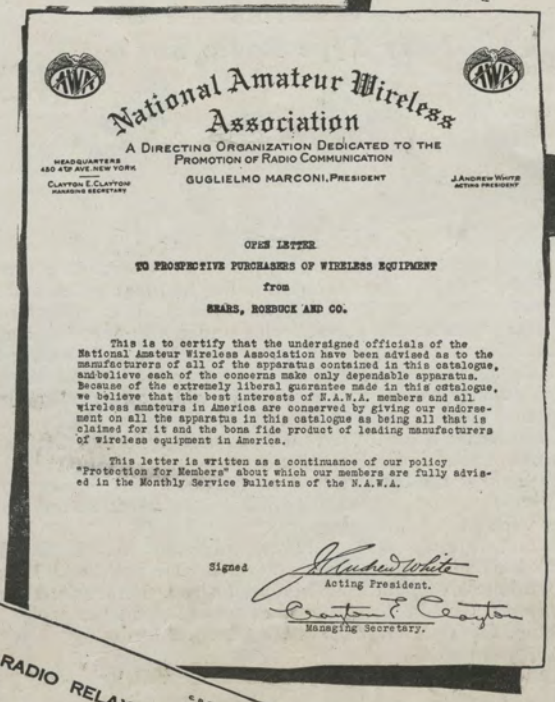
Dear Sirs:-

I enclose herewith executed agreement under which you are licensed to make, sell and use, and vend to others to use, wireless signaling apparatus for amateur purposes up to one Kilowatt in size, under Marconi's U.S. patent No. 763,772, for tuning.

I believe you have a first class opportunity for promoting this most interesting study among amateurs and I feel warranted in assuring you of the hearty co-operation of the Marconi Co. in selling such apparatus as the Marconi Company may bring out from time to time.

Yours very truly,
M. B. Vanouz
Patent Attorney.

WBV-K



National Amateur Wireless Association

A DIRECTING ORGANIZATION DEDICATED TO THE PROMOTION OF RADIO COMMUNICATION

GUGLIELMO MARCONI, PRESIDENT

OPEN LETTER

TO PROSPECTIVE PURCHASERS OF WIRELESS EQUIPMENT

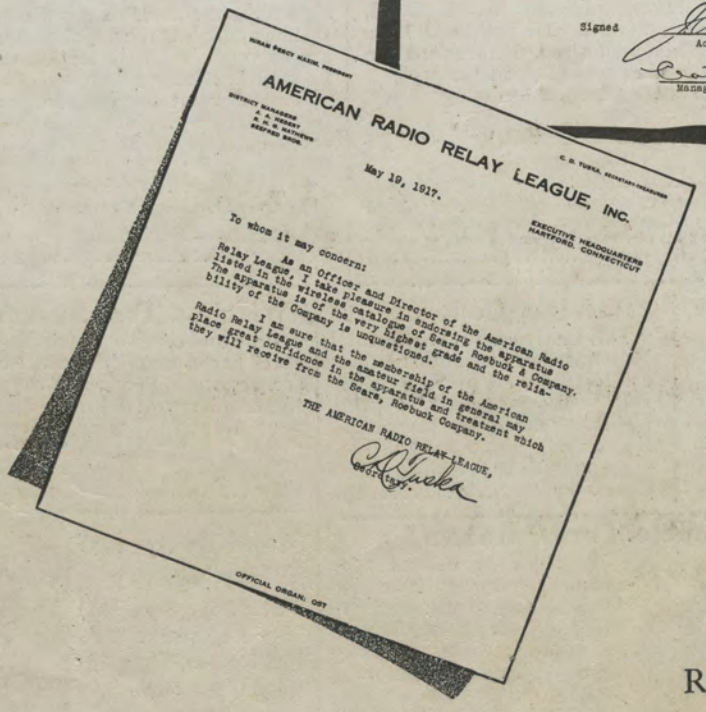
from

SEARS, ROEBUCK AND CO.

This is to certify that the undersigned officials of the National Amateur Wireless Association have been advised as to the manufacturers of all of the apparatus contained in this catalogue, and believe each of the concerns make only dependable apparatus. Because of the extremely liberal guarantee made in this catalogue, we believe that the best interests of N.A.W.A. members and all wireless amateurs in America are conserved by giving our endorsement on all the apparatus in this catalogue as being all that is claimed for it and the bona fide product of leading manufacturers of wireless equipment in America.

This letter is written as a continuance of our policy "Protection for Members" about which our members are fully advised in the Monthly Service Bulletins of the N.A.W.A.

Signed J. Andrew White
Acting President.
Clayton E. Clayton
Managing Secretary.



AMERICAN RADIO RELAY LEAGUE, INC.

May 19, 1917.

EXECUTIVE HEADQUARTERS
HARTFORD, CONNECTICUT

To whom it may concern:

As an Officer and Director of the American Radio Relay League, I take pleasure in endorsing the apparatus listed in the catalogue of Sears, Roebuck & Co. The apparatus is of the very highest grade and the reliability of the Company is unquestioned.

I am sure that the membership of the American Radio Relay League and the amateur field in general may place great confidence in the apparatus and treatment which they will receive from the Sears, Roebuck Company.

THE AMERICAN RADIO RELAY LEAGUE,

OFFICIAL ORGAN: QST

We Guarantee

Our Apparatus Must Please You

All Your Money Returned If at Any Time It Does Not

Read Our Guarantee on the Opposite Page

Beginners' Wireless Key

A good reliable key which is suitable for small spark coil sets. Mounted on wooden base with steel lever and stamped frame. Nicely finished. Shipping weight, about 1 pound.

6A9242 — Beginners' Wireless Key. Price.....**$1.35**

Army Wireless Key

This key is an improvement over other types, inasmuch as the contact points are removable for cleaning and inspection. Points are of No. 8 Brown & Sharpe gauge coin silver. Mica insulated. Has heavy brass base and bronze lever, with additional copper current carrying strip. Highly polished brass, finished in gold lacquer. Has hard rubber knob mounted with a screw. Suitable for hard and heavy work. Shipping weight, about 1 pound.

6A9240—Army Wireless Key. Price **$2.75**

Reliable Wireless Key

The lever is made of one piece of steel, nickel plated, with a fine bearing. Frame is of lacquered brass, finely finished. Each key has adjustable spring holder and fine platina points, which prevent sticking. A high grade key at a low price. Shipping weight, about 1 pound.

6A9205—Reliable Wireless Key. Price **$1.65**

Superior Wireless Key

This key is all that its name implies. We believe it is without doubt one of the finest wireless keys ever made for amateurs. It is provided with large hardened contact points. The base, lever, binding posts and screws are all heavy brass, finished in gold lacquer. Knob is of hard rubber composition. Easily taken apart and cleaned. This key is a handsome addition to any wireless set. Shipping weight, about 1 pound.

6A9373 — Superior Wireless Key. Price.....**$3.45**

Wood Base Switches

For use on telephones, closed circuit bell systems, burglar alarms and battery circuits in general. Used in connection with 6A9200 Beginners' Practice Set. Hardwood base with rubbed oil finish. Shipping weight, 3 ounces.

6A8550—Price, 1-point....**10c**
6A8551—Price, 2-point....**12c**
6A8552—Price, 3-point....**14c**
6A8553—Price, 4-point....**16c**

$4.75

METEOR

Our Own Trade Mark,
Registered in the United States Patent Office.

Navy Type Radio Key

Coin Silver Contacts.

$4.75

This key embodies the most approved advances made during the war. It has several outstanding features which make it a most satisfactory key. All parts are made to withstand hard usage and render good service under all operating conditions. Key may be used on any set up to and including 5 K.W. Contacts are of stamped coin silver 5/16 inch in diameter, spun into solid brass containers which are removable, permitting cleaning and inspection of contacts. Extra contacts are listed below. Current is carried direct to binding posts instead of through the bearings.

Key knob is the latest flameproof type, which, on account of its construction, allows the operator to work faster and longer without tiring.

All metal parts are solid brass, heavily nickel plated, mounted on blue marble base, beveled and polished. Base has two holes for mounting key as desired. Dimensions are as follows: Size of base, 6 inches long, 3½ inches wide, 1 inch high. Over-all length, lever, 7½ inches. Shipping weight, about 6½ pounds.

6A9449—Meteor Navy Type Radio Key. Price....**$4.75**

Extra Contacts

Coin Silver Contacts for 6A9449 Key. Mounted in nickel plated brass containers, to fit the key. Come in sets of two contacts, one upper, one lower. Shipping weight, about 6 ounces.

6A9471—Extra Contacts. Price, per set.....**$1.15**

Beginners' Wireless Practice Set

For Learning the Wireless Code.

Provides an excellent method of quickly learning the code. By using our Telephone Induction Coil 6A8213 the Practice Set may be used for class instruction, using phones listed in this catalog.

This set consists of a wireless key and buzzer, mounted on a polished wood base. The key has black enameled frame, nickel plated lever and adjusting screws. The buzzer is nickel plated and reproduces the high pitched sounds of the wireless stations. The three binding posts are so connected that the set may be used five different ways.

Complete with one dry cell, three feet insulated wire, diagram of connections, code chart and instructions.

Size of base, 7x4½ inches. Shipping weight, about 5 pounds.

6A9200 — Beginners' Wireless Practice Set. Price.....**$2.35**

Telephone Induction Coil

75-Ohm Induction Coil, silk wound, for use with our 6A9200 Beginners' Wireless Practice Set. Shipping wt., about 6 oz.

6A8213—Telephone Induction Coil. Price.....**60c**

Red Label Dry Battery

Red Label Dry Battery. Shipping weight, about 2¾ pounds.

6A8635

Price, each.....**33c**

Price, per dozen (shipping wt., about 30 pounds).....**$3.84**

No.18 Insulated Copper Wire

Commonly known as annunciator or bell wire. Put up in ½ or 1-pound coils (150 feet to the pound). Shipping weight, 1½ pounds.

6A9900—No. 18 Insulated Wire. Price, per pound....**64c**

Wireless Code Chart

This Chart has the Continental Wireless Code, with instructions for learning, all printed on one side. Size of chart, 4⅝x7⅜ inches. Printed on cardboard. Shipping weight, 3 ounces.

6A9398—Wireless Code Chart. Price.....**10c**

Wireless Test Buzzer

Base and cover are made from sheet brass, nickel plated. Buzzer gives a high pitched sound, the frequency of the note being about 500 cycles. Size, 2⅛ inches in diameter, 1 inch high. Shipping weight, about 8 ounces.

6A9208—Wireless Test Buzzer. Price **65c**

Double Pole Double Throw Switch

Provides a means for quickly changing from the transmitting to the receiving side and back again. Mounted on porcelain base. Capacity up to 1½-inch coils. Shipping weight, about 2 pounds.

6A9206—Double Pole Double Throw Switch. Price **65c**

Stand-By Special Dry Battery

Stand-By Special Dry Battery. Size, 2½x6 inches. Shipping weight, 2¾ pounds.

6A8645

Price, each.....**39c**

Improved Model

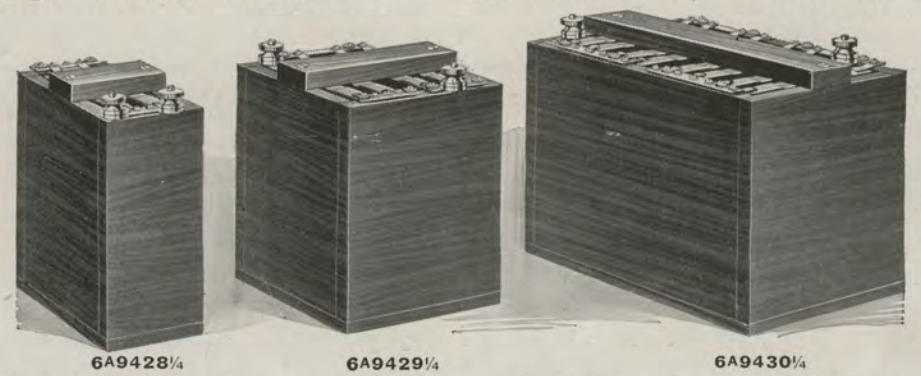
METEOR

New Prices

Our Own Trade Mark,
Registered in the United States Patent Office.

High Potential Commercial Type Glass Plate Condensers

½ K.W.
$11.50



1 K.W.
$20.00

6A9428¼ 6A9429¼ 6A9430¼

Late improved model, embodying several changes. Mounting rack is now made with solid sides and is much stronger than before. Sections are afforded more protection on account of new mounting. Binding posts are used on terminals. The construction of these condensers places them among the most efficient and practical type, and owing to their capacity all sizes up to and including 1 K.W. are suitable for use in connection with amateur stations restricted to the 200-meter wave length. Condensers are built up of glass plate units. These units are boiled in a special compound in a manner which does away with all air bubbles that would lodge between plates. Each unit has a capacity of .01 MFD. Each unit is mounted on wooden partition which slides in grooves in the case. Case is finished in mahogany.

6A9428¼—¼ K.W. Condenser, two sections connected in series. Capacity, .005 MFD. Shipping weight, about 30 pounds.
Price.....**$7.50**

6A9429¼—½ K.W. Condenser, four sections connected in series parallel. Capacity, .01 MFD. Shipping weight, about 55 pounds.
Price.....**$11.50**

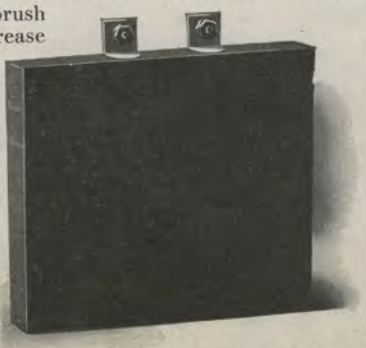
6A9430¼—1 K.W. Condenser, nine sections connected in sets of three in parallel and the three groups connected in series. Capacity, .01 MFD. Shipping weight, about 85 pounds. Price.....**$20.00**

Pony Glass Plate Condenser

We recommend this condenser to all amateurs desiring a condenser at a low price for use with spark coils ranging in size from ¼ inch up to 2 inches. Many amateurs have never used a secondary condenser with their small coils, as it was hard to get one of the proper capacity at a reasonable price. Condenser consists of special glass plates, coated with tin foil and formed into a compact unit, encased in a neat mahogany finished case with two hard rubber composition binding posts. Shipping weight, about 2½ pounds.

6A9372—Pony Glass Plate Condenser.
Price **$1.65**

Murdock Copper Sheet Molded Transmitting Condenser



A very efficient transmitting condenser. There is no brush discharge in this type of condenser, which means an increase in radiation of from 20 to 30 per cent. Capacity, .0017 MFD. We urgently recommend the use of this condenser with all rotary spark gaps as well as stationary gaps. We recommend the following capacities of this condenser for amateur use, basing the recommendation upon the condition that no wave greater than 200 meters is to be transmitted. Shipping weight, per section, about 4 pounds.

For spark coils up to 2-inch, two sections in parallel.
For ¼ K.W. Transformers, three sections in parallel.
For ½ K.W. Transformers, four sections in parallel.
For 1 K.W. Transformers, six sections in parallel.

6A9222—Copper Sheet Molded Transmitting Condenser.
Price, per section.....**$3.25**

The Marconi Wireless Telegraph Co.'s Copper Plated Jar Condenser.

We are fortunate in being able to list these copper plated condensers, which are used by the Marconi Wireless Telegraph Co. of America and foreign countries, the United States and foreign governments, as well as commercial wireless companies and radio laboratories the world over.

These jars are made by the Marconi Company and are made of an extra heavy glass jar, copper coated on both sides. The process of coating these jars is expensive and requires a long time. The jars are all tested before being placed in stock. They are a boon to the amateur who wants efficiency in his transmitting set. Easily mounted in a rack.

6A9439—Size of jar, 14½ inches long; diameter, 4⅝ inches; capacity, .00198 MFD. Shipping weight, 12 pounds.
Price **$5.40**

Oil Immersed Transmitting Condenser.

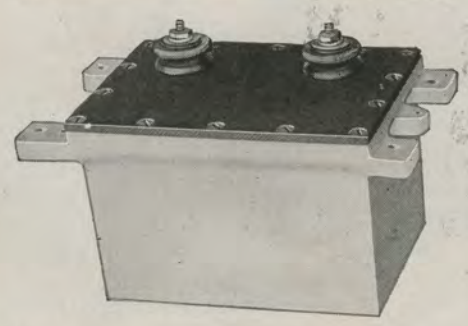
The oil immersed type of condenser is used extensively by experimental and commercial stations. Condenser has metal oil container which holds the condenser unit complete. Dielectric is phenol fiber. Plates are of aluminum. Between each two sheets of aluminum on each terminal of the condenser a corrugated sheet is inserted, permitting circulation of oil, which prevents heating. Capacity of condenser is variable, by means of ten terminals, and ranges from a minimum of .0018 MFD. to .009 MFD. in single steps of .0009 MFD. each. Dimensions, 13 inches high by 9 inches wide and 7 inches deep. Shipping weight, about 35 pounds.

6A9494—Oil Immersed Condenser, complete with oil.
Price **$22.00**

Dubilier Mica Condensers and Protective Device

U. S. Army and Navy Standard

Few electrical instruments have been subjected to more severe tests since 1915 than the Dubilier Mica Condenser—the dampness of the trenches, the salt air and rough uses on the seas, and the dry and freezing conditions above the clouds, on airplanes. Each condenser is built up of more than a thousand units of foil and carefully selected mica films. Air, moisture and small vacuum pockets are eliminated from each section or unit. This condenser is standard with seven governments and practically all commercial companies. All amateurs should be especially interested in the Amateur's Special Condenser, as this instrument will improve any transmitting set.



Amateur's Special Dubilier Mica Condenser

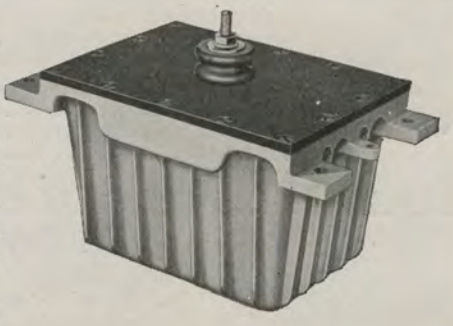
To meet the amateur's demand, this mica condenser has been put on the market. This condenser is made of the same material as the Navy Standard condenser shown below. Capacity of this condenser is .01. It has been found ideal when used with a rotary spark gap, in connection with any 60-cycle transformer listed in this catalog. Size of condenser case, 4x6x4¼ inches; case is cast aluminum; top of hard rubber, ¼ inch; binding posts mounted on top through insulators. Heavy mounting lugs cast in the case. Shipping weight, about 12 pounds.

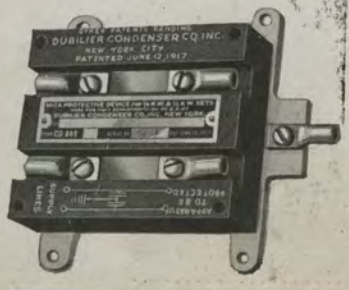
6A9369—Amateur's Special Mica Condenser. Price, each..... **$29.00**

Dubilier Type CD-158—Navy Standard

This condenser is not only standard with the United States Navy, but is also standard with several foreign governments. The ruggedness of this condenser makes it suitable for use in the open, for field sets, on board ship or in the land station. Condenser can be overloaded 100 per cent without danger, and when operating in a standard radio set at 500 cycles, 12,500 volts, has an efficiency of over 99 per cent. The aluminum casing forms one terminal of the condenser and the second terminal projects through an insulating knob in the center of the bakelite dilecto cover. Maximum volts, 21,000. Capacity, .004 M. F. D., watts, 500. Shipping weight, about 12 pounds.

6A9370—Type CD-158—Navy Standard Condenser. Price, each.....**$23.50**





Dubilier Standard Protective Device—Navy Standard

Affords excellent protection for small motors and generators and sets up to 1 K. W. Bus bars and lugs are molded in the insulated container. A wiring diagram showing methods of connection is impressed in the container. The capacity of each unit is .02 M. F. D. Shipping weight, about 1½ pounds.

6A9368—Dubilier Standard Protective Device. Price, each..... **$3.75**

Model Rotary Spark Gap Motor

This motor is designed especially for the critical wireless operator who wants a motor of maximum efficiency to operate at a minimum cost.

The construction of this motor is as follows: Armature made of thin laminations of high grade steel pressed on steel shaft, ground to a mirror finish. The windings are wound with double silk covered magnet wire and thoroughly impregnated with a high insulating varnish and baked at a temperature of 300 degrees Fahrenheit. Commutator is made of twenty-four sections hard drawn copper segments insulated with mica. Brushes are of carbon and are self adjusting. Bearings are made of high speed nickel babbitt and carefully aligned.

This motor is rated at 1/16 horse-power and runs at a speed of about 8,000 R. P. M., can be used on either A. C. or D. C. current, 110-130 volts, 25-60 cycles, and picks up full speed in one second and stops dead in five seconds. Height over all, 4¾ inches; width, 3½ inches; length over all, 5 inches; base, 3½ inches in diameter. Diameter of shaft, ¼ inch. Shipping weight, about 6 pounds.

6A9487—Model Rotary Spark Gap Motor. Price.....**$7.88**

Murdock Antenna Condenser

This type series condenser provides an ideal method of keeping the transmitted wave within 200 meters with practically no loss of efficiency. Made from molded dielectric enveloping copper foil, with nickel plated binding posts. The capacity of this condenser is variable, allowing four complete changes. To be connected in series with the helix and aerial. Complete instructions with each condenser. A fine addition to any set. Size over all, 6½x6½x1½ inches. Shipping weight, about 4 pounds.

6A9224—Murdock Antenna Condenser.
Price.....**$4.00**

Two Sizes

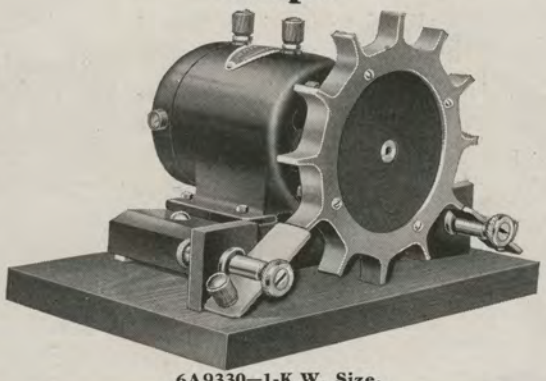
METEOR

Our Own Trade Mark, Registered in the United States Patent Office.

New Improved Models

New improved models embodying the following features: Flat copper electrodes, giving quick break, thereby avoiding pitting of electrodes; better cooling; motor of proper speed and construction, permitting frequencies of 250-500 cycles. Rotors are cast copper, 12 electrodes, 1/8 inch thick. The 1-K.W. rotary electrode is 5/8 inch wide, the 1/2-K.W. electrode 3/8 inch wide. Electrodes are mounted on a 1/4-inch Formica disc. Stationary electrodes are copper strips, 1/8 inch thick, 3/4 inch and 1 inch wide, mounted in brass supports by locknuts. Entire unit is mounted on Formica block. Heavy brass binding posts are mounted on rear of blocks. Entire gap mounted on mahogany finished base.

Rotary Spark Gaps

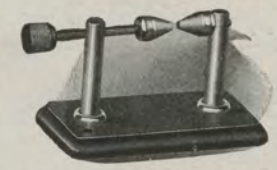


6A9330—1-K.W. Size.

6A9330—1-K.W. Rotary Spark Gap, 110-volt Universal motor, 6,000 R. P. M. Shipping weight, about 10 pounds.
Price.....**$15.50**

6A9332—1/2-K.W. Rotary Spark Gap, 110-volt Universal motor, 5,000 R. P. M. Shipping weight, about 10 pounds.
Price.....**$12.25**

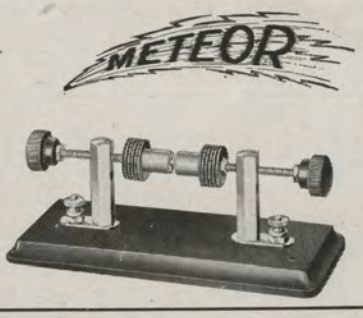
New Model Spark Gap



This spark gap has one stationary electrode and one adjustable electrode. The one moving part helps make the gap easy to adjust and keeps it in adjustment. Has nickel plated binding posts and zinc electrodes. Mounted on hard rubber composition base. Capacity up to 1/4 K.W. Shipping weight, about 1 pound.

6A9301—New Model Spark Gap. Price.....**75c**

Radiator Spark Gap



Very efficient. Open gap. Fitted with zinc electrodes 5/16 inch in diameter, 1/2 inch long. Has six cooling flanges. Metal posts of brass, nickel plated and polished. Polished rubber composition base, 2 1/2 x 6 7/16 inches. Height, 2 1/2 inches. Shipping weight, 2 pounds.

6A9237—Meteor Radiator Spark Gap. Price.....**$1.80**

Superior Wireless Spark Coils

6A9427
6A9249
6A9250

6A9234
6A9235
6A9236

6A9232
6A9233

Superior Wireless Spark Coils are built for Wireless Telegraphy and are quite different in construction from the ordinary spark coil. These coils are designed to operate on dry cells, wet cells or storage battery. They are guaranteed to give their rated spark length between needle points. The secondary coil is considerably larger than used in most spark coils, and this feature alone is of great value, as the spark produced is heavy and energetic. Coils are mounted in a neat oak case with brass trimming and with condenser in base to decrease sparking at the contact points. They consume less current than other coils, requiring but 6 to 8 volts and 3/4 of an ampere to 4 amperes, according to size of coil. Vibrators are all high frequency type, which are not liable to stick. These coils will stand hard usage and their high efficiency will appeal to the experimenter because of their low current consumption, which means long life for a set of batteries. The number of batteries required to operate these coils successfully is as follows:

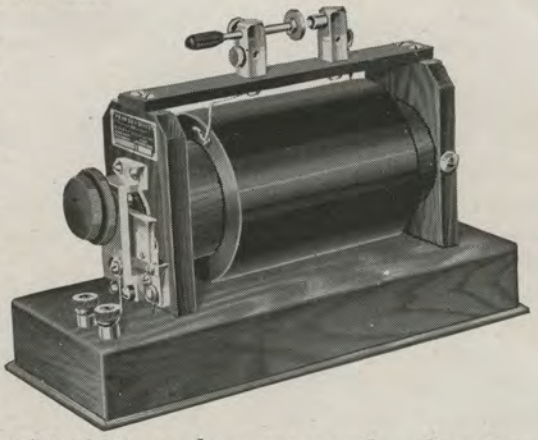
1/4-inch operates on 4 dry cells.
1/2-inch operates on 5 dry cells.
3/4-inch operates on 5 dry cells.
1 -inch operates on 6 dry cells.
1 1/2-inch operates on 6 dry cells.
2 -inch operates on 8 dry cells.
3 -inch operates on 12 dry cells.
4 -inch operates on 12 dry cells.

Catalog No.	Spark Length	Shipping Weight	Price
6A9232—Superior Spark Coil	1/4 inch	4 lbs.	**$2.98**
6A9233—Superior Spark Coil	1/2 inch	6 lbs.	**3.75**
6A9234—Superior Spark Coil	3/4 inch	8 lbs.	**4.95**
6A9235—Superior Spark Coil	1 inch	8 lbs.	**5.55**

Catalog No.	Spark Length	Shipping Weight	Price
6A9236—Superior Spark Coil	1 1/2 inches	8 lbs.	**$ 7.25**
6A9427—Superior Spark Coil	2 inches	21 lbs.	**9.80**
6A9249—Superior Spark Coil	3 inches	22 lbs.	**18.00**
6A9250—Superior Spark Coil	4 inches	27 lbs.	**26.50**

Special 32-Volt Radio Spark Coil and Gap

For Use With Farm Lighting Plants.

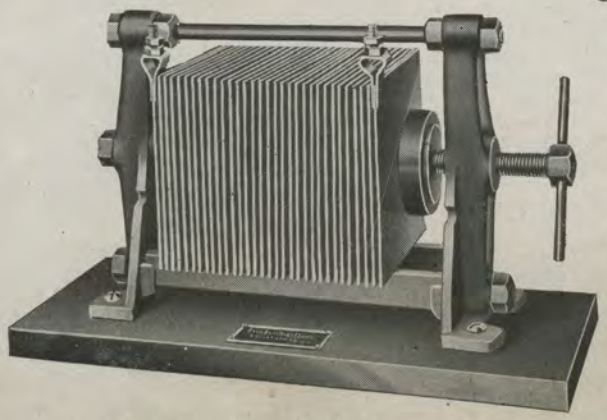


For those who do not have alternating current available, but have access to a 32-volt farm lighting system. The coil is substantially the same as that used by the U. S. Signal Corps in France. Very high grade construction throughout. Insulation is Bakelite; secondary is built up of small individual coils, insuring uniform electrical stress; primary is wound on a core formed of soft Norway iron wire; primary in-put varies from 4 to 16 amperes, depending upon the adjustment of the vibrator and the capacity of the antenna. The current required for normal operation is about 10 amperes. The voltage generated by the secondary on open circuit is approximately 50,000 volts. Vibrator is of the hammer action, double reed type, having a frequency equivalent to 200 sparks per second. Crecium contacts 3/16 inch in diameter are used. Adjusted by screw with locknut. Spark gap has one flat disc and one counterbored stud, and is adjustable for different capacity antenna and power. The quenched spark gap shown below will increase the efficiency of the coil and will eliminate the chance of interfering with other stations. Three 4 M. F. D. condensers are connected across the vibrator. Length of coil, 11 inches; height, 7¾ inches; width, 4½ inches. Woodwork finished in mahogany. Metal trimmings and fittings nickel plated. Shipping weight, 15 pounds. Shipped directly from the factory in New York.

6A9347⅓—Special 32-Volt Radio Spark Coil and Gap. Price..... **$27.75**

Commercial Type Quenched Spark Gap

500-Watt Size.



Cuts out interference and cuts down decrement. Gives a greater amperage in your antenna. The rapid quenching action stops the oscillations quickly in the primary circuit, thus allowing the secondary or antenna circuit to radiate in its own period and therefore on but one wave length. Gap consists of 32 copper discs, making 16 sparking chambers, held in place by the frame. Bakelite insulation used. Air tightness is assured in this gap by a series of metal spacing rings which provide uniform pressure over the entire surfaces of the insulating gaskets. Gaskets are constructed from fish paper treated with a beeswax compound and linseed oil, which in commercial use has proved preferable to mica. Gap is assembled by means of steel rods and compression screw. Rods are removed as soon as assembly is complete. Connecting clips supplied. Length, 12 inches; height, 7 inches; width, 5 inches. Maximum power, 500 watts. Shipping weight, about 18 pounds. Shipped direct from factory in New York.

6A9350⅓—Commercial Type Quenched Spark Gap. Price..... **$16.75**

Flat Braided Copper Cable

Used extensively for connecting transmitting apparatus, motor and generator repair work, lead-in work, etc. Comes in two sizes, as follows:

6A9996—⅝ inch wide, ⅛ inch thick, composed of 360 No. 30 bare copper wires. Flexible and is easily soldered, cut, etc. Shipping weight, about 1 pound per 10 feet.

Price, per foot..... **$0.15**
Price, 25 feet..... **3.25**

6A9997—15/32 inch wide, 1/16 inch thick. The amateur's favorite; very flexible. Composed of 168 No. 30 bare copper wires. Easy to work. Shipping weight, about ½ pound per 10 feet.

Price, per foot..... **$0.13**
Price, 25 feet..... **2.75**

Brass Ribbon

Hard drawn brass ribbon, 1 inch wide, 1/32 inch thick. The right material for making oscillation transformers, etc. Also used extensively for connecting transmitting sets. Shipping weight, about 1 pound per 6 feet.

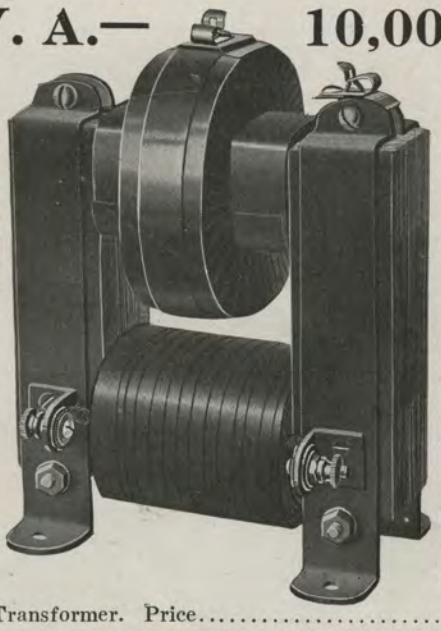
6A9498—Brass Ribbon.

Price, per foot..... **$0.16**
Price, 25 feet..... **3.75**

$13.95 METEOR $13.95

Our Own Trade Mark,
Registered in the United States Patent Office.

½ K. V. A.— 10,000 Volts



The amateur's ideal transformer. This transformer is the result of a great deal of experimental work, and we are offering it only after it has proved to be an excellent piece of apparatus. It is an efficient small transformer offered to the amateur, fully guaranteed. Think of buying a high grade ½ K. V. A. transformer, giving a secondary voltage of 10,000, for $13.95.

Frame is of sheet steel, well finished and heavy enough to insure safe mounting. Reduction in weight of 15 per cent.

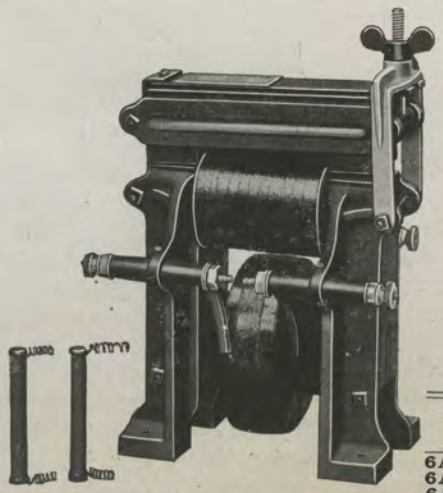
Winding and Construction—The dry air insulated construction has been adhered to. Primary winding is for 110-volt, 60-cycle, alternating current. Secondary coil is mounted on upper yoke of the magnetic circuit. This coil is very carefully constructed of high grade materials. A cheaper coil of this size would not give service on a secondary voltage of 10,000.

Operation — Tests have determined that reactance coils are not needed with this transformer. Transformer is well balanced and sturdily built. Can be mounted on wall panel or table. Finished in black enamel.

Size over all: Height, 9¼ inches; length, 7½ inches; width, 5 inches. Weight, 20 pounds. Shipping weight, about 30 pounds.

6A9314¼—Meteor ½ K. V. A. Wireless Transformer. Price.....**$13.95**

Flexible Wireless Transformer



A well known type transformer. This type has advantages over other types, as the capacity may be regulated by the magnetic shunt design, which allows for a fine adjustment. This adjustment is obtained by simply turning the thumbscrew. The construction is all open, allowing all parts to be seen. Only high grade materials are used in the construction of these transformers. They cannot be made to consume more power than their rated capacity, which makes them economical and safe. Transformers are assembled in a black enameled cast iron frame. The primary and secondary terminals are brought out separately on each side of this transformer. Operates on voltage ranging from 100 to 200 volts, 60 to 133 cycles, alternating current only.

With each transformer we furnish two "kick-back" preventers, or line protectors, to use on the primary current to take care of the kick-back.

A high grade, economical, very efficient transformer. Made in three sizes.

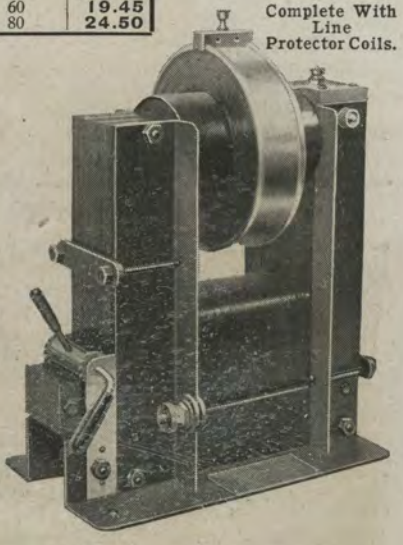
Catalog No.	K. V. A.	Regulation in Amperes	Approx. Secondary Voltage	Lgth., In.	Wdth., In.	Ht., In.	Shpg. Wt., About, Lbs.	Price
6A9315¼	½	1 to 5	5,000 volts	8	6	12	50	**$14.45**
6A9316¼	¾	2 to 8	10,000 volts	10	7	13	60	**19.45**
6A9317¼	1	2½ to 12	20,000 volts	12	8	14	80	**24.50**

Thordarson Type "R" 1919 Model Wireless Transformer

This new design of wireless transformer has several mechanical and electrical features that are great improvements over previous designs. All castings have been eliminated and the framework is built of formed sheet steel and brass. The same principle as used on previous transformers has here been adhered to in the magnetic circuit, namely, having an external magnetic shunt, with this important difference, however, that instead of moving the entire magnetic shunt at one end with spring and screw, the magnetic shunt here is rigidly secured and stationary, and the intensity of the magnetic field around the magnetic shunt is varied by means of a V shaped laminated steel tongue moving in the air gap, thereby adjusting the width of the air gap. An adjustment with so little noise is extremely difficult to obtain by any mechanism that moves the entire magnetic shunt. This tongue is graduated so that the air gap can be easily read and adjusted for any current input desired.

The high tension coil is carefully wound in layers with special insulated paper between each layer. The outer metal band also serves as a terminal of the high tension coil, thereby eliminating high tension cable and high tension insulators. The high tension coil being impregnated, it is practically moisture proof. Line protectors included with transformer.

The prices and dimensions are as follows for 60-cycle operation:



Complete With Line Protector Coils.

Catalog No.	K. V. A.	Height, Inches	Width, Inches	Length, Inches	Amperes	Weight, Pounds	Secondary Voltage	Price, Each
6A9376¼	½	9	5½	9	1 to 6	28	10,000	**$20.00**
6A9377¼	¾	10	5	10	2 to 9	31	10,000	**25.00**
6A9378¼	1	14	6	12	2½ to 14	46	24,000	**35.00**

New Improved Model

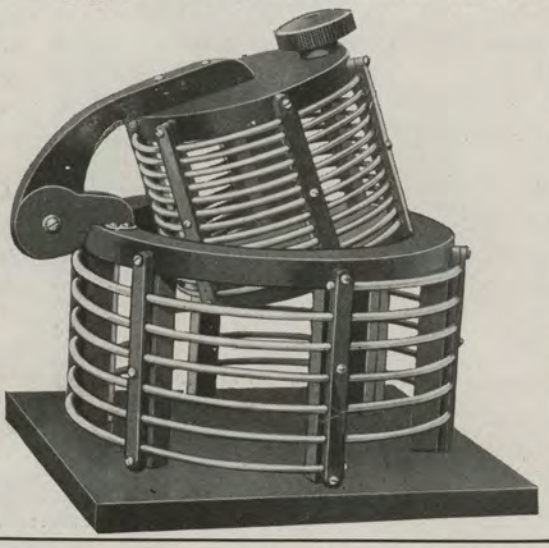
METEOR

Our Own Trade Mark,
Registered in the United States Patent Office.

$12.75

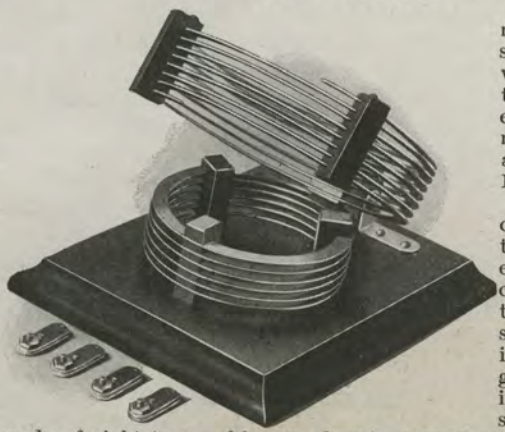
Marconi Type Oscillation Transformer

New improved model. Secondary coil is now mounted by a hinge coupling, eliminating the brass rod formerly used. Windings are of solid copper wire, supported by Formica strips. Primary winding consists of six turns of No. 3 B. & S. solid copper wire. Diameter, 10½ inches. Secondary winding consists of twelve turns of No. 5 B. & S. copper wire. Diameter, 6½ inches. All conducting parts are supported by Formica and do not come in contact with any woodwork. This instrument is designed for efficient work on the amateur wave lengths and has a range of adjustment well above and below 200 meters. Woodwork is polished mahogany finished. Two helix clips furnished. Shipping weight, about 28 pounds.



6A9331¼—Marconi Type Oscillation Transformer.
Price..... **$12.75**

Murdock Hinge Type Oscillation Transformer



This instrument permits the sharp tuning which should be the ideal of every experimenter. It may be used on any size set up to 1 K.W.

The primary coil consists of six turns of heavy edgewise wound copper strip. The turns are evenly spaced and held in place by grooved insulating blocks. The secondary coil is made of eight turns of heavy edgewise wound copper strip and is similar to the primary coil.

The coupling between the two coils is varied by the hinging of the secondary away from the primary. Mounted on a fine mahogany finished base and complete with four clips. Size over all, 10x7½x3¼ inches. Shipping weight, about 8 pounds.

6A9213—Hinge Type Oscillation Transformer. Price...**$5.00**

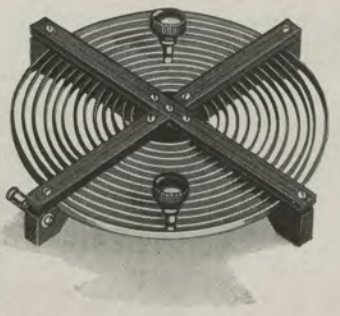
Murdock Line Protector

This line protector affords double protection from the inductive effects noted with transformer sets. The resistance rods oppose the flow of low frequency primary current, yet offer a ready path to ground for high frequency "kick-backs." This device has the advantage of being in service at all times. The use of this instrument will afford protection to the meter and wiring, which is really necessary and which can be obtained by no other means.

Three resistance rods and two 15-ampere fuses are mounted on a slate base. Size over all, 6x6x1⅞ inches. Shipping weight, about 5 pounds.

6A9225—Murdock Line Protector. Price.....**$6.50**

Pancake Helix



An ideal tuning coil for the small spark coil set. Coil is of brass ribbon, wound in a slotted wooden frame. Frame is mahogany finished. All of the inductance is accessible, which enables the operator to tune within close limits. Furnished with two clips. Diameter of coil, 8 inches. Shipping weight, about 3½ pounds.

6A9252—Pancake Helix. Price..... **$1.75**

Universal Helix Clip

Used for making connections on the Helix and Oscillation Transformer. Nickel plated. Shipping weight, about 1 ounce.

6A9409—Universal Helix Clip.
Price..... **7c**

Line Protector Coils

Special wire wound coils, molded in on porcelain tubes. Two coils required, one for each side of the line. The coils may be placed directly on the transformer primary terminals and grounded to the frame. Shipping weight, about 1 pound.

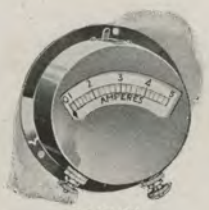
6A9318—Line Protector Coils. Price, per pair.....**$1.45**

Anchor Gap

In case the lightning switch is forgotten, the anchor gap protects the apparatus. It is connected between the ground and aerial wires. Made of hard rubber composition ring with two adjustable electrodes. Shipping weight, about 12 ounces.

6A9245—Anchor Gap, 2-point.
Price **75c**

Hot-Wire Ammeters



6A9489
$4.75

Two recent and approved styles. These hot-wire ammeters are very high grade, embodying all the construction features needed to make an instrument capable of giving accurate radiation readings. We guarantee these ammeters to give excellent results.

The small ammeter at the left comes in one size only, with a scale reading of 0-5 amperes, and is excellent for spark coil sets and small transformers up to ½ K.W. It is an excellent ammeter for portable and pack sets. The case is brass, nickel plated, 2⅞ inches in diameter, 1⅝ inches deep. Fitted with large binding posts and zero adjuster. Back piece has three holes for mounting and is 3⅝ inches in diameter. Scale is black on white background. Shipping weight, about 1 pound.

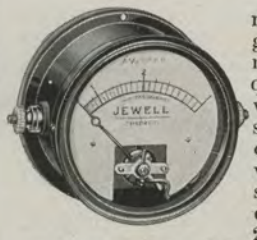
6A9490
6A9488

6A9489—Meteor Hot-Wire Ammeter, 0-5 amperes. Price..... **$4.75**

The large ammeter at the right is highly recommended for high powered amateur stations, schools, colleges and to be used with wavemeters. It is thoroughly reliable, well designed and handsomely finished. Case is made of brass, nickel plated, and measures 4 inches in diameter. The front is heavy beveled glass, securely held in place. Ammeter is 2 inches deep. Heavy back piece is of solid brass, measures 4⅞ inches in diameter and is drilled for mounting screws. Ammeter has improved screw type zero adjuster. Made in two sizes. Shipping weight, about 2 pounds.

6A9490—Meteor Hot-Wire Ammeter, 0- 5 amperes..... **$8.50**
6A9488—Meteor Hot-Wire Ammeter, 0-10 amperes..... **8.65**

Jewell Radio Thermo-Ammeter



Jewell Thermo-Ammeters are of the thermocouple type. We believe this is the most generally satisfactory radio ammeter on the market. In this type of meter the high frequency current heats a thermocouple, and the voltage produced in it is measured by a standard D'Arsonval movement. Rugged construction; no zero shift. The effect of variations in the ambient temperature is so small as to be negligible, and it is well damped. Size of case, 4¾ inches in diameter, 2⅝ inches deep. Finished in black enamel, nickel plated binding posts, white dial, black letters and indicator. Shipping weight, about 3 pounds.

6A9424—Jewell Radio Thermo-Ammeter. Range, 0-3 amperes. Price..... **$11.50**
6A9497—Jewell Radio Thermo-Ammeter. Range, 0-5 amperes. Price..... **11.60**
6A9418—Jewell Radio Thermo-Ammeter. Range, 0-10 amperes. Price..... **11.70**

Signal Corps Hot-Wire Ammeter

Made by Roller-Smith Company for the Signal Corps. A very high grade instrument offered at an exceptionally low price. Flush mounting type, back connected. Requires hole 2⅝ inches for mounting. Over all diameter, 3½ inches; depth under panel, ⅞ inch. Scale is black on white background, and reads up to 2.5 amperes, marked 0, .5, 1, 1.5, 2, 2.5. Black enameled finish on brass case. Has zero adjuster on front. Front is raised ¼ inch above mounting flange. Shipping weight, about 1 pound.

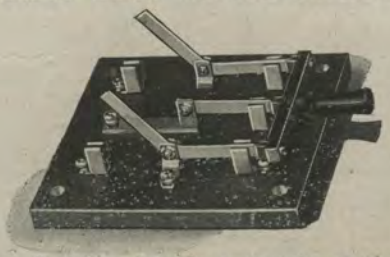
6A9325—Signal Corps Hot-Wire Ammeter.
Price..... **$6.95**

Standard Hot-Wire Ammeter

Designed especially for wireless transmission circuits. Accurately calibrated. Has zero adjuster. Mounted on black insulated base, 3 inches in diameter; diameter of front, 2⅜ inches; depth, 1¼ inches. Scale, 0 to 3 amperes. Nickel plated. Shipping weight, about 12 ounces.

6A9491—Standard Hot-Wire Ammeter.
Price..... **$3.55**

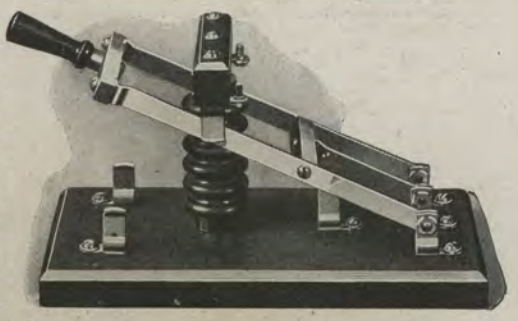
Slate Base Aerial Switch



Receives on double pole side, transmits on three-pole side. Nicely finished angle blades. Mounted on slate base, 7x8x¾ inches. A high grade aerial switch. Capacity, 1 K.W. Shipping weight, about 6 pounds.

6A9405—Slate Base Aerial Switch. Price.... **$3.00**

Murdock Aerial Switch



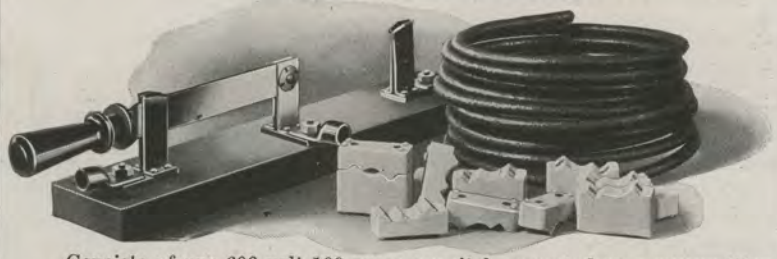
Can be used with any size set up to 1 K.W. This switch is designed along the most approved lines, as used by large commercial wireless companies. It enables the operator to secure a quick and positive change from receiving to transmitting or from transmitting to receiving.

The danger of damaging the receiving instruments by accidental touching of the transmitting key while the switch is in the receiving position is eliminated by the additional blade in the rear, which opens the transmitting circuit when the switch is in the receiving position. This is a point worthy of a great deal of consideration and provides a means of safeguarding your receiving instruments, which alone is worth the price of this switch. A strong, well made switch, at a price which makes it a good investment.

Base is hardwood, polished mahogany finish. The standard is ridged hard rubber composition, which provides good insulation. Switch blades are 8 inches long and are of rolled copper. Size over all, 11¾x5¾x5½ inches. Shipping weight, about 5 pounds.

6A9221—Commercial Type Aerial Switch. Price..... **$4.50**

Complete Ground Outfit



Consists of one 600-volt 100-ampere switch, mounted on a composition waterproof insulating base, 25 feet No. 4-gauge weatherproof wire, and ½ dozen one-wire porcelain cleats. This makes a fine grounding outfit, and should be installed with every station. Shipping weight, about 14 pounds.

6A9431¼—Complete Ground Outfit. Price.....**$5.60**

Ground Switch

The fire underwriters in many localities require a double throw, single pole switch for grounding the aerial when not in actual use. This is a protection against lightning. The ground wire from the switch should be No. 4-gauge, and the switch should be at least 600 volts, 100 amperes. Our ground switch is mounted on a composition waterproof insulating base; capacity, 600 volts, 100 amperes. Shipping weight, about 4¾ pounds.

6A9406—Ground Switch. Price.....**$3.80**

Ground Clamp

For connecting ground wires to pipe or rods. Fits any size up to 1½ inches and provides a positive and convenient ground. Shipping weight, about 4 ounces.

6A9313—Ground Clamp. Price.....**9c**

One-Wire Porcelain Cleats

6A9397—Heavy One-Wire Porcelain Cleats. Price, each.....**5c**
Shipping weight, one dozen cleats, about 2 pounds.

Rubber Covered New Code Insulation Copper Wire

34A6783—No. 12-Gauge Rubber Covered New Code Insulation Wire.
Price, per foot.....**$ 0.02¾**
Price, per 100 feet.....(Shipping weight, 4½ pounds).....**2.50**
Price, per 1,000 feet.....(Shipping weight, 40 pounds).....**22.00**

34A6782—No. 14-Gauge Rubber Covered New Code Insulation Wire.
Price, per foot.....**$ 0.02**
Price, per 100 feet.....(Shipping weight, 3½ pounds).....**1.75**
Price, per 1,000 feet.....(Shipping weight, 30 pounds).....**13.95**

No. 18 Insulated Copper Wire

Used by experimenters for making tests and connecting wireless instruments. Same size wire as annunciator wire, but has much heavier insulation. Put up in 1-pound coils, 90 feet to the pound. Shpg. wt., 1½ lbs.

6A9902—No. 18 Insulated Copper Wire. Price, per pound.....**64c**

Aluminum Aerial Wire

Aluminum wire has been used for years for making small aerials. Put up in standard coils as listed below. Not sold any other way.

6A9983—No. 14-Gauge Aluminum Wire.
Price, per 50 feet.....**25c**
Shipping wt., 12 oz.
Price, per 100 feet.....**40c**
Shipping wt., 1 lb.
Price, per 250 feet.....**72c**
Shipping wt., 2½ lbs.

6A9982—No. 12-Gauge Aluminum Wire.
Price, per 50 feet.....**27c**
Shipping wt., 12 oz.
Price, per 100 feet.....**45c**
Shipping wt., 1 lb.
Price, per 250 feet.....**75c**
Shipping wt., 2½ lbs.

Bare Copper Aerial Wire

Put up in standard coils as listed below. Not sold any other way.

6A9989¼—No. 14-Gauge Bare Copper Wire.
Price, per 50 feet.....**$0.49**
Shpg. wt., 12 oz.
Price, per 100 feet.....**.85**
Shpg. wt., 1½ lbs.
Price, per 250 feet.....**1.97**
Shpg. wt., 4 lbs.
Price, per 500 feet.....**3.70**
Shpg. wt., 9 lbs.
Price, per 1,000 feet.....**7.10**
Shpg. wt., 20 lbs.

6A9990¼—No. 12-Gauge Bare Copper Wire.
Price, per 50 feet.....**$0.52**
Shpg. wt., 1¼ lbs.
Price, per 100 feet.....**.92**
Shpg. wt., 2½ lbs.
Price, per 250 feet.....**2.15**
Shpg. wt., 5 lbs.
Price, per 500 feet.....**4.05**
Shpg. wt., 12 lbs.
Price, per 1,000 feet.....**7.89**
Shpg. wt., 30 lbs.

Stranded Tinned Copper Aerial Cable

Composed of seven strands No. 22 B. & S. gauge tinned copper wire. Wire is tinned to prevent corrosion. Used extensively by commercial and government stations. Put up in standard coils as listed below. Not sold any other way. Shipping weight, per 100 feet, about 8 pounds.

6A9994¼—Stranded Tinned Copper Aerial Cable.
Price, per 50 feet.....**$ 0.88**
Price, per 100 feet.....**1.65**
Price, per 250 feet.....**3.90**
Price, per 500 feet.....**7.50**
Price, per 1,000 feet.....**10.00**

Stranded Phosphor Bronze Aerial Cable

Composed of seven strands No. 22 B. & S. gauge phosphor bronze wire. Combines high conductivity and mechanical strength. Used by the United States and foreign governments and by all commercial companies. Shipping weight, about 8 pounds per 100 feet. Put up in standard coils as listed below. Not sold any other way.

6A9995¼—Stranded Phosphor Bronze Aerial Cable.
Price, per 50 feet.....**$ 1.25**
Price, per 100 feet.....**2.25**
Price, per 250 feet.....**5.50**
Price, per 500 feet.....**10.50**
Price, per 1,000 feet.....**19.00**

No. 4-Gauge Triple Braid Weatherproof Wire

6A9970¼—Price, per foot.....**$0.05¼**
Price, per 100 feet (Shipping wt., about 16½ lbs.)...**4.80**

Belden Copper Magnet Wire

Double White Cotton Covered.

Belden Double Cotton Covered Magnet Wire. One piece only on a spool. Insulation and wire are uniform. State gauge and weight spool wanted.

6A9907—Cotton covered.

Gauge	1-Oz. Spool	2-Oz. Spool	4-Oz. Spool	8-Oz. Spool	1-Lb. Spool
16	....	....	.....	.....	$1.01
18	....	....	.....	.....	1.10
20	....	....	.....	$0.76	1.19
22	....	....	.....	.82	1.38
24	....	....	$0.58	.95	1.51
26	29c	40c	.61	1.00	1.67
28	32c	43c	.65	1.12	1.91
30	34c	49c	.74	1.34	2.15
32	35c	52c	.82	1.48	2.52
36	43c	65c	1.16	2.17	3.71

Single Green Silk Covered.

Used more than any other wire for making radio receiving apparatus. Uniform coloring of insulation. On ¼-pound spools.

Catalog No.	Gauge	Price, ¼-Lb. Spool	Catalog No.	Gauge	Price, ¼-Lb. Spool
6A9921	20	35c	6A9931	30	$0.71
6A9922	21	37c	6A9932	31	.79
6A9923	22	39c	6A9933	32	.86
6A9924	23	43c	6A9934	33	.96
6A9925	24	48c	6A9935	34	1.10
6A9926	25	50c	6A9936	35	1.21
6A9927	26	53c	6A9937	36	1.36
6A9928	27	55c	6A9938	37	1.54
6A9929	28	60c	6A9939	38	1.77
6A9930	29	65c	6A9940	39	2.13
			6A9941	40	2.48

Enamel Covered.

Belden Enameled Magnet Wire. One piece only on a spool. State gauge and weight spool wanted.

6A9906—Enameled.

Gauge	2-Oz. Spool	4-Oz. Spool	8-Oz. Spool	1-Lb. Spool
16	....	....	$0.56	$0.90
18	....	....	.57	.91
20	....	....	.59	.95
22	....	....	.62	1.03
24	29c	41c	.66	1.05
26	30c	43c	.69	1.07
28	31c	44c	.73	1.09
30	32c	46c	.75	1.11
32	33c	48c	.78	1.14
34	36c	50c	.82	1.25
36	41c	59c	1.01	1.65

Litzendraht Wire.

Consists of twenty strands of No. 38 special Belden enameled wire, twisted and covered with a double serving of white silk. Shipping weight, about ½ pound per 200 feet.

6A9942

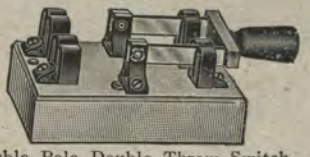
Price, per 100 feet..**$1.15**
Price, per 200 feet..**2.15**
Price, per 500 feet..**5.00**
Price, per 1,000 feet..**9.45**

Baby Knife Switches.

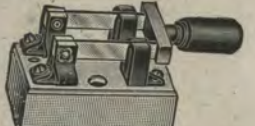
15-Ampere—125-Volt Size on Porcelain Bases.

Single Pole Single Throw Switch. Base, 1⅛x3⅛x¾ inches. Shipping weight, 6 ounces.
6A8353—Price **25c**

Single Pole Double Throw Switch. Base, 1⅜x4x¾ inches. Shipping weight, 12 oz.
6A8354—Price **35c**



Double Pole Double Throw Switch. Size, 2⅝x4x½ inches. Shipping weight, 1 pound.
6A8356—Price **53c**



Double Pole Single Throw Switch. Base, 2x2⅝x¾ in. Shipping weight, 12 ounces.
6A8355—Price **38c**

Attractive Parts at Attractive Prices

Illustrations show actual size.

Army-Navy Polished Nickel Plated Panel Switch Lever.

Army-Navy Panel Switch Lever. This switch lever is excellent in quality and beauty of design. Knob is of genuine Formica, knurled edge. Switch blade is of spring brass, nickel plated. Switch bolt extends through heavy brass bushing, fitted with large nut used to mount the lever on panel. Furnished complete with two nuts. 2-inch radius. All metal parts nickel plated. Shipping weight, each, about 8 ounces.

6A9463—Army-Navy Panel Switch Lever.
Price, each $0.64
Per ½ dozen..... 3.65

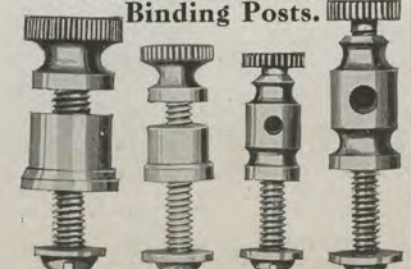
Laminated Bronze Switch Lever.

DeForest Standard.

Self Cleaning Laminated Switch Lever of phosphor bronze. Brass bushing and stem, fitted with brass nuts. Bakelite knob. Excellent switch lever in every respect. Used extensively on Signal Corps and Navy radio apparatus. Standard on DeForest radio apparatus. Shipping weight, about 4 ounces.

6A9308—Laminated Bronze Switch Lever. Price..... 68c

Polished Nickel Plated Binding Posts.



6A9453 6A9457 6A9450 6A9451

Made from brass stock; high grade in every respect. Each post fitted with brass screw and washer. Two styles, two sizes each style.

6A9453—Price, each, 12c; per dozen..... $1.32
Shipping weight, each, about 3 ounces.

6A9457—Price, each, 10c; per dozen..... 1.10
Shipping weight, each, about 3 ounces.

6A9450—Price, each, 10c; per dozen..... 1.10
Shipping weight, each, about 1 ounce.

6A9451—Price, each, 12c; per dozen..... 1.32
Shipping weight, each, about 2 ounces.

Nickel Plated Brass Mineral Cup.

Fitted with three screws for mounting mineral. Cup is of nickel plated brass, polished. Hole in bottom of cup allows for mounting on detector stand or panel. Very useful. Shipping weight, 5 ounces.

6A9486—Nickel Plated Brass Mineral Cup.
Price 20c

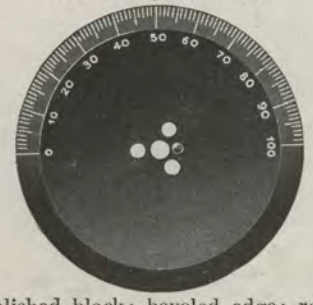
Laminated Polished Nickel Plated Switch Lever.

A very high grade switch. Bearing type with coil spring. Blades of solid brass, two blades making the complete lever. Lever is ground after blades are in place, which makes the switch unusually smooth running. All metal parts above panel nickel plated. Marconi knob. Fitted with bushing, washers, spring, nuts and soldering terminal. 1½-inch radius. Shipping weight, about 8 oz.

6A9484—Laminated Nickel Plated Switch Lever. Price 97c

High Grade Molded Indicating Dial.

Diameter, 3 inches.



Polished black; beveled edge; radial lines and numerals accurately engraved and filled with brilliant white. Diameter, 3 inches, 3/16 inch thick, 8/32 hole in center for rod. Three holes and raised key provide ample means for mounting any style knob desired. Very high grade. Shipping weight, each, about 4 ounces.

6A9349—Molded Indicator Dial.
Price, each..... $0.73
Price, per one-half dozen..... 4.30

Round Brass Rod.

Suitable for making secondary coil rods, etc. Easy to saw, thread, etc. In two sizes; 2-foot lengths only.

6A9479—3/16-inch diameter, 2-foot lengths. Shipping weight, 1 pound.
Price, each..... $0.12
Per dozen..... 1.00

6A9480—7/32-inch diameter, 2-foot lengths. Shipping weight, 1 pound.
Price, each..... $0.13
Per dozen..... 1.15

Army-Navy Junior Switch Lever.

Nickel Plated.

Excellent for use where a larger switch would not do. Molded knob of neat design; switch bolt extended through brass bushing. Each bushing is fitted with two washers so the switch can be mounted on 1/8, 3/16 or ¼-inch panel. Switch blade is of spring brass, nickel plated and polished. Shipping wt., each, about 4 oz.

6A9443—Army-Navy Junior Switch Lever.
Price, each..... $0.50
Per ½ dozen..... 2.80

Midget Switch Lever.

Nickel Plated.

An ideal small switch. Has many uses, such as secondary variation switch, "on" and "off," etc. Made of nickel plated brass, fitted with washers, two nuts and soldering lug. Knob is molded composition. Shipping weight, about 4 oz.

6A9410—Midget Switch Lever.
Price, each $0.25
Per ½ dozen..... 1.35

Nickel Plated Cap Nut.

Hexagon Cap Nut. Used in place of the ordinary nut on loose coupler, secondary rods and other places where the ordinary brass or iron nut would be unsightly and spoil the appearance of the best apparatus. Nickel plated brass, polished; 8/32-inch thread. Shipping weight, per dozen, about 12 ounces.

6A9475—Hexagon Cap Nut.
Price, per dozen..... $0.35
Price, per 100..... 2.60

Grade M Formica Panel.

Standard with the United States Government. Used extensively by commercial companies. Impervious to moisture. Dielectric strength is extremely high. **Color,** black. **Finish,** one polished side, one dull side, operator's choice. Smooth sawed edges.

Catalog No.	Size Sheet, Inches	Shpg. Wt., About	Price
6A9510	8x 9x1/8	2 pounds	$0.75
6A9511	12x18x1/8	5 pounds	2.05
6A9512	18x24x1/8	7 pounds	3.98
6A9513	8x 9x3/16	2 pounds	1.12
6A9514	12x18x3/16	6 pounds	3.25
6A9515	18x24x3/16	7 pounds	5.35
6A9516	8x 9x¼	3 pounds	1.45
6A9517	12x18x¼	7 pounds	3.95
6A9518	18x24x¼	7 pounds	7.95

Gray Cardboard Tubes.

High grade heavy tubes of gray cardboard. Used extensively in radio apparatus of all kinds. These tubes hold their shape well and are heavy enough to insure a good winding. 6A9477 Primary Tube and 6A9476 Secondary Tube can be used together to make a 3,000-meter loose coupler. 6A9478 Tube can be used to wind a tuning or loading coil; can be cut for variometers, etc.

6A9476—Gray Cardboard Tube. Outside diameter, 3⅝ inches; length, 6½ inches; thickness of wall, 3/16 inch. Shipping weight, about 1½ pounds.
Price, each..... 15c

6A9477—Gray Cardboard Tube. Outside diameter, 4½ inches; length, 7½ inches; thickness of wall, 3/16 inch. Shipping weight, about 1½ pounds.
Price, each..... 17c

6A9478—Gray Cardboard Tube. Outside diameter, 3¼ inches; length, 8 inches; thickness of wall, ⅛ inch. Shipping weight, about 1½ pounds.
Price, each 18c

Polished Nickel Plated Brass Switch Points.

Solid brass, nickel plated; two nuts, ¼-inch diameter, ¾-inch head, ⅝-inch length of thread. Shipping wt., per dozen, about 12 oz.

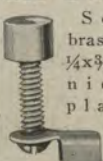
6A9472
Per dozen..$0.48
Per 100..... 3.60

Size, ¼-inch diameter, 3/16-inch head, otherwise same as 6A9472.

6A9473
Per dozen...$0.45
Per 100..... 3.45

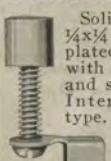
Solid brass head, nickel plated; size, 3/16 x 3/16-in., otherwise same as 6A9251.

6A9304
Per dozen..$0.38
Per 100..... 2.96



Solid brass head, ¼x3/16 in., nickel plated, otherwise same as 6A9251.

6A9271
Per dozen..$0.42
Per 100..... 3.00



Solid brass head, ¼x¼ inch, nickel plated. Fitted with brass screw and soldering lug. Interchangeable type. Can be used many times, as no solder need touch the thread. Shipping wt., per dozen, about 10 oz.

6A9251
Price, per dozen.....$0.40
Per 100 ..... 3.18

Attractive Insulated Knobs at Attractive Prices

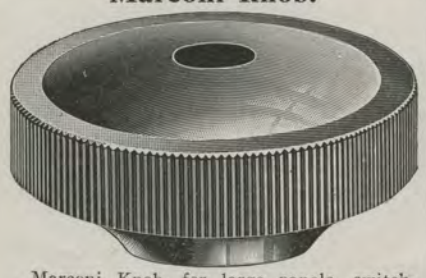
ILLUSTRATIONS SHOW ACTUAL SIZE.

Marconi Knob.

Marconi Knob, same pattern as 6A9460. Used extensively on high grade loose couplers, panel sets, and laboratory apparatus. Drilled for 3/16-inch rod at bottom, 7/16-inch hole at top. Shipping weight, per knob, about 3 ounces.

6A9461—Marconi Knob.
Price, each.....$0.15
Per dozen 1.20

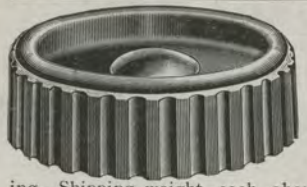
Marconi Knob.



Marconi Knob, for large panels, switchboards, variometers, transformers, etc. No bushing. Drilled for 3/16-inch rod at bottom and has 7/16-inch hole in top. Highly polished. Shipping weight, per knob, about 4 oz.

6A9460—Marconi Knob.
Price, each.....$0.23
Per dozen..... 2.50

Knob.



Very popular Knob for loose couplers, variometers, loading coils, etc. Has 8/32 bushing. Shipping weight, each, about 3 ounces.

6A9447—Knob.
Price, each $0.11
Per dozen 1.10

Electrose Navy Key Knob.

Electrose Navy Key Knob. The latest and most approved type. Adds speed and accuracy to operating. Construction is flameproof. Used on our navy type key, and on a great many of the best keys. Has 8/32-inch stem, which will fit most all keys Shipping weight, each, about 3 ounces.

6A9381—Navy Key Knob.
Price, each 18c

Detector Base.

For the operator who makes his own detectors. Made of black Electrose, polished. Base is molded, and has designated places for mounting binding posts, detector cup, cat whisker, arm, etc. Molded groove in bottom for wiring. Size, 3x3 inches. Shipping weight, about 5 ounces.

6A9385—Detector Base.
Price, each 20c

Hard Rubber Binding Post.

One of the finest binding posts on the market. Made of genuine hard rubber with nickel plated metal contact ring. Should be used on all quality apparatus. Furnished with two nuts and washer, as shown. Shipping weight, each, about 4 ounces.

6A9452—Hard Rubber Binding Post.
Price, each.....$0.26
Per dozen..... 2.88

Hard Rubber Knob.

Used on Navy type loose couplers, variometers, variable condensers, wave meters, etc. Made of genuine hard rubber with knurled edge. Fitted with solid nickel plated brass bushing, threaded 8/32. Shpg. wt., each, about 5 oz.

6A9467—Navy Type Knob.
Price, each.....$0.29
Per dozen..... 3.36

Detector Knob.

Most popular Detector Knob. Fine for small and medium sized instruments. Very neat and attractive. Has 8/32 bushing. Shipping wt., each, about 2 oz.

6A9462—Detector Knob.
Price, each..... 6c
Per dozen.....59c

Standard Detector Screw Knob.

Neat and attractive. Fitted with brass screw, 8/32 thread. Shipping wt., each, about 3 oz.

6A9468—Standard Detector Knob.
Price, each..... 6c
Per dozen.....60c

Knob.

On account of its graceful lines this Knob is found on many high priced laboratory instruments and high grade panel sets. Has 10/32 bushing. Shipping weight, each, about 2 ounces.

6A9470—Knob.
Price, each 6c
Per dozen 59c

Knob.

Highly recommended for spark gaps, loose couplers, secondary switch, variable condenser, etc. Has 8/32 bushing. Shipping weight, each, about 2 ounces.

6A9448—Knob.
Price, each.....$0.13
Per dozen..... 1.35

Knob.

Used on many instruments shown in this catalog. Fine for detectors, condensers, small switches, etc. Has 8/32 bushing. Shipping wt., each, about 2 oz.

6A9469—Knob.
Price, each 5c
Per dozen 48c

Knob.

Used extensively on small panels, spark gaps, etc. Bushing 8/32 thread. Shipping weight, each, about 3 ounces.

6A9485—Knob.
Price, each..... 8c
Per dozen.....80c

Standard Detector Handle.

Extensively used on all mineral detector stands, etc. Has 8/32 bushing. Shipping weight, each, about 2 ounces.

6A9444—Standard Detector Handle.
Price, each..... 8c
Per dozen.....75c

Ideal Knob.

This knob is used on several of our instruments. Polished black, knurled edge, fitted with nickel plated brass bushing, drilled for 3/16-inch rod, and fitted with set screw. Shipping weight, per knob, about 3 ounces.

6A9364—Ideal Knob.
Price, each $0.23
Per dozen 2.69

Navy Knob.

Black Electrose Navy Knob. Highly polished. Undoubtedly one of the handsomest knobs made. Has brass bushing, 3/8-inch, 16-thread; 3/4 inch deep. Excellent for high grade apparatus. Shipping weight, each, about 10 ounces.

6A9382—Navy Knob.
Price, each 39c

Navy Knob.

Black Electrose Navy Knob. Highly polished. Same style as 6A9382 and makes a fine appearance when used with it. Has 8/32 bushing. Shipping weight, each, about 3 ounces.

6A9383—Navy Knob.
Price, each.....$0.12
Per dozen 1.25

Army Knob.

Polished Bakelite. Used extensively on Signal Corps apparatus and on De-Forest apparatus. Drilled for 1/4-inch rod, 3/8-inch countersunk head for nut or screw. Four small holes for stay pins. Shipping weight, each, about 4 ounces.

6A9302—Army Knob.
Price, each $0.14
Per dozen 1.55

Army Knob.

Same as 6A9302, except smaller, and made with solid top. This knob is used extensively on small switches, etc. Shipping weight, each, about 2 ounces.

6A9303—Army Knob.
Price, each $0.11
Per dozen 1.12

Knob.

This Knob is adapted to many uses. It is used on detectors, tuning coil sliders, loading coils, small rheostats, etc. Has 8/32 bushing. Shipping weight, each, about 2 ounces.

6A9445—Knob.
Price, each 4c
Per dozen 35c

Junior Knob.

Used wherever a very small knob is needed. Has 8/32 bushing. Shipping weight, each, about 2 oz.

6A9446—Junior Knob.
Price, each 4c
Per dozen 35c

Electrose Insulators


6A9337


6A9338


6A9339-6A9340

Catalog No.	Diam., Inches	Length Over All, Inches	Mechanical Strength, Lbs.	Electrical Value		Shipping Wt., Abt., Lbs.	Price, Each
				Dry Volts	Rain		
6A9337—Ball Insulator	2⅛	3¼	250	40,000	25,000	½	**$0.25**
6A9338—Strain Insulator	1½	5	1,000	40,000	12,000	¾	**.38**
6A9339—Strain Insulator	1½	10½	1,000	90,000	50,000	1¼	**.60**
6A9340—Strain Insulator	1⅝	15⅞	1,500	125,000	75,000	2¼	**1.35**

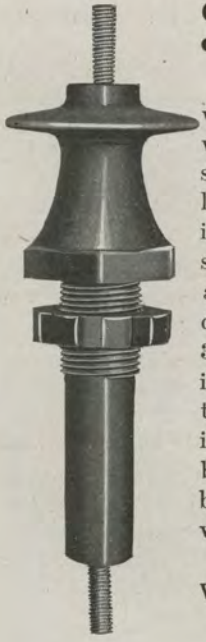
Special Wall Insulator.


6A9341

For lead-in wires. Has ¼-inch brass rod embedded in center. Diameter of body, 2 inches; length, over all, 5⁹⁄₁₆ inches. Shipping wt., about 1 pound.

6A9341—Special Wall Insulator. Price **95c**

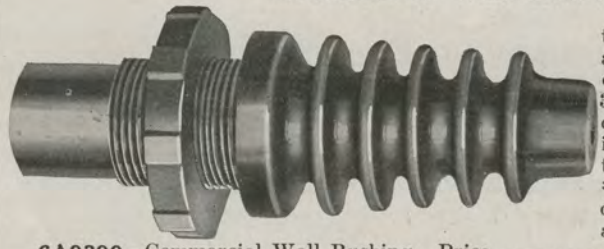
Commercial Wall or Roof Insulator.



Rain test, 25,000 volts; dry test, 55,000 volts. Length of insulator, 10 inches; length over all, 13 inches; length below shoulder, 6 inches; diameter of top, 4 inches; diameter of shoulder, 3 inches; ⅝-inch locking ring. Diameter threaded section, 1¾ inches, slight taper to bottom; ½-inch solid brass rod. Shipping weight, about 5 lbs.

6A9391—Commercial Wall or Roof Insulator. Price **$4.85**

Commercial Wall Bushing.

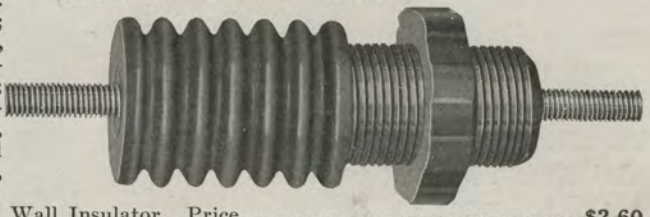


Rain test, 35,000 volts; dry test, 60,000 volts. Length over all, 9⅜ inches; length outside end, 5½ inches; inside end, 3⅞ inches; ⅝-inch locknut; diameter at shoulder, 3¹⁄₁₆ inches; diameter threaded section, 2½ inches; tapering hole, ¾ inch inside end, 1¹⁄₁₆ inch outside end. Shipping weight, about 5 pounds.

6A9390—Commercial Wall Bushing. Price **$2.65**

Commercial Wall Insulator.

Rain test, 20,000 volts; dry test, 50,000 volts. Length over all, 9¼ inches; length of insulator, 6¼ inches; length of outside section, 3¼ inches; ⅝-inch locknut; diameter of threaded section, 1⅞ inches; ½-inch solid brass rod. Shipping wt., about 5 pounds.



6A9389—Commercial Wall Insulator. Price **$2.60**

Porcelain Strain Insulator.

A small but highly efficient insulator. Made of porcelain, heavily and deeply ribbed, brown glazed. It has protected and smoothly turned holes in each end for wires. Size over all, 2¾ inches long by 1¼ inches in diameter. Shipping weight, about 5 ounces.

6A9273—Porcelain Strain Insulator. Price **7c**

Upright Insulator.

Used extensively on transmitting apparatus, aerial switches, etc. Polished black finish. Height over all, 7 inches; diameter of base, 2¼ inches; top, 1 inch; ⁵⁄₃₂-inch bushing in each end. Very high grade in every respect. Shipping weight, about 4 lbs.

6A9386—Upright Insulator. Price **$1.50**

Power Binding Post.

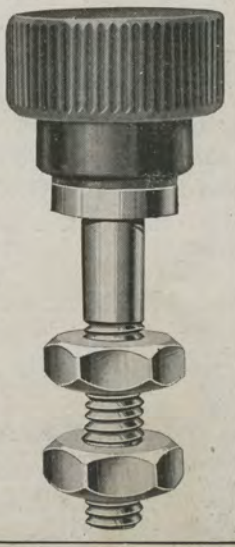


Illustration shows actual size. Used on commercial panel sets where heavy current capacity is needed. Knob is electrose with brass bushing; bolt of steel, fitted with two nuts. The best post we offer for heavy work. Shipping weight, about ½ pound.

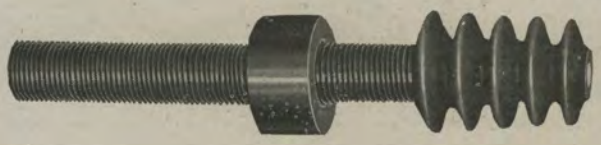
6A9384—Power Binding Post.
Price, each **$0.60**
Price, per dozen **6.60**

Upright Insulator.

Polished black finish. Used extensively on spark gaps, oscillation transformers, condensers, aerial switches, etc. Height, over all, 2⁹⁄₁₆ inches; diameter of base, 1⅜ inches; diameter of top, 1³⁄₁₆ inch. Brass bushings, ⁸⁄₃₂ inch in top and base. Shipping weight, about 8 ounces.

6A9387—Upright Insulator. Price **90c**

Extra Long Wall Bushing.



Polished black finish. Rain test, 20,000 volts; dry test, 40,000 volts. Length over all, 9¹⁄₁₆ inches; length threaded section, 6½ inches; 1-inch locknut; diameter threaded section, 1 inch; diameter of shoulder, 2 inches; tapering hole through insulator, ¼ inch outside end, ⁵⁄₁₆ inch inside end. Shipping weight, 4 pounds.

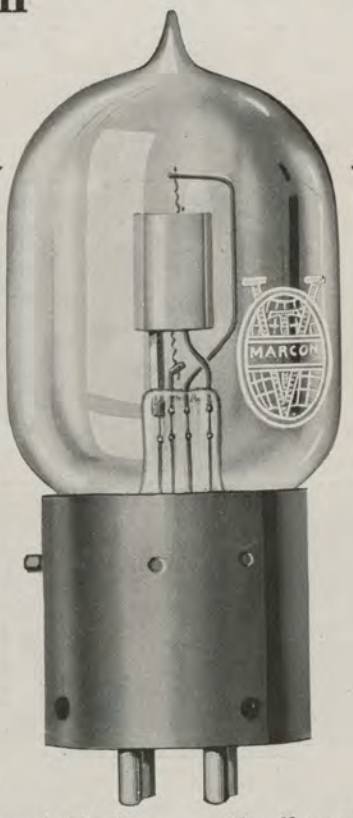
6A9388—Extra Long Wall Bushing. Price **$1.40**

The Marconi V. T. Oscillation Detector Amplifier

3-Electrode Oscillation Valve or Audion

$7.00

$7.00



The remarkable distances over which wireless signals are now transmitted may be attributed in a large measure to the amplifying properties of the vacuum tube. Although continent to continent wireless communication has been established with oscillation detectors of lesser degrees of sensitiveness, the Marconi V. T. (three electrode valve) permits the same distances to be covered with smaller amounts of power.

High power stations often employ several hundred kilowatts of electrical energy, whereas the experimental station is required to operate on a restricted wave length and with the relatively small antenna current of amateur transmitters. A sensitive oscillation detector, such as the Marconi V. T., is therefore an essential to communication between low power amateur wireless stations. In fact, an ultrasensitive oscillation detector is absolutely necessary to bring the signals up to the point of audibility when receiving over great distances.

It is now possible to design vacuum tubes, structurally, to meet any desired requirements, so that all possess indentical operating characteristics. The era of standardization has arrived, and the Marconi V. T. enters the market as a highly standardized product.

The amateur experimenter requires a three-electrode tube of universal operating characteristics— tubes designed for specific services are not suitable. The Marconi V. T. is an all around detector, one which can be used in any sort of a detection or amplification circuit. It operates efficiently over a wide range of plate voltages and at sufficiently low filament temperatures to insure long life.

With proper care it will function for at least 1,500 hours with marked uniformity. It gives excellent results in amplification circuits.

The filament, grid and plate are made from materials from which all occluded gases are removed during the process of manufacture. This prevents ionization and insures stable operation.

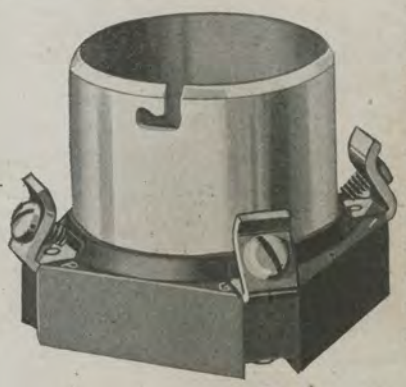
The Marconi V. T. is built to take the standard four-contact base, which makes all connections to the grid, plate and filament when the bulb is inserted.

The filament is rendered incandescent either by a 4-volt storage battery or by ordinary dry batteries. The storage battery is preferred, but the filament may be operated from dry cells for brief periods with good results. If dry cells are used, a series, parallel connection, of the cells will prolong their life. If a battery in excess of 4 volts is used, a 10-ohm rheostat should be used in the filament circuit.

The plate voltage may be furnished by a bank of flashlight cells giving an E. M. F. of approximately 60 volts. The telephones should be of approximately 2,000-3,000 ohms.

A 4-volt, 35-ampere hour storage battery is sufficient for the filament circuit of a single bulb, but a 50-ampere hour battery is preferred when several bulbs are employed in cascade amplification. But even here dry cells may be used for temporary operation. Operating instructions and circuits furnished with each tube. Shipping weight, about 1 pound.

6A9438—Marconi V. T. Price..... **$7.00**

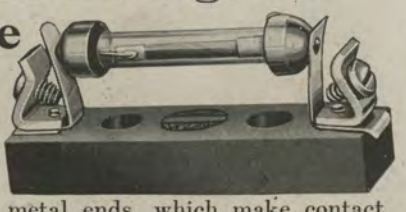


Marconi Base for V. T. Tube

Marconi Standard V. T. Tube Socket. Four-prong contact connection. Nickel plated, mounted on molded insulating base, with screw terminals and marked connections. Shipping weight, about ½ pound.

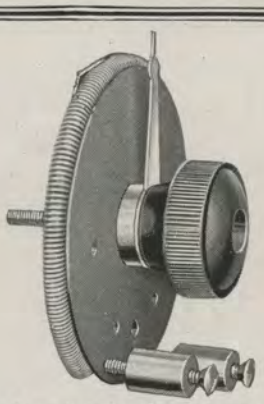
6A9495—Price... **$1.40**

Marconi 2-Megohm Resistance



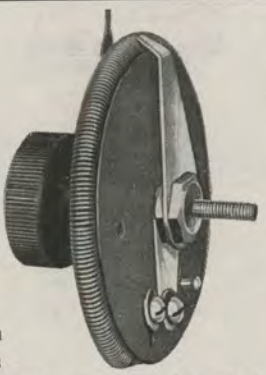
Marconi Standard for V. T. Tube. Resistance unit is mounted in glass tube between metal ends, which make contact with terminals as shown. To be connected between the grid and filament. Mounted on black molded base. Shipping weight, about 4 ounces.

6A9436—Price..... **95c**



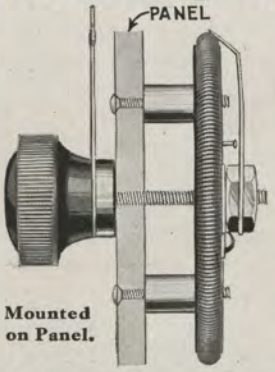
METEOR

Our Own Trade Mark.
Registered in the United States Patent Office.



Panel Mounting Rheostat

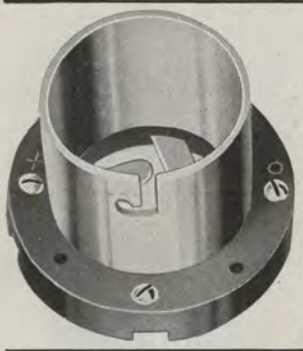
Not a makeshift, but a specially made rheostat for back mounting only. This instrument has long been needed. It is not to be confused with the ordinary porcelain base rheostat made over for back mounting. Resistance is mounted around Bakelite insulation, ¼ inch thick, 2¾ inches in diameter. Mounted on panel as shown in center illustration. The bolt is 1¼ inches long, which permits mounting on a panel of any thickness from ⅛ inch up. Knob is standard Marconi. Pointer and bearing are heavily nickel plated. Contact to the resistance is made by laminated lever which is remarkably smooth running. This rheostat must be seen and used to be appreciated. Resistance, 10 ohms; capacity, 3 amperes continuously. Shipping weight, 8 ounces.



Mounted on Panel.

6A9422—Panel Mounting Rheostat, complete with bushings and screws. Price.....**$1.60**

V. T. Tube Receptacle.



Designed for panel or table mounting. Front connected, Bakelite base, spring type contact prongs. Used on Navy panels, DeForest panels, etc. Nickel plated. Shipping weight, about 8 ounces.

6A9298
V. T. Tube Receptacle. Price.....**$1.40**

Red Label Dry Battery.

Red Label Dry Battery. Shipping weight, about 2¾ pounds.

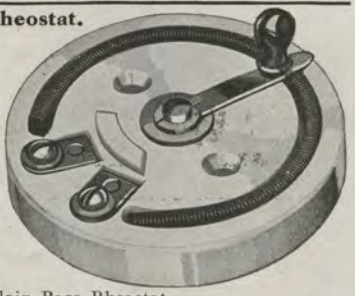
6A8635
Red Label Dry Battery.
Price, each.....**$0.33**
Per dozen (shipping weight, about 30 pounds).....**$3.84**

Eveready Tungsten Three Cell Flash Light Battery.

To make up B battery for Audion Detector. Shipping wt., 6 ounces.

6A9003
Eveready Flash Light Battery.
Price.....**32c**

Porcelain Base Rheostat.



Used to regulate battery current. Used with small motors, miniature lamps, detector batteries, etc. Coil will not slip out of place. Resistance, 10 ohms; capacity, 3 amperes continually; 4 in. in diameter, 1 3/16 inch thick. Shipping weight, about 1½ pounds.

6A9277—Porcelain Base Rheostat.
Price, each.....**62c**

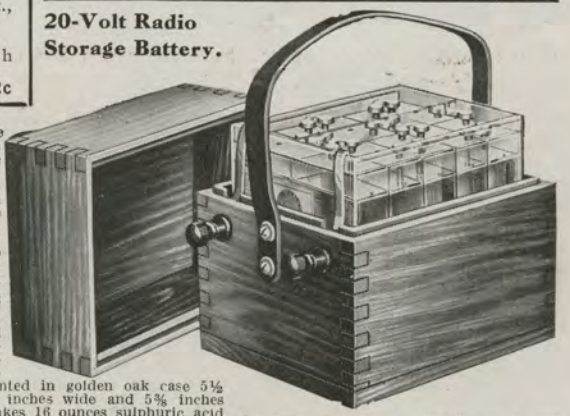
4 and 6 Volt Radio Storage Batteries.

Special 4-Volt and 6-Volt Storage Batteries in two sizes. These batteries are made especially for us for use with the V. T. Detector. 4-volt battery is made up of two cells; 6-volt battery is same construction as 4-volt, with one more cell. The 35-ampere size has seven plates to the cell and the 50-ampere size nine plates to the cell. These batteries are constructed with the new uniseal covers, each cell being a complete unit. The cells are easily removed without disassembling the remainder of the battery. Cells mounted in wooden container with carrying strap or handles.

6A9392⅓—Storage Battery. 4-volt, 35-ampere hour. Shipping weight, about 25 pounds. Price.....**$14.20**
6A9393⅓—Storage Battery. 4-volt, 50-ampere hour. Shipping weight, about 30 pounds. Price.....**$16.45**
6A9396⅓—Storage Battery. 6-volt, 40-ampere hour. Shipping weight, about 35 pounds. Price.....**$11.00**
6A9399⅓—Storage Battery. 6-volt, 60-ampere hour. Shipping weight, about 40 pounds. Price.....**$15.60**

Takes the place of flash light cells for vacuum tube work and eliminates the troublesome noises which dry cells cause by internal polarization. Battery is made up of ten individual cells, in celluloid container, each cell made up of two lead plates with celluloid separator. Capacity two ampere hour. Entire unit is mounted in golden oak case 5½ inches long, 4¼ inches wide and 5⅜ inches high. Battery takes 16 ounces sulphuric acid at 1.215 gravity. Normal charging rate 0.5 ampere. Battery can be put out of service for indefinite period by draining and washing. This battery was perfected during the war and is now used by the United States and foreign governments and by the best experimental stations. Shipped dry, no acid included. Shipping weight, about 10 pounds.

20-Volt Radio Storage Battery.



6A9335—20-Volt Radio Storage Battery. Price.....**$29.75**

2-Volt Storage Cell.

Standard Cell, as used in 6A9335 Storage Battery. Used to operate phones, medical lamps, flash lights, etc. Excellent for experimental work. 3¾ inches high, 1⅝ inches wide and ⅞ inch thick. Takes 1½ ounces electrolyte. Shipped dry, no acid furnished. Shipping weight, about 1 pound.

6A9336—2-Volt Storage Cell. Price.....**$2.35**

Aerial Connector Block.

The weakest point in most amateur stations is where the wires from the aerial join the lead-in. This aerial connection block does away with soldered joints and loose connections. Is made of solid brass, easy to install and will last a lifetime. Size, 2 inches high by 1¾ inches wide by ¾ inch thick. Shipping weight, about 6 ounces.

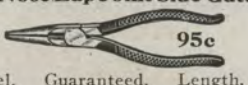
6A9272—Aerial Connector Block. Price.....**32c**

Aerial Suspension Pulley.

Galvanized iron pulley. Takes rope 5/16 inch or smaller; wheel, 1½ in. in diameter. Ideal for use in suspending aerials. Shipping weight, about 7 ounces.

6A9358—Aerial Suspension Pulley.
Price **6c**

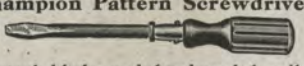
Long Chain Nose Lap Joint Side Cutting Pliers.



Forged steel. Guaranteed. Length, 6 inches. Shipping weight, about 4 ounces.

6A9482—Side Cutting Pliers. Price.....**95c**

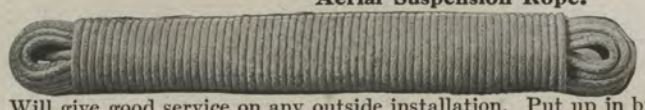
Champion Pattern Screwdriver.



Forged steel blade and hardwood handle. 4-inch blade. Shipping weight, about 3 ounces.

6A9481—Screwdriver. Price.....**11c**

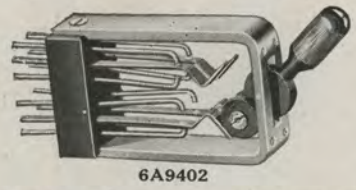
Aerial Suspension Rope.



One-fourth inch in diameter. Made of good quality long fiber cotton, smoothly braided. Will give good service on any outside installation. Put up in bundles of 100 feet. Shipping weight, about 2¼ pounds.

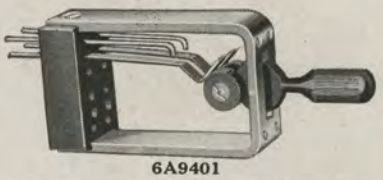
6A9359—Aerial Suspension Rope. Price, per bundle.....**$1.28**

Anti-Capacity Switch Keys



6A9402

U. S. Navy Standard



6A9401

This switch key derives its name from the fact that the capacity, or condenser effect of the key is practically immeasurable. It has supplanted the flat spring type of switch formerly used in radio apparatus, because the flat spring type of key has a very measurable amount of condenser effect or capacity, which causes trouble in the circuit. All trouble of this nature is entirely eliminated by the anti-capacity switch key.

Switch key is 1⅝ inches wide, ⅞ inch thick, length over all, 3⅜ inches. Arranged for mounting on under side of panel, switch handle only appearing on face of panel. Bakelite insulation. Roller cam arrangement providing for a smooth and easy lever movement. Springs of high grade material, heavily silver plated. Four mounting screws are furnished. Comes in two sizes.

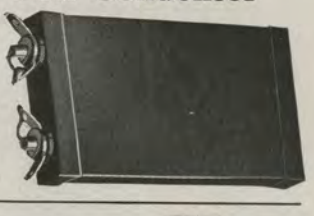
6A9401—Anti-Capacity Switch Key. Double pole, single throw. Normally open. Shipping weight, about ½ pound. Price..**$2.35**
6A9402—Anti-Capacity Switch Key. Four pole, double throw. Shipping weight, about ½ pound. Price..... **2.50**

Standard Paper Foil Condenser

Metal case, black enameled. Size, 4⅜x1¾x⅞ inch. Paper foil dielectric. Capacity, 1/20 M. F. D. Used as stopping condenser by Marconi Wireless Telegraph Co. Shipping weight, about ½ pound.

6A9403—Price..... **55c**

Signal Corps Paper Foil Condenser



Metal case, black enameled. Size, 3⅛x1 11/16x7/16 inch. Paper foil dielectric. Capacity, 2/10 M. F. D. Used as telephone shunt condenser by U. S. Signal Corps and by commercial companies. Shipping wt., about ¼ pound.

6A9404—Price..... **50c**

Murdock Fixed Condenser

Made of hard rubber composition, with rubber binding posts. A neat little condenser, which will increase the efficiency of the station. It is often used to shunt across the receivers. Size over all, 2⅝x1½ inches. Shipping weight, about 5 ounces.

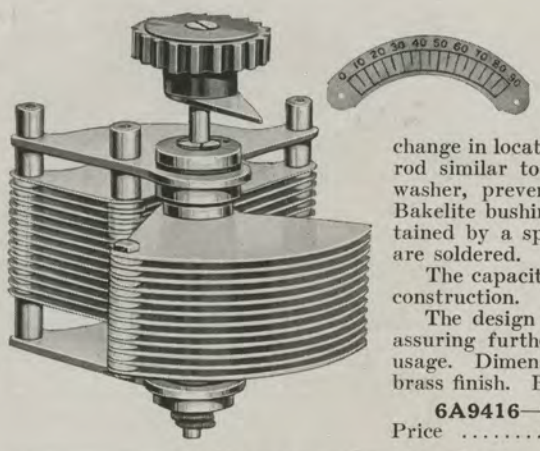
6A9264—Fixed Condenser. Price.....**70c**

Tubular Fixed Condenser

Can be used with great success in the receiving circuit, when placed as a shunt between detector and ground. A high grade fixed condenser. The base and top are made of hard rubber composition and are mounted on a nickel plated tube. Capacity is .003 M.-F. Shipping weight, about 10 ounces.

6A9400—Tubular Fixed Condenser. Price..... **86c**

U. S. Army Variable Condenser



This is a new and improved design in 90-degree variable air condensers, and is used by the U. S. Army Signal Corps and Air Service. The thirteen aluminum stationary plates are held together by two brass end plates through which rods are passed. The spacers are of aluminum. On the shaft is mounted twelve aluminum rotary plates separated by extra large spacers to prevent change in location, and, as an additional precaution, are held together in one corner by a sustaining rod similar to those used to hold the stationary plates. The large shaft is pigtailed to the end washer, preventing any variation in resistance due to improper contact, and is insulated by Bakelite bushings held in the end plates rigidly by threaded washers. Constant tension is maintained by a spring washer, and is adjustable through the bearing in the bottom end. All nuts are soldered.

The capacity is .0005 M. F. D. This condenser has great mechanical strength, due to its rugged construction.

The design embodies a wider air gap than is usual in a condenser of a similar capacity, thus assuring further robustness and eliminating short circuits between plates under the very hardest usage. Dimensions, over all: Height, 4⅝ inches; width, 3¼ inches; length, 3¾ inches. Bright brass finish. Bakelite knob. Shipping weight, 2 pounds.

6A9416—CV-500 Condenser, including knob, scale and pointer, ready to mount on panel. Price **$4.60**

Interior Only Murdock No. 366

Unit Interior No. 366 Condenser, ready for mounting in any desired place. Binding posts and arrow indicator nickel plated. Size, 4 inches diameter, 3½ inches high. Shipping weight, about 3 pounds.

6A9291—Interior only, Murdock No. 366 Variable Condenser..... **$4.25**

Murdock No. 366 Variable Condenser

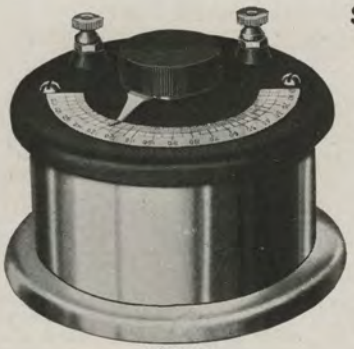
Condenser is incased in oil type polished black composition case. Semi-circular metal plates, twenty-one movable, twenty-two stationary. Capacity, .001 M.-F. Knob handle, arrow indicator and binding posts nickel plated; 180-degree scale. Size, 4 inches in diameter, 4 inches high. Shipping wt., about 2½ lbs.

6A9230 — Murdock No. 366 Variable Condenser..... **$4.75**

Murdock No. 368 Variable Condenser

Same as No. 366, but with one-half capacity, .0005 M.-F., and fitted with transparent case, as shown in illustration. Suitable for use as secondary condenser for average wave lengths. Eleven movable plates, twelve stationary. Black composition top with arrow indicator and binding posts, nickel plated. Size, 4 inches in diameter, 2½ inches high. Shipping wt., 1½ lbs.

6A9231 — Murdock No. 368 Variable Condenser..... **$3.75**

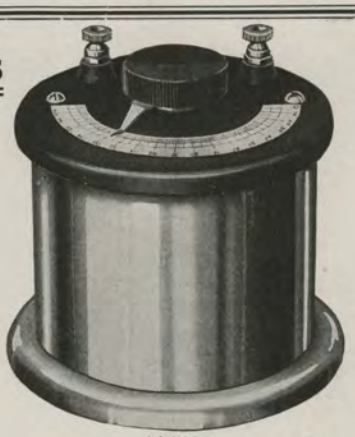


6A9294

$3.25

METEOR

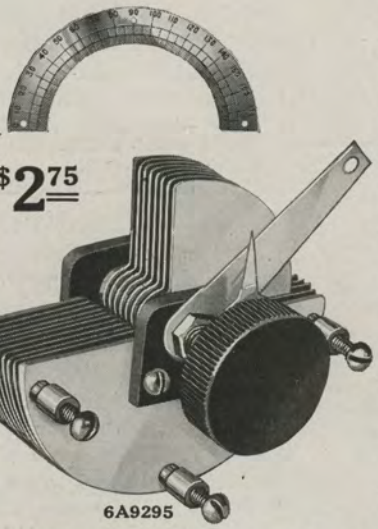
$4.45



6A9292

Variable Condensers

These condensers are excellent values and will give very satisfactory results. Several improved construction features are embodied which tend to give high operating efficiency. All parts are carefully inspected before assembling. Condenser plates are aluminum semicircles from select material. Both stationary and movable plates are carefully mounted by means of accurately machined spacers. Moving plates are mounted on steel shaft supported by two brass bearings, upper and lower. Both bearings are adjustable and are fitted with locknuts. Bearings are supported by Formica blocks. Condenser case of nickel plated brass, oil tight. Top is of molded insulation, ebony finish. Indicator is attached to knob, which is of black composition nicely finished. Scale is nickel plated brass, 180 degrees. The two special panel mounting styles are furnished with mounting screws, contact strip and scale.



$2.75

6A9295

$3.95

6A9293

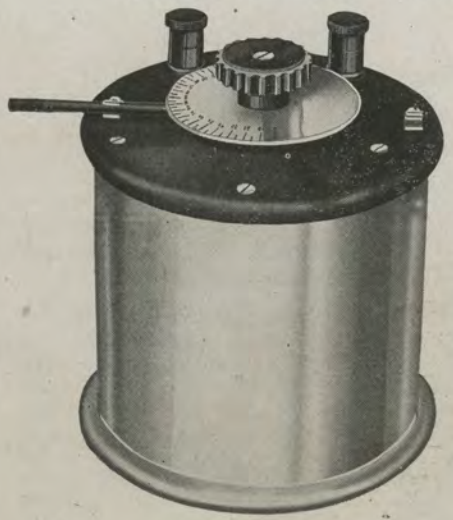
6A9292— 43-Plate Condenser, mounted in nickel plated oil tight case. Over all height, 4⅛ inches; over all diameter, 3⅞ inches. Capacity, .001 M.F.D. Shipping weight, about 2½ pounds. Price..... **$4.45**

6A9294—17-Plate Condenser, mounted in nickel plated oil tight case. Over all height, 3 inches; over all diameter, 3⅞ inches. Capacity, .0004 M.F.D. Shipping weight, about 2 pounds. Price..... **$3.25**

6A9293—43-Plate Condenser, for panel mounting, complete with scale. Width, 3⅛ inches; depth under panel, 2¾ inches. Capacity, .001 M.F.D. Shipping weight, about 2 pounds. Price..... **$3.95**

6A9295—17-Plate Condenser, for panel mounting, complete with scale. Width, 3⅛ inches; depth under panel, 1⅞ inches. Capacity, .0004 M.F.D. Shipping weight, about 1¾ pounds. Price..... **$2.75**

DeForest Vernier Type Variable Air Condenser



Those who have used a single plate variable condenser in parallel with a large variable air condenser for heterodyne receiving will appreciate the value of having these two condensers combined into one instrument. Others, who have used a variable air condenser alone for this type of receiving and have suffered with capacity effects from the hand of the operator when trying to get a zero beat adjustment, will welcome this instrument. The prime advantage in using the Vernier plate is that any capacity effects due to the operator's body are immediately compensated for. The Vernier or interdegree attachment consists of one stationary and one rotary plate mounted above the main condenser. Plates of heavy aluminum, excellent construction throughout. Fitted with Bakelite handle. Bakelite top and knob. One hundred division scale, instead of 180, provides an easy scale for the plotting of curves. Case is bright aluminum. Capacity of condenser, .001 M.F.D.

6A9414—Price **$17.00**

2,000-OHM

$9.19

Special Ear Caps

New Headband

METEOR

Our Own Trade Mark, Registered in the United States Patent Office.

1,000-OHM, $4.95

Nickel Plated Parts

3,200-OHM

$10.75

Feather Weight

Improved Super-Sensitive Radio Receivers

New Model

Improved model embodies new improvements, as shown. These receivers became well known before the war. They were in daily use in hundreds of stations of all kinds, from the tuning coil set to the laboratory, and were among the first receivers to be used by the Signal Corps in 1917.

THUMBSCREW ADJUSTMENT HOLDS RECEIVER IN PLACE BOTH ON AND OFF THE HEAD.

Very high grade receivers, which are extremely sensitive. Meteor receivers are built with great care and combine extreme sensitiveness, excellent adjustment and light weight.

Specifications

Receiver Shell — Aluminum cup made exact size to take the windings and magnets.

Magnets—High grade magnet steel properly tempered and magnetized. The cores are of excellent quality soft iron, properly annealed.

Diaphragms—Correct thickness.

Windings—Windings are constructed with great care of high grade wire and insulation.

IMPROVED RECEIVER CONSTRUCTION. HORSESHOE MAGNETS. ENCLOSED CORD TERMINALS. HIGH GRADE WORKMANSHIP.

Tone—Each receiver is individually tested and each pair is matched for tone. They must conform to a fixed standard.

Ear Cap—Made for this receiver. Designed and shaped to fit the ear without being painful, and at the same time fit close enough to exclude outside interfering noise.

They Get the Stations You Don't Hear Now!

ARMY-NAVY HEADBAND. STRONG, COMFORTABLE. WON'T PULL HAIR. STAYS ADJUSTED.

Cord—Six feet of stranded twisted formation, moisture proof cord, covered with black mercerized braid.

Headband — Army-Navy headband. Spring steel, covered with heavy flat webbing, olive drab color. Receiver shell is suspended in nickel plated prong, attached to headband by means of bar and bearing. Bearing is held in desired position on bar by means of thumbscrew.

NO EXPOSED TERMINALS. RECEIVER CORD CONNECTED ON INSIDE OF RECEIVER.

Finish—Nickel plated metal parts. Black ear caps. Finish is refined and pleasing in every respect.

Guarantee—Buy a pair of Meteor Super-Sensitive Receivers and compare them with any receivers on the market at anywhere near the price of Meteor. If you don't like them better, return them any time and we will return the purchase price, together with all transportation charges.

6A9442—Meteor Super-Sensitive Radio Receivers. Double set, improved 1919 model, 3,200-ohm. Shipping weight, about 1½ pounds. Price..**$10.75**

6A9441—Meteor Super-Sensitive Radio Receivers. Double set, improved 1919 model, 2,000-ohm. Shipping weight, about 1½ pounds. Price...**$9.19**

6A9440—Meteor Super-Sensitive 1,000-Ohm Single Receiver Set. Consists of one 1,000-ohm receiver, black enameled flat spring type headband and cord. Shipping weight, 1½ pounds. Price.....**$4.95**

Murdock Special No. 55 Receivers

Here is a set of wireless receivers which cannot be excelled for the price. You cannot afford to use inferior receivers now. Think of buying a high grade 2,000-ohm double set complete for $4.50, or a complete 3,000-ohm double set for $5.50, or a complete 1,000-ohm single set for $2.75.

The cases are made of patent process hard rubber composition with lasting finish and are of the solid construction type. The magnets are of fine quality steel, large enough to guarantee dense and permanent magnetism. The diaphragm is thin, flexible and rust resisting; windings are of enamel coated copper wire. The headband is nickel silver, split and adjustable. Complete with 5 feet of high grade mercerized cord and connection block.

6A9214—Double Set, 2,000-ohm. Shipping weight, about 1¼ pounds.....**$4.50**
6A9215—Double Set, 3,000-ohm. Shipping weight, about 1¼ pounds..... **5.50**
6A9228—Single Set, 1,000-ohm (connection block not included). Shpg. wt., about 1 lb.... **2.75**

Murdock Connection Block

These blocks are very useful for connecting head receivers. Used with our Special No. 55 Receivers. Made of hard rubber composition, with holes in ends for placing receiver cord tips or wires. Screw hole in center for attaching to table or cabinet. Size over all, 1½x¾x1⅛ inches. Shipping weight, about 4 ounces.

6A9229—Connection Block. Price.....**30c**

Standard Galena Detector

Many amateurs prefer this style of detector and it has become one of the most popular on the market for general use. The mineral cup can be rotated, thus affording a fine adjustment. The base is of hard rubber composition, ¼ inch thick. The standard is solid, nickel plated; adjusting screw has rubber composition handle and works on a contact spring of phosphor bronze, nickel plated. The crystal contact is of phosphor bronze wire, properly coiled and pointed. Binding posts are hard rubber composition covered. The adjustment allows any point on the mineral to be reached. This detector is not easily knocked out, as the spring contact is held in place by the adjusting screw. Each detector is furnished with a piece of tested galena mounted. Size of base, 3½x3½x¼ inches. Shipping weight, about 2 pounds.

6A9262—Standard Galena Detector. Price.....**$1.20**

Murdock Detector Stand

A good detector stand at a low price. It will give efficient service either as regular equipment or as an auxiliary instrument. The base is hard rubber composition; binding posts are nickel plated; cup element holder; vertical adjustment. Mineral not furnished with this detector, but we recommend silicon. Offered at a very low price to those who desire a good detector stand for a small sum. Size over all, 2⅝x1½x2 inches. Shipping weight, about 8 pounds.

6A9219—Murdock Detector Stand. Price.....**70c**

Great Lakes Detector Stand

A very popular type mineral detector of the cat whisker type. The mineral cup is fitted with three screws and mounted on a curved brass holder, which may be placed at any angle by means of the adjusting nut on the base. Fine adjustment is obtained by means of the screw, which is fitted with a rubber composition knob. This screw works in a brass pillar against a flexible strip which holds the cat whisker. Piece of galena furnished with this detector. Mounted on hard rubber composition base, 3⅝x2⅛x⅜ inches, fitted with two binding posts. All metal parts nickel plated. Shipping weight, about 1 pound.

6A9375—Great Lakes Detector Stand. Price.....**$1.08**

Wireless Test Buzzer

Detectors often lose their adjustment and need readjusting. By using a buzzer the adjustment of the detector is always known. The buzzer sets up tiny waves which pass through the detector, the same as incoming waves, and produce a sound in the receivers. If no sound is heard the detector point is not on a sensitive spot on the mineral and needs adjusting. The buzzer operates on one dry cell. A push button is used to close the circuit. The base and cover are made from sheet brass, nickel plated. The buzzer gives a high pitched sound, the frequency of the note being about 500 cycles. Size, 2⅛ inches in diameter, 1 inch high. Shipping weight, about 8 ounces.

6A9208—Wireless Test Buzzer. Price..**70c**

Buzzer Test Push Button

This push button is ideal for using with a test buzzer. It fits a ⅝-inch hole and is easily placed in any table top. Nickel plated, with pearl center. Shipping weight, about 4 oz.

6A9209—Buzzer Test Push Button. Price..**19c**

Murdock Loading Inductance

For the amateur who wishes to increase the receiving range of his station and to be able to tune in the long distance stations operating on wave lengths exceeding 1,200 meters. With the increase of wave lengths, which has become so common in modern practice of wireless, a need of building up the period of the primary of receiving transformers to wave lengths of 3,000 to 4,000 meters was apparent. When used with the primary of the average receiving transformer, waves up to 4,000 meters in length may be tuned. The loading coils are secured in a compact hard rubber composition base with felt covered bottom. The coils are tapped to seven active contact points, each point representing approximately 400 meters. The variation is made by a sliding contact switch. All metal parts nickel plated. This instrument is easily connected and operated. Size over all, 4½x2x1½ inches. Shipping weight, about 12 ounces.

6A9218—Murdock Loading Inductance. Price.....**$4.00**

Weatherproof Field Detector

Used on Signal Corps field radio sets and on DeForest wavemeters, etc. This detector is one of the most rugged instruments built. A tested piece of galena is mounted in a disc of Wood's metal alloy. This disc is held by means of a vise, held by a set screw, adjustable from the outside. Mineral contact is made by a spiral spring of phosphor bronze. The adjustment arm passes through a ball and socket joint, gives any adjustment required and enables making contact on any part of the crystal. Set screw on rear post is for binding after detector is set on a sensitive spot. Detector is made dustproof by enclosing in a glass tube. This is a very valuable feature. Mounted on Formica base, 2½x2x⅜-inch metal parts of polished brass. Height over all, 3¼ inches. Shipping weight, 1½ pounds.

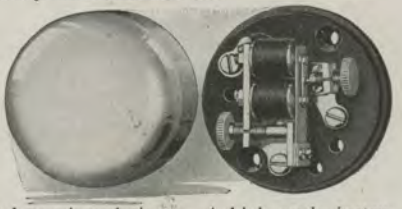
6A9297—Weatherproof Field Detector. Price.....**$2.35**

Universal Detector Stand

This detector stand provides means for using minerals requiring either a fine or blunt contact. A phosphor bronze "pick" is used for coarse contacts and is quickly changed to a fine contact by applying the phosphor bronze cat whisker over the end of the "pick." The tension is regulated by a screw fitted with insulating knob. The upright is of brass, nickel plated. Mineral cup is fitted with three screws and has a wide range of adjustments. Mounted on a hard rubber composition base, 6x2½x⅜ inches, fitted with two binding posts. Metal trimmings are nickel plated and well finished. A desirable addition to any wireless set. A piece of galena and a piece of silicon are furnished. Shipping weight, about 2 pounds.

6A9374—Universal Detector Stand. Price.....**$2.35**

Army-Navy Test Buzzer



Used by the Army, Navy and commercial wireless stations. Operates on either one or two dry cells and produces a clear tone that can be adjusted to any pitch. Base is hard rubber with black enamel brass cover. Two thumbscrews provide for the adjustment of the armature to regulate the tone to the desired pitch. Contact points of genuine platinum. A high grade instrument in every respect. Diameter of base, 2 inches. Shpg. wt., about 6 oz.

6A9437—Army-Navy Test Buzzer.
Price, each.....**$1.75**
Price, ½ dozen..... **9.50**

Minerals and Crystals

Only the very best selected pieces of minerals are suitable for wireless detectors. Ordinary pieces are not sensitive and are, therefore, of no value for wireless purposes. Our minerals are all high grade, and we will replace any which are not sensitive or do not give satisfactory service. Sold by the piece. Each piece is large enough for any size detector cup, and often large enough for several renewals.

6A9320—Bornite. Shipping weight, about 3 ounces.
Price, per piece.....**20c**
6A9321—Carborundum. Shipping weight, about 3 ounces.
Price, per piece.....**18c**
6A9322—Copper Pyrites. Shipping weight, about 3 ounces.
Price, per piece.....**8c**
6A9323—Galena. Shipping weight, about 3 ounces.
Price, per piece.....**6c**
6A9324—Ferron (Iron Pyrites). Shipping weight, about 3 oz.
Price, per piece.....**12c**
6A9327—Silicon, Fused, Pure. Shipping weight, about 3 oz.
Price, per piece.....**11c**
6A9328—Zincite, 100% pure. Shipping weight, about 3 oz.
Price, per piece.....**55c**

Soft Metal

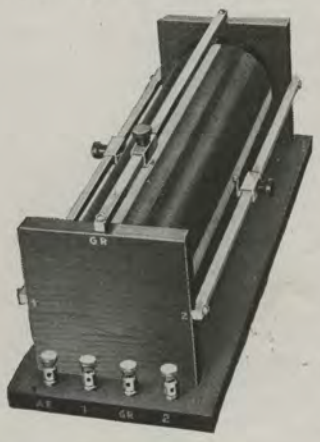
6A9326—Soft Metal, for mounting minerals. Melts in hot water. Piece large enough to mount two minerals. Shipping weight, about 5 ounces.
Price, per piece.....**18c**

Special Stations

We can furnish complete equipment for special stations and will be glad to furnish estimates, etc., on any installation. We can furnish Milliken Steel Wireless Towers, Marconi Commercial Marine Sets, etc.

High Grade Tuning Coils, Two and Three-Slide, 1,200 Meters

These coils are very high grade in every respect, and fill a long felt want for a high grade tuning coil at a low price. Coil is wound on heavy tube, treated to prevent shrinkage, etc. Winding is of green silk covered wire. Slider and slider rods are of nickel plated brass. Tension on slider insures good contact. All connections are made to the binding posts mounted on the end of the base. Binding posts and slider rods are all marked for connections. Coils have mahogany finished ends 4x4x½ inch, mounted on mahogany finished base 14x5x½ inch. Shipping weight, about 5 pounds.



6A9306—Two-Slide Coil.
Price **$4.75**
6A9307—Three-Slide Coil. Price.....**$5.25**

Arlington Tested Minerals

Each Arlington Tested Mineral has been individually tested, and unless it has shown extraordinary results it is discarded. They must bring in distant stations loud and clear. Individually wrapped and packed and sealed in a box. Each mineral is guaranteed to give satisfaction. Costs more—worth it. Shipping weight, per crystal, about 2 ounces.

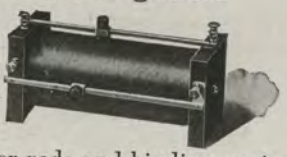
6A9285—Arlington Tested Galena.
Price, per crystal.....**23c**
6A9286—Arlington Tested Silicon.
Price, per crystal.....**23c**
6A9287—Arlington Tested Bornite-Zincite Couple.
Price, per set.....**46c**

Triple A Grade Minerals

These minerals are from the same high grade stock as our Arlington Tested Minerals, but they are subjected to bulk tests only and are not individually examined. They are sold by the ounce, 1 ounce being sufficient for from six to twelve renewals. Packed in round wooden boxes, sealed and labeled. Specially recommended to radio clubs, experimental stations, etc. Shipping weight, per 1-ounce box, about 3 ounces.

6A9288—Triple A Galena. Price, 1-ounce box.....**30c**
6A9289—Triple A Silicon. Price, 1-ounce box.....**30c**
6A9278—Triple A Bornite. Price, 1-ounce box.....**30c**
6A9279—Triple A Copper Pyrites. Price, 1-ounce box...**25c**
6A9280—Triple A Iron Pyrites. Price, 1-ounce box.....**27c**
6A9281—Triple A Molybdenum. Price, 1-ounce box.....**25c**
6A9282—Triple A Carborundum. Price, 1-ounce box....**27c**

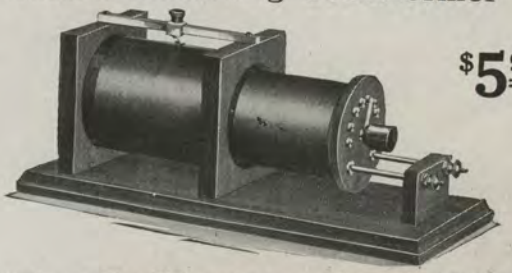
Standard Double Slide Tuning Coil



With suitable aerial this coil will respond to wave lengths up to 800 meters. The coil is bare copper wire wound with two sliding contacts. The ends are of polished mahogany finished hardwood. Slider rods and binding posts are polished brass and lacquered. Substantially made, efficient in service and attractive in appearance. Length, 8¾ inches. Shipping weight, about 3 pounds.

6A9246—Standard Double Slide Tuning Coil.
Price.....**$2.30**

Comet Receiving Transformer



$5.95

This instrument will tune to approximately 1,200 to 2,000 meters with a good aerial. Primary is wound with enameled copper wire. Primary variation is accomplished by means of a slider, secondary by means of an eight-point switch. Secondary is wound with green silk covered wire. All woodwork is mahogany finished and metal trimmings are lacquered brass. A very handsome and efficient instrument. Size of base, 15x6x¾ inch. Shipping weight, about 9 lbs.

6A9310—Comet Receiving Transformer. Price.**$5.95**

Two Distinct Designs, Single and Compound Secondary

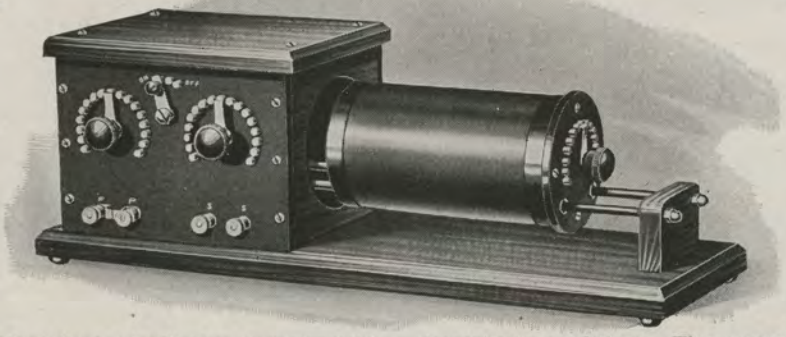
METEOR

Our Own Trade Mark, Registered in the United States Patent Office.

Used By Universities, Experimental Laboratories, Commercial Stations

Laboratory Receiving Transformer

Capacity, 3,500 Meters



For Long and Short Wave Reception, Damped or Undamped

This transformer is made for those who desire an instrument of exceptionally good construction and high efficiency. The workmanship and material used in this transformer are high grade throughout. It is in use in experimental stations, universities and schools and will be used by all wideawake amateurs with the better class stations.

The primary inductance is varied by means of two sets of switches, fifteen contacts on each. Fitted with dead end switch to divide primary winding so that part of the primary may be cut out entirely when desired. A safety gap is mounted on the primary binding posts. This gap assures safety under practically all atmospheric conditions. The construction throughout is superior to ordinary amateur apparatus. Primary panel is of polished hard rubber. Switch points and switch are nickel plated brass.

Secondary, hard rubber end, with fifteen-tap switch, is 6¼ inches long by 3¼ inches wide. Has maroon silk covered windings.

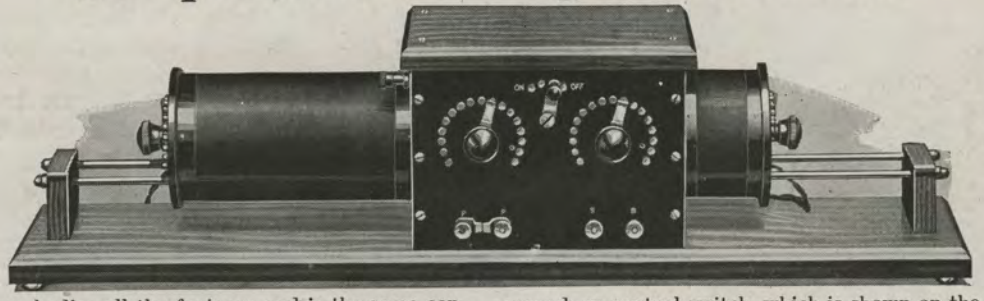
Secondary connection is made by means of a bridle, eliminating the losses due to sliding contacts.

Woodwork is beautifully finished in mahogany. All metal parts heavily nickel plated. Size of base, 18x6½ inches; height, 6⅝ inches. Shipping weight, about 20 pounds.

6A9360—Meteor Laboratory Receiving Transformer. Price **$22.55**

Compound Receiving Transformer

For Spark and Undamped Signals, Long and Short Wave



Four Combinations in One

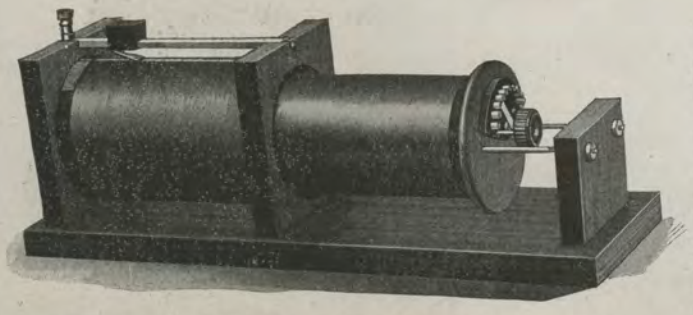
This transformer embodies all the features and is the same construction as our 6A9360 Laboratory Receiving Transformer and has in addition a short secondary and secondary control switch. This provides a means for making four receiving combinations, as follows: Long secondary and short primary; long secondary and long primary; short secondary and short primary; short secondary and long primary. Any combination can be effected in almost a second's time by means of the dead end primary switch and the secondary control switch, which is shown on the end of the primary cabinet, at the upper left corner. This switch is a standard telephone jack switch and is mounted inside the cabinet. Transformer has a range of from 200 to 3,500 meters.

Beautiful mahogany finish. All parts nickel plated. Size of base, 24½x6½ inches; 6⅝ inches high. Shipping weight, about 30 pounds.

6A9361—Compound Receiving Transformer. Price..... **$27.55**

"NAA" Receiving Transformer

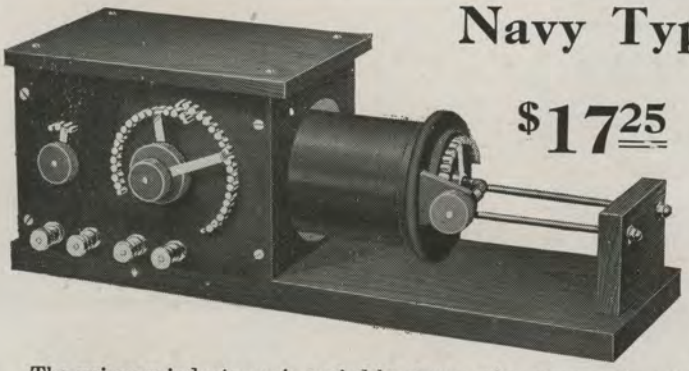
Capacity, 3,500 Meters.



In this receiving transformer the amateur is offered an efficient, well made, long wave length tuner at a low price. When you see it you will really be astonished to think of buying this instrument for $7.95. With it you can tune in with the big wireless stations, including Arlington, Key West and others using wave lengths of 2,500 meters and more. The windings of both coils are of green silk covered wire. The primary slider is mounted on a brass rod and works freely and with minimum wear on the wire. The slider is very selective, as it will make contact on a single turn. The secondary inductance is varied by means of a ten-point switch mounted on a hard rubber block. Secondary coil ends are of wood. All woodwork is beautifully finished in mahogany. Secondary slider rods are of brass. Handsomely finished in lacquered brass and mahogany. Size of base, 18½x6 inches. Shipping weight, about 14 pounds.

6A9362—"NAA" Receiving Transformer. Price..... **$7.95**

Navy Type Receiving Transformer



$17.25

Improved Model—Improved Secondary Switch—Improved Primary Switch—Improved Mounting of Binding Posts.

This instrument is of special interest to schools, experimental stations and wideawake amateurs. Several special features are included in this instrument, one of the most important being the two separate primary sections, which are connected by a small wave length switch. When the switch is on the "off" side, waves up to 1,000 meters can be received, using the secondary in the regular way. By changing the switch to the "on" side, waves up to 3,500 meters can be received. This system reduces dead end losses to a minumum.

The primary inductance is varied by means of a compound spring contact switch mounted on knurled edge hard rubber knobs. All contact surfaces are silver plated, do not easily tarnish and have very high conductivity.

Both primary and secondary coils are wound on special tubes which have been treated to prevent shrinking and which makes them moisture proof. Both primary and secondary are wound with green silk covered wire. The secondary inductance is varied by means of an improved type twelve-point switch on rubber and placed on the secondary coil head. The switch is fitted with a knurled hard rubber knob which is conveniently placed.

The primary and secondary binding posts are mounted on the primary cabinet side, which is made of hard rubber. No sliding contacts are used, as the leads from the secondary are brought directly to the binding posts on the cabinet. The secondary is supported by two nickel plated brass rods. All metal trimmings are nickel plated. The woodwork is all beautifully finished in mahogany and is made from selected and seasoned pieces.

This instrument is one of the most selective and efficient receiving transformers built. Size of base, 18½x6¼ inches; height, 7 inches. Shipping weight, about 25 pounds.

6A9259—Navy Type Receiving Transformer. Price.....**$17.25**

Watch Case Receiver

75-Ohm Watch Case Receiver, with 3 feet of cord, to use in connection with 6A9200 Practice Set for class instruction. Shipping weight, about 1 pound.

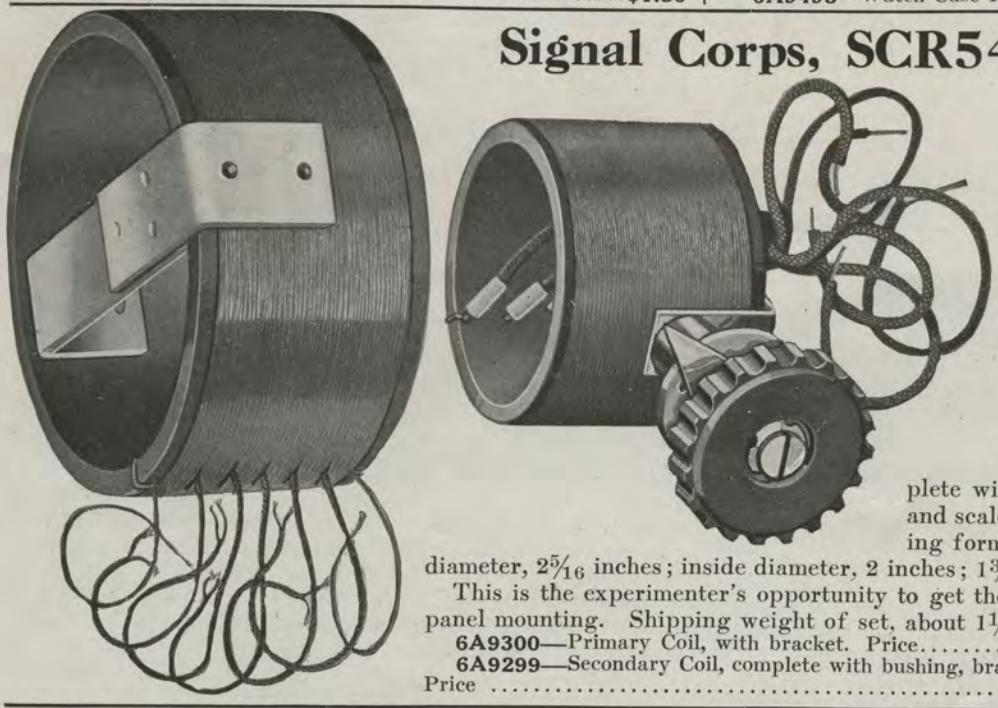
6A9492—Watch Case Receiver. Price.....**$1.30**

Watch Case Receiver With Headband

75-Ohm Watch Case Receiver. Same as 6A9492, equipped with leather headband. Shipping weight, about 1 pound.

6A9493—Watch Case Receiver. Price.....**$2.05**

Signal Corps, SCR54, Primary and Secondary



Tunes 150-750 meters, with .001 condenser.

Primary winding of No. 38 single green silk covered copper wire, tapped in five places, complete with bracket ready to mount on panel. Winding form is dilecto, natural color. Outside diameter, 3⅝ inches; inside diameter, 3½ inches; 1⅞ inches long.

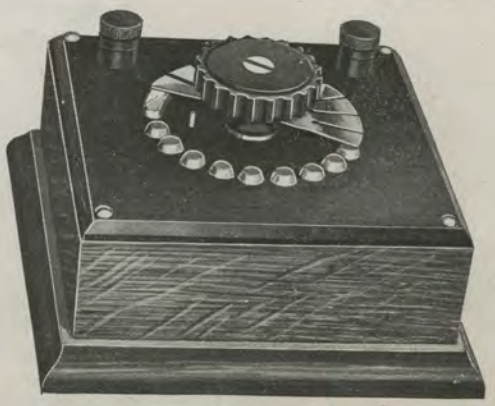
Secondary winding of No. 38 single green silk covered copper wire, tapped in five places, complete with bracket, bushing, knob, pointer and scale, ready to mount on panel. Winding form is dilecto, natural color. Outside diameter, 2 5/16 inches; inside diameter, 2 inches; 1¾ inches long.

This is the experimenter's opportunity to get these high grade parts all ready for panel mounting. Shipping weight of set, about 1½ pounds.

6A9300—Primary Coil, with bracket. Price.....**$1.40**

6A9299—Secondary Coil, complete with bushing, bracket, knob, pointer and scale. Price.....**2.40**

Type CS Bridging or Loading Condenser

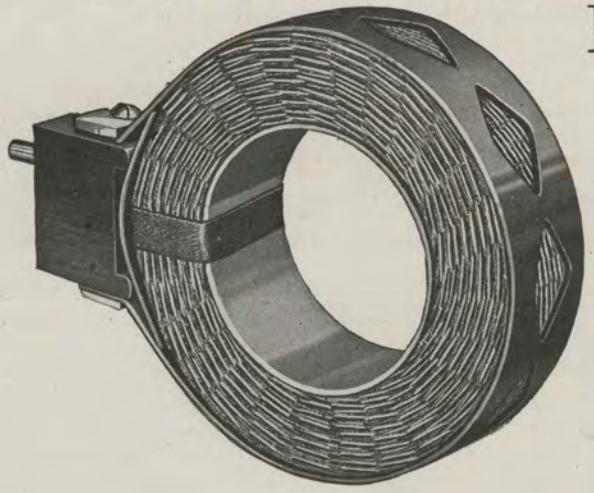


Ideal when used to increase the range of a variable air condenser, or as a bridging condenser when continuously variable values are not required. Also used as primary or secondary condenser where the tuning inductances are tapped.

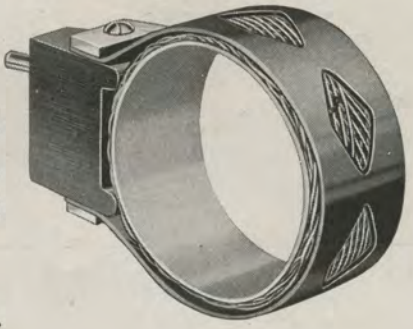
Consists of a sectional mica condenser of ten taps which are thrown in and out of circuit by means of a fan switch. The sections are not of equal capacity, but are tapered to give a small minimum, increasing to one-tenth of the full capacity on the last tap. Capacity, .0015 M. F. D. Condenser is constructed to prevent leakage, and assures constant capacity values in use. Mounted on Bakelite panel, 3/16 inch thick. Fitted with electrose binding posts and Bakelite knob. Fan switch of phosphor bronze, nickel plated. Cabinet of oak, 5¼x5¼x3⅛ inches high. Shipping weight, about 2 pounds.

6A9415—Type CS Bridging or Loading Condenser. Price.....**$5.70**

DeForest Type L Honeycomb Wound Inductance Coils

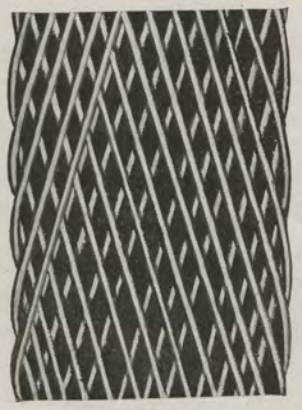


For Use With Stationary Coil Mounting and Unit Panel Set



Illustrations Showing Winding and Relative Size of Short and Long Wave Coils.

The DeForest Honeycomb Coils embody a new idea in radio coil design that is almost revolutionary, in that it makes the usual large and cumbersome, home made, cylindrical and multilayer coils obsolete, and promises to replace the customary type of coil that is now used commercially. Surprising results have been obtained on test in their values for distributed capacity and high frequency resistance. These coils have only been on the market a short time and were very popular from the first. Their use will increase the efficiency of the receiving station and, in addition, the receiving set is made very flexible, with limits bounded only by the size and number of coils available. The amateur will find it possible to add different size coils from time to time at a nominal cost.



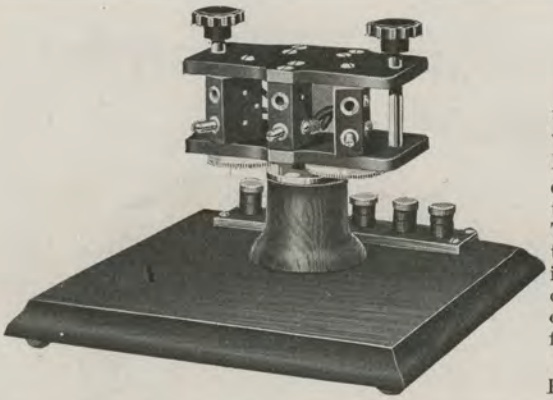
Cross Section of Winding.

These are very efficient and practical machine wound coils that will prove to be very satisfactory. They are made of solid wire. The winding is such that it approximates a bank winding in one direction. The coil is cellular in type, the turns of one layer crossing the preceding layer always at an angle, thus reducing the distributed capacity to a minimum.

Each inductance is mounted on a plug designed to be used in connection with our coil mountings. They may be used as tuning, loading and wavemeter coils, etc. No taps are provided, thus doing away with high resistance and decrement values, and gaining the greatest possible efficiency. By plugging in different sized coils, great flexibility of adjustment is obtained and all ranges of wave lengths can be easily covered without the use of tap or dead end switches.

The coils are so mounted and connected to the plugs that the winding always runs in the same direction, and therefore all coils are "poled" the same. All coils have an inside diameter of 2 inches, a width of 1 inch, an outside diameter varying from 2¼ to 4½ inches. Coils are always furnished with the plug mounting.

Catalog No.	Size Wire	Millihenries Inductance, Approximate	Approximate Wave Length Range in Meters With Ordinary .001 Variable Condenser	Price, Mounted on Plug	Shipping Weight, Pounds
6A9212	24 S. C.	.040	170- 375	**$1.24**	1½
6A9217	24 S. C.	.075	200- 515	**1.30**	1½
6A9220	24 S. C.	.3	330- 1,030	**1.40**	1½
6A9244	24 S. C.	1.3	660- 2,200	**1.71**	2
6A9260	25 S. C.	2.3	860- 2,850	**1.74**	2
6A9263	25 S. C.	6.5	1,340- 4,800	**1.89**	2
6A9265	25 S. C.	20.	2,340- 8,500	**2.10**	2
6A9266	28 S. C.	40.	2,940-12,000	**2.49**	2½
6A9267	28 S. C.	100.	5,700-19,000	**2.84**	2½
6A9270	28 S. C.	175.	7,200-25,000	**3.39**	2¾



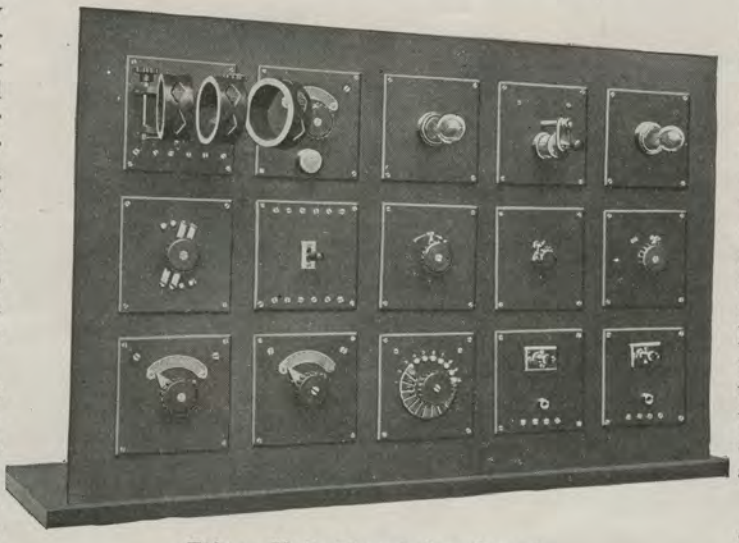
Inductance Coil Mounting

A DeForest development in receiving apparatus. The mounting consists of three plug receptacles fastened to a Bakelite framework mounted on a pedestal, which is in turn fastened to a base. The plugs are made to take our Honeycomb Inductance Coils. Center receptacle is fixed and the two outside receptacles move on bearings geared to small pinions, so that slight variations of coupling between the coils can be easily obtained by turning the knobs at the top of mounting. Terminals are connected by Litz wire to rubber binding posts at back of base, so that one, two or three coils may be used, as desired. In this type of coil mounting inductances of any size may be used, and when used with variometer, or variable condenser, a tapless and, therefore, very efficient tuner, capable of working equally well over all ranges of wave lengths, is provided. Base is of oak nicely finished. Metal parts are nickel plated brass. Shipping weight, about 5 pounds.

6A9204—Inductance Coil Mounting.
Price **$9.45**

The DeForest Unit Receiving Set

The DeForest Unit Receiving Set is a distinctly original idea in receiving apparatus for experimenters, students, amateurs and others who desire to put their apparatus together in their own way. It is offered as a solution to the problems of the many who, though limited in means, wish to buy accurately designed, up to date, efficient apparatus, and use their ingenuity in its assembly.



Fifteen Units Mounted on Board.

Every part of the Unit Set is designed from engineering data and is built from high grade materials. The idea is to provide good standard units, uniform in size, that may be added to from time to time to increase the capabilities and efficiency of the set. The parts are efficiently built for long distance reception by skilled instrument makers, so that the purchaser is assured of the same famous "DeForest workmanship" throughout this type of apparatus as that furnished with our larger sets.

The main features of the Unit Set idea are simplicity and flexibility, combined with minimum cost to the user. The set consists of parts and controls, each one of which is mounted on a small Bakelite panel 4½ inches square and 3/16 inch thick. These panels are provided with holes in the four corners for screwing to a latticed or cut-out backboard of wood, or, preferably, of a wall board such as Compo-Board. In order to make up a complete panel receiver of the unit type, it is only necessary for the purchaser to cut holes 4 inches square in the backboard, mount the units over these holes and connect the apparatus together in the back of the panel, using any circuit he may prefer. The wiring is simplicity itself, as each unit is provided with connecting screws, and a troublesome soldering iron is not necessary. The connecting screw feature will be appreciated also when it is desired to change the circuit to meet new requirements, or for any particular test.

The amateur with limited means may start by purchasing a coil, crystal detector and condenser. These connected together will form a receiver, to which he may add at a later date other coils and condensers to make his original set more selective and efficient. It can be readily seen that this feature of the Unit Set is extremely valuable to the amateur, in that he, instead of discarding the apparatus that he previously bought, adds to it to produce better and more efficient results. This obviates the necessity of buying small, cheap tuners and other apparatus to which alone the amateur has had access previously, and provides him with parts of high quality only. This expansion idea produces a receiving set which is entirely flexible in use and should last a lifetime, throughout which it can be adapted, by the addition of other devices, to many improvements in the science of radio telegraphy and telephony.

One of the greatest advantages of this type of receiving apparatus is that it is decidedly educational, in that the purchaser must wire it himself. This requires that he must learn to understand completely its constructional details and operation, as well as a certain amount of theory, before the best results can be obtained. For this reason the idea of the Unit Receiving Set should appeal strongly to the advanced amateur and to those who are doing experimental work. It should have unlimited use and advantages in institutions of learning, and should appeal also to teachers of physics in all schools throughout the country.

The Unit Set makes an ideal piece of apparatus for the radio laboratory, as its flexible method of connection allows the different units to be used in any way desired. It may be connected easily and quickly as a wavemeter, inductance or capacity bridge, undamped wave generator or any other testing set and when calibrated should hold its adjustment accurately.

For mounting, ½-inch whitewood makes an excellent backboard, though it is harder to work than the thinner wall board. Wall board is satisfactory in every way, provided a board having a wood ribbing or similar filler is used. The board need not necessarily be a perfect insulator, as all parts are insulated from it by means of the Bakelite panels on which they are mounted. The backboard should be mounted on a suitable base by means of a pair of shelf brackets. The 4-inch holes should be cut with their edges 1½ inches apart. As a further step towards finish, the set may be enclosed in a box, cabinet or other dustproof housing, though this is not absolutely necessary.

Units for Assembling the DeForest Unit Receiving Set

Units Are All Mounted on Bakelite Panels.


6A9210

VT Tube Receptacle

Designed for four-prong base detector or amplifier tube. Nickel plated brass shell with phosphor bronze contact strips. Marked connections. Shipping weight, about 2 pounds.

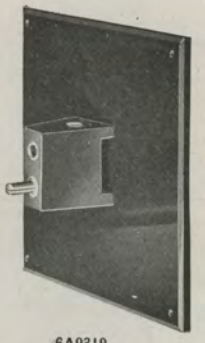
6A9210—VT Tube Receptacle. Price..... **$2.85**


6A9284

"A" Battery Switch and Telephone Binding Posts

Same as 6A9283, except telephone jack is replaced by two Bakelite binding posts for connecting receiving telephones. Shipping weight, about 1 pound.

6A9284—"A" Battery Switch and Telephone Binding Posts. Price..... **$1.70**


6A9319

Single Inductance Coil Mounting

Single plug receptacle mounted on a Unit panel to hold one honeycomb coil. Can be used as tuning coil for direct coupled set, loading coil, wavemeter coil, etc. Connecting screws on rear of panel. Shipping weight, about 1½ pounds.

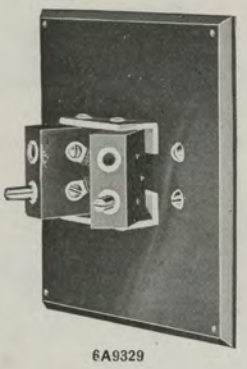
6A9319—Single Inductance Coil Mounting. Price..... **$1.69**


6A9275

"A" Battery Rheostat

Usual type of porcelain rheostat mounted on Unit Set panel. Eleven ohms resistance. Six-point scale is engraved on front. Bakelite knob. Made so that all resistance can be cut out of circuit. Shipping weight, about 2 pounds.

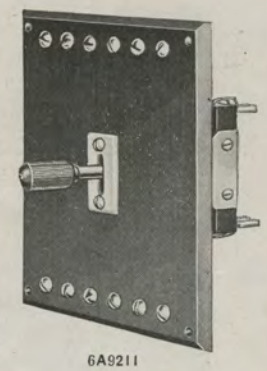
6A9275—"A" Battery Rheostat. Price..... **$3.08**


6A9329

Two-Coil Inductance Coil Mounting

Consists of brass angle piece holding two receptacles which move on bearings so that the coupling between the coils can be changed at will. Metal parts nickel plated. Wiring of heavy Litz. Binding screws on back. Shipping weight, about 2 lbs.

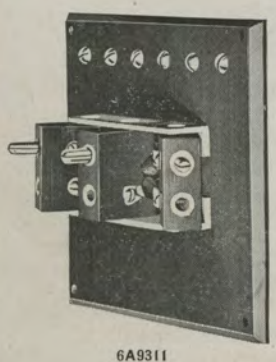
6A9329—Two-Coil Inductance Coil Mounting. Price..... **$3.36**


6A9211

Master Anti-Capacity Key Switch

This device is ideal for switching the receiving set from crystal to audion, as well as for short circuiting the tickler coil, changing from audion to ultraudion, etc. Shipping weight, about 3 pounds.

6A9211—Master Anti-Capacity Key Switch. Price..... **$3.30**


6A9311

Three-Coil Inductance Coil Mounting

Same as 6A9329, except provides for mounting three coils instead of two. Shipping weight, about 3 lbs.

6A9311—Three-Coil Inductance Coil Mounting. Price..... **$4.29**


6A9276

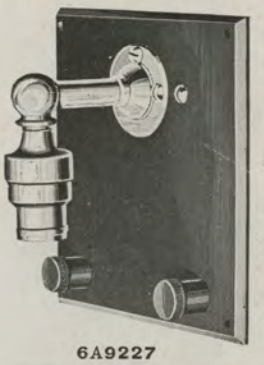
Tickler or Audion Two-Point Switch

Switch made of laminated bronze; parts of nickel plated brass. Used for short circuiting tickler coil of tuner, switching from audion, or for any other purpose where a two-point switch is needed. Shipping weight, about 1½ pounds.

6A9276—Tickler or Audion Two-Point Switch. Price..... **$1.79**

Units for Assembling the DeForest Unit Receiving Set

Units are all mounted on Bakelite panels.



6A9227

Audion Receptacle

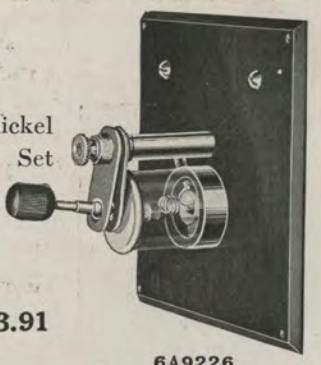
Candelabra receptacle used to hold the old style audion tube. Binding posts for grid and plate connection. Nickel plated brass. Shipping weight, about 1 pound.

6A9227—Audion Receptacle. Price..... **$2.02**

Crystal Detector

Same as our 6A9297, except nickel plated and mounted on Unit Set panel. Furnished complete with connecting screws and wired. Shipping weight, about 2 pounds.

6A9226—Crystal Detector. Price..... **$3.91**



6A9226

6A9274

"B" Battery Switch

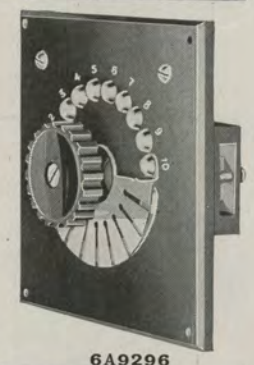
Nine-point switch mounted in unit form. Designed for varying "B" battery when used with old style audion bulb. All metal parts nickel plated. Shipping weight, about 1 pound.

6A9274—"B" Battery Switch. Price..... **$2.50**

Loading or Bridging Condenser

This is 6A9415 Loading or Bridging Condenser mounted for use in Unit Set. Ideal for either increasing the capacity of a variable air condenser or for shunting the telephones in the crystal detector circuit. Shipping weight, about 2 pounds.

6A9296—Loading or Bridging Condenser. Price..... **$4.70**



6A9296

6A9283

"A" Battery Switch and Telephone Jack

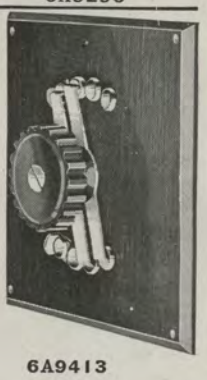
Small pull switch and telephone jack for plugging in receiving telephones. Telephone jack is of standard type. Parts on front of panel are nickel plated. Shipping weight, about 2 pounds.

6A9283—"A" Battery Switch and Telephone Jack. Price.. **$2.50**

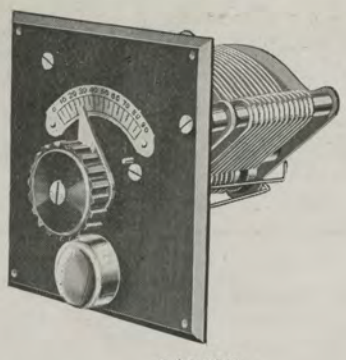
Primary Condenser or Variometer Switch

Nickel plated bronze. Designed for switching the primary condenser or variometer from a series to a parallel connection, so that the primary condenser of the usual size for short wave work will still be of use on the very long waves. Shipping weight, about 1 pound.

6A9413—Primary Condenser or Variometer Switch. Price... **$2.15**



6A9413

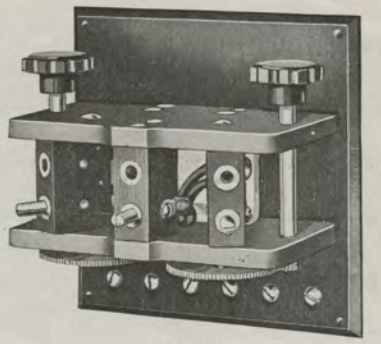


6A9407

Stopping Condenser and Grid Leak

This is our 6A9416 Condenser mounted for Unit Set, across which is connected a grid leak, which is mounted on face of panel as shown. May be easily varied by using a lead pencil to suit any vacuum tube to the particular constants of the circuit. Shipping weight, about 3 pounds.

6A9407—Stopping Condenser and Grid Leak. Price..... **$6.55**

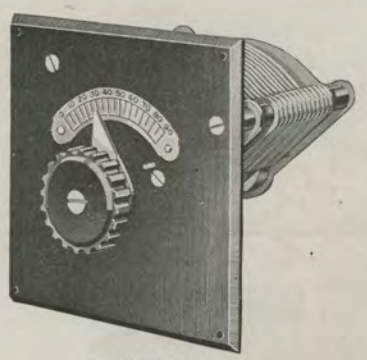


6A9309

Coil Mounting

Same as 6A9204 Mounting, except mounted on Bakelite panel for Unit Set and is provided with six connecting screws on the back of the panel, instead of binding posts. Shipping weight, about 3 pounds.

6A9309—Coil Mounting. Price **$8.45**



6A9363

Variable Air Condenser

This is our 6A9416 Condenser mounted for Unit Set. Scale and pointer are nickel plated. Capacity, .0005 M. F. D., which is sufficient for working on all wave lengths with the Honeycomb Coils. Shipping weight, about 3 pounds.

6A9363—Variable Air Condenser. Price **$5.80**

Just the Set for Beginners

$6.55

Ideal Receiving Set

We believe this is the ideal receiving set for beginners and those desiring a tuning coil set complete. Set consists of 1,000-meter coil wound with No. 20 bare copper wire on special tube, molded ends, nickel plated slider rods and sliders. The care used in the construction of this coil prevents loose windings, etc., so often found in other coils. A high grade galena detector is mounted on coil end, as shown. This detector has a wide adjusting range, by means of the movable mineral cup and the ball and socket lever. A suitable fixed condenser is mounted inside the coil, against the coil head. The coil, detector and condenser are all connected and connections brought out to binding posts, which are marked. Tested piece of galena furnished with each set. Length of coil, 12 inches; size of ends, 4x4x7/16 inches. Shipping weight, about 5 pounds.

6A9412—Ideal Receiving Set. Price... **$6.55**

DeForest Type P-100 Audion Control Panel

This is a new type of audion control panel which is remarkably flexible in its applications. It is designed for our standard four-prong audion tube. It may be used with any tuner as a detector or oscillator, and by a slight change in connections it becomes a one-step amplifier, which can be used in connection with a crystal detector or another audion control panel. It is especially designed for commercial and laboratory use where a variety of circuits for different tests are desired.

The panel and case as well as the "B" batteries and amplifying coil are identical with those of our P-200 Two-Step Amplifier. A system of small self cleaning switches, with laminated switch arms and segmental rather than pigtail connections, provides an easy and immediate method of altering the circuit to any desired condition. Six pairs of binding posts are provided, each marked for the proper connection. In the upper left hand corner are the two "IMPUT" binding posts connected to the primary of the amplifying coil. In the upper right hand corner are four binding posts, two of which are marked "RA" and two "RE." These should be connected to the tuner when the apparatus is used as a detector or oscillator. When the panel is used as an amplifier these two binding posts are connected to the two other binding posts adjacent to them by means of nickel plated straps. This connects the secondary of the amplifying coil to the grid and filament of the tube.

The switch in the upper right hand side marked "Grid Condenser" short circuits the grid condenser and grid leak when the apparatus is used as an amplifier. Just below this switch is one marked "Tickler." This is designed to short circuit the two binding posts marked "Tickler" at the bottom of the panel when it is desired to use the panel with an ultraudion connection.

On the upper left hand side is a switch marked "B" battery. This allows of using either 20 or 40 volts of the "B" battery with which the panel is equipped. The remaining switch below this one throws the panel from an audion to an ultraudion connection.

Below the four switches are mounted the stopping and bridging condensers. These are our step-by-step type and are of the proper maximum capacity, graded from a small minimum. The three sets of binding posts at the bottom of the panel are for connection to the receiving telephones, the "A" battery and the "Tickler" coil.

The binding posts are of our expensive molded dielecto type, with the new slotted feature for holding the connecting wires firmly. The audion tube receptacle is our standard with a nickel plated finish. The four control switches are provided with 1-inch Bakelite knobs and the stopping and bridging condensers are equipped with our standard 1½-inch Bakelite knobs. These condenser switches are of the improved fan type, which insures positive contact and practically no leakage.

The self contained "B" batteries are mounted on a framework similar to that in our P-200 Two-Step Amplifier, which is removable, and this allows full access to the rear of the panel in case any trouble should arise or the operator should wish to change the circuit in any way. The amplifying coil is mounted on the false bottom and is connected to the panel by means of macaroni covered wire.

The panel is of highly grained Bakelite dielecto and the cabinet has our standard Early English finish. All parts on the panel are of highly polished nickel, so that the complete instrument is finely finished throughout. Measurements, 12½x9⅜x7¾ inches. Shipping weight, about 35 pounds. Complete with "B" battery; no bulb. Shipped direct from factory in NEW YORK.

6A9394⅓—DeForest Type P-100 Audion Control Panel. Price..... **$64.00**

Type P-200 Two-Step Amplifier

A late De Forest amplifier design which will be found to be very different and more efficient than the older types of amplifiers. One of the most notable features of the new design is its compactness. The small case contains not only the amplifying coils, telephone jacks, amplifier tube receptacle and filament resistances, but also a "B" battery of 40 volts, which is sufficient to give amplifications up to 10,000 times. All these pieces of apparatus are mounted on the panel and come out with it. The panel is easily removed, making all parts most accessible and the replacing of the "B" batteries but a moment's work.

Unlike the old type "B" batteries, unit batteries of 20 volts each, cast in one block, are used. These come provided with two leads, which are connected to the circuit by means of two connecting clips. This battery has a remarkable shelf life and operating life when used with our type VT tubes in this type of amplifier.

The amplifying coils are so mounted that there is no field interference between them, thus preventing "squeal" when the second step is used. The filament rheostats are of our new design, providing smooth running and variable adjustment. They are also equipped with the new tension regulating device.

The amplifying tube receptacles are of the new type. Small resistances wound on Bakelite forms are placed in each of the negative filament leads of the tubes to keep the grids negative to the proper amount and thus take advantage of the full amplifying power of the tubes without blocking.

Three telephone jacks near the bottom of the panel are provided for connection of the receiving telephones.

The panel is screwed to a false bottom by means of two nickel plated screws and is held in its case by means of six similar screws around its edge. In the rear of the panel two shelves are fastened, one above the other, to the false bottom by means of three brass angle irons. These shelves fit in slots in the sides of the cabinet so that the whole structure is held rigidly in place. In addition to this, springs are provided on the back wall of the cabinet to keep the batteries from moving.

The panel is of 3/8-inch Bakelite beautifully engraved. The tube receptacles are nickel plated, with a high polish, and the knobs and binding posts are of Bakelite. These are large in size and are of an expensive and artistic type.

The cabinet is of oak with standard Early English finish. It is strongly built and beautifully polished. Measurements, 12½x9⅜x7¾ inches. Shipping weight, about 35 pounds. Shipped direct from factory in NEW YORK.

6A9419⅓—Type P-200 Two-Step Amplifier. Price, with "B" battery, no bulb or "A" battery..... **$64.75**

Type SW-100 Wavemeter

This wavemeter has been designed to meet the demand for a high grade instrument that can be turned out at a reasonable price and still give accurate and constant results throughout its complete range. It consists of a well designed condenser, series of inductance coils, crystal detector, binding posts for telephone connection for sensitive receiving, and a miniature glow lamp to denote resonance when measuring the wave lengths of a transmitting set.

The instrument is also provided with a pair of binding posts to which may be connected a wattmeter, galvanometer or microammeter for qualitative measurements. A small Anti-Capacity Key Switch is provided to change over from the receiving circuit to the transmitting circuit, which is energized by means of a buzzer and small battery included in the instrument.

The coils are connected to the instrument by means of plugs inserted in the ends of a connecting strap, the wires of which are held apart at an equal distance so as to allow of no change in the constants of the circuit. As the coils are wound with Litz wire, the tuning is particularly sharp, and a well defined point of resonance is easily obtained throughout the range of the instrument.

Attention is called to the fact that in designing this instrument is was concluded that the 180-degree condenser scale, with a set of calibration curves in the cover, was much to be preferred to making the instrument a direct reading device. Experience has shown that the latter type of instrument, regardless of expert workmanship, is apt to get out of calibration, and the effort of interpolation between readings of wave lengths is a decided disadvantage. The direct reading scale in this class of instruments is obsolete at the present day. Modern practice demands one with sharp points of resonance and a calibrated condenser scale, such as we are furnishing.

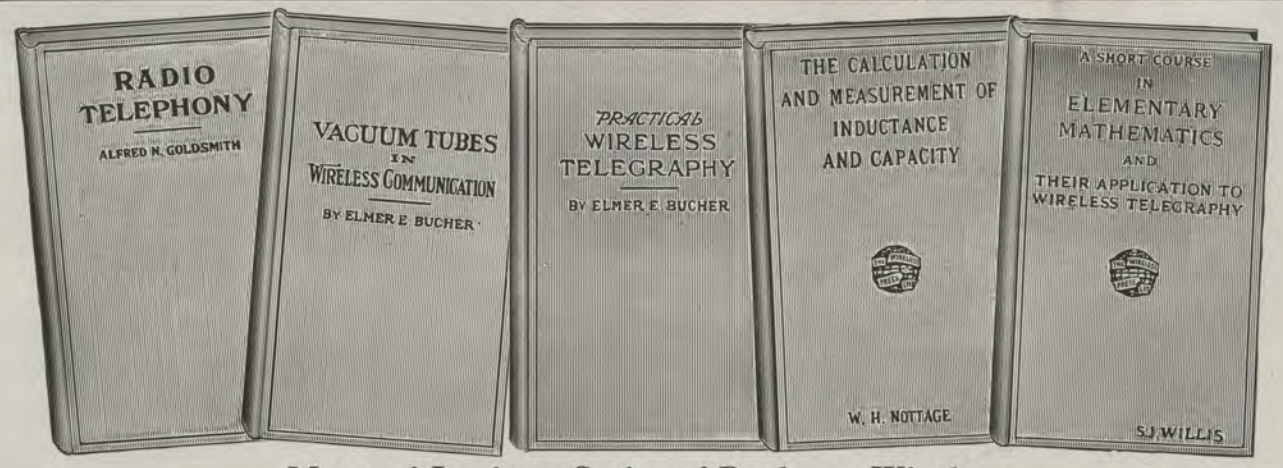
Three coils are provided, wound in the pancake form of standard 3-16-38 Litz wire and enclosed in neat and small but substantial Bakelite housings. The coil in this way is protected absolutely from damage and change in inductance. Each coil is provided with a socket which fits the plug on the end of the connecting strap. By the use of Litz wire of such a large size, the resistance of these coils, and, consequently, the decrement of the instrument, is reduced to a minumum. There are very few wavemeters at this price on the market that provide coils wound with expensive Litz wire of this size.

The connecting strap is made of flexible leather and carries, ⅞ inch apart, two heavy Litz conductors which terminate in Bakelite two-prong plugs. One plugs into the coil being used and the other is inserted in the panel of the instrument. The strap is made up so that it should wear indefinitely.

The carrying case is of oak with an Early English finish. The case is divided into three compartments. The first holds the condenser and key switch, mounted on the same panel. The second compartment is provided for the buzzer, battery and connecting strap. This has a hinged top, to which the buzzer is fastened and which is closed in operation so as to minimize the sound of the buzzer. This will be found to be a decided advantage when using the instrument, as nothing is heard except when the point of resonance is found. The third compartment is designed to fit the inductance coils, which are held rigidly in place by phosphor bronze springs when in transit. The calibration curves in the cover of the instrument are located where they are readily accessible and easily read.

The instrument is designed for wave lengths between 100 and 3,000 meters, but will respond to waves above and below these limits. It has large overlaps so that it is not necessary to use the extreme ends of the condenser scale. Measurements, 8 inches wide, 8 inches deep, 10½ inches long. Shipping weight, about 15 pounds. Shipped direct from factory in NEW YORK.

6A9420⅓—Wavemeter, complete with calibration curves. Price **$46.00**



Marconi Institute Series of Books on Wireless

A Book of the Newest and Most Interesting Branch of Radio Communication.

This complete text on radio telephony is used by radio engineers, radio electricians in the Navy, men in the Signal Corps and men in the Aviation Service who handle radio equipment. Amateurs and others who desire to be clearly informed concerning this newest and most interesting branch of electric communication should have this book.

It is written in clear style. The text deals largely with the practical aspects of radio telephony and its future. It is fully illustrated with wiring diagrams and previously unpublished photographs of "wireless telephone" apparatus.

The book is very complete, practically every aspect of radio telephony being covered in detail. There are over 400 separate topics listed in a carefully prepared index. 247 pages. Weight, about 2 pounds.

6A9342—Radio Telephony. Price..... **$1.80**

A Practical Text Book for Operators and Experimenters.

This volume shows over 140 different circuits for the practical use of vacuum tubes as detectors, radio or audio frequency amplifiers, regenerative receivers, beat receivers and generators of radio frequency currents.

The two, three and four element oscillation valves are described in detail together with the circuits used in daily practice. Cascade amplifiers of the latest type for long distance reception are comprehensively treated. Up to date circuits for the vacuum tube generator are shown. Modern wireless telephone circuits are thoroughly explained.

A series of graphic charts in the appendix reveals the functioning of the vacuum tube in an elementary manner. The technical introduction reviews the problem of continuous and discontinuous wave transmitters and receivers. Fully illustrated. Bound in red cloth. 174 pages. Weight, about 2 pounds.

6A9343—Vacuum Tubes in Wireless Communication. Price..... **$1.60**

Revised Edition. Enlarged With New Chapter on Location of Trouble. Maintenance, Repairs.

A text book which treats each topic separately and completely, furnishing a progressive study from first principles to expert practice. Starting with elementary data, it progresses, chapter by chapter, over the entire field of wireless fundamentals, construction and practical operation.

The 340 illustrations alone, specially drawn, form a complete diagrammatic study and impression upon the reader's mind, a pictorial outline of the entire subject. Many of these illustrations reveal details of construction of the newest types of sets and apparatus.

Practical Wireless Telegraphy is a practical man's book from cover to cover and up to the minute. Size, 6x9 inches, 330 pages. Handsomely bound in full cloth with cover stamped in black. Weight, about 2 pounds.

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Calculation and Measurement of Inductance and Capacity.

In this book the radio man will find in convenient form the more generally useful formulas and methods of measurement for inductance and capacity. Covering as it does the development during recent years in the design of instruments for these measurements, this book is especially valuable to every man who builds apparatus. Wireless engineers, laboratory assistants and amateur experimenters will find this book of great assistance in their work. An article on the capacity of radio-telegraphic antennae is especially valuable.

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6A9345—Calculation and Measurements of Inductance and Capacity. Price **$1.35**

A Short Course in Elementary Mathematics and Its Application to Wireless Telegraphy.

A concentrated treatise covering the points in elementary arithmetic, algebra, mensuration, geometry and trigonometry that have direct application on wireless telegraphy. Each subject is handled in a wonderfully clear and simple style.

Contents: Logarithms, geometry, algebra, vectors, use of squared papers, solution of examples, useful constants and tables.

Just the book to make your wireless library complete. Full cloth bound. 180 pages. Has charts, diagrams and tables. Weight, about 2 pounds.

6A9346—Short Course in Elementary Mathematics and Its Application to Wireless Telegraphy. Price..... **$1.35**

How to Pass U.S. Government Wireless License Examinations.

This book contains 142 Government Examination Questions Answered for Elementary Students of Wireless Telegraphy. It is used a great deal by schools, and is valuable to all students who wish to become commercial operators.

The book is divided into parts, as follows:

Part One—Transmitting Apparatus. Includes diagram of transmitting set with questions pertaining to the operation answered in full.

Part Two—Motor Generators. Contains fifteen questions and answers on the Operation and Care of Motor Generators, including Starting Boxes, etc.

Part Three—Storage Batteries and the Auxiliary Set. Defines specific gravity of a cell, capacity of a cell, normal rate of discharge of a battery; contains a complete circuit diagram for a modern auxiliary or emergency set and a description of the action of the set.

Part Four—Antennae or Aerials. A very interesting part of the book. Different style aerials are shown, and the questions and answers cover the construction and erection; also how to test insulation, etc.

Part Five—Receiving Apparatus. Seventeen questions and answers with diagrams on the Receiving Apparatus, including the Detectors, Potentiometer, Condensers, Loose Couplers and Loading Coils.

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Lessons in Wireless Telegraphy.

The book is divided into thirty lessons, each lesson dealing with a separate subject and following in logical order so that repetition and possibility of confusion are completely avoided. It is profusely illustrated with perspective drawings and diagrams, each being carefully keyed so that parts may be readily discerned.

It not alone describes the actual workings and construction of the instruments that go to make up a wireless station in sufficient detail to prove of great value to the experienced student, but treats the subject in such a manner that even the beginner will have no trouble in clearly grasping the matter.

Bound in all paper with cover in colors. Size, 5¼x7¼ inches. 62 pages. Shipping weight, about 4 ounces.

6A9355—Lessons in Wireless Telegraphy. Price..... **29c**

Wireless Telegraphy and Telephony Simply Explained.

By Alfred P. Morgan.

We believe this is one of the most complete and comprehensive treatises on the subject ever published, and a close study of its pages will enable one to master the details of the wireless transmission of messages.

The book treats the subject from an entirely new standpoint. Several very novel and original ideas have been carried out in its making. It is well illustrated by over 150 interesting photographs and drawings. All diagrams have been made in perspective, showing the instruments as they actually appear in practice. The drawings are carefully keyed and labeled.

Among the Contents Are:

Introductory. Wireless Transmission and Reception. The Ether. Electrical Oscillations. Electro-Magnetic Waves. Earth Connection. The Transmitting Apparatus. Current Supply. Spark Coils and Transformers. Condensers. Helixes. Spark Gaps. Anchor Gaps. Aerial Switches, etc. The Receiving Apparatus. Detectors, etc. Tuning Coils and Loose Couplers. Variable Condensers. Tuning and Coupling. Directive Wave Telegraphy. The Dignity of Wireless; Its Applications and Service. Wireless in the Army and Navy, Wireless on an Airplane. How a Message Is Sent and Received. The Wireless Telephone. The Ear. How We Hear. Sound and Sound Waves. The Vocal Cords. The Structure of Speech. The Telephone. Transmitter and Receiver. The Photophone. The Thermophone. The Selenium Cell. The Means for Radiating and Intercepting Electric Waves. Aerial Systems.

Handsomely bound in cloth with embossed cover. Size, 5x7¼ inches. 148 pages. Weight, about 1 lb.

6A9348—Wireless Telegraphy and Telephony Simply Explained..... **$1.05**

How to Conduct a Radio Club.

Describing Parliamentary Procedure, Indoor and Outdoor Experiments, 5,000-Mile Receiving Set and Many Other Features.

In all places where wireless telegraphy has made a niche for itself the advantages of forming a "Radio Club" are sooner or later recognized and then arises the question, "How shall we go about it?" We suggest that you get this book and you will soon learn "How to go about it."

Table of Contents: Chapter I, Advice for the Amateur; II, The Formation of a Radio Club; III, Instruction in the Telegraphic Codes; IV, A 200-Meter Amateur Set; V, An Amateur's Wave-Meter and Its Uses; VI, The Measurement of the Logarithmic Decrement; VII, Explanation of the Theory of Operation of the Receiving Tuner; VIII, Receiving Tuners; IX, The Vacuum Valve Amplifier; X, "Break-In" Systems; XI, The Radio Variometer; XII, Amateur Wireless Telegraphy During the Summer; XIII, An Amateur Portable Wireless Set.

6A9352—How to Conduct a Radio Club. Shipping weight, about 1 lb. Price.. **48c**

Wireless Construction and Installation for Beginners.

A practical handbook giving detailed instructions for the construction of aerials, etc. Also complete instructions for making and operating a Boy's Wireless Outfit. The book contains a great deal of practical information which is a great help to the experimenter. Paper cover in colors. Size, 5¼x7¼ inches, 74 pages. Weight, about 4 ounces.

6A9357—Wireless Construction and Installation for Beginners..... **29c**

Telegraph Instruments-Morse-Wireless

Our Improved Learner's Telegraph Outfits, $2.45 to $6.95.

Instruments, $2.10 and $2.45.

Our Improved Learner's Telegraph Outfit consists of a full size solid trunion key and a 4-ohm sounder mounted on a polished hardwood base. Sounder lever, sounding posts and key switch lever are of lacquered brass. Key lever is nickel plated and buffed. All parts are adjustable. A small instruction book, dry battery and connecting wire are included. Shipping weight, 5 pounds.

6A9151
Price **$2.45**

Our Special Learner's Telegraph Outfit includes an improved 4-Ohm Learner's Instrument, described above, battery and connecting wire. A copy of "The Telegraph Instructor," a cloth bound 347-page textbook of telegraphy, is included instead of the small instruction book. Shipping weight, 6 pounds.
6A9153—Price **$3.25**
6A9177—Telegraph Instructor. Shipping weight, 1 lb. Price.. **1.10**

Our Double Learner's Telegraph Outfit. This consists of two Improved 4-Ohm Learner's Instruments, four dry batteries, two instruction books and 300 feet of insulated copper wire. The instruments may be installed in different rooms, or in two houses on adjacent lots, and the operators can practice sending and receiving messages. Shipping weight, 19 pounds.
6A9155—Price **$6.95**

Improved 4-Ohm Learner's Telegraph Instrument, without battery or connecting wire. Shipping weight, 3 pounds.
6A9161—Price **$2.10**

Improved 20-Ohm Learner's Telegraph Instrument, the same as the 4-ohm instrument, except that sounder is wound to 20 ohms to increase its sensitiveness. Shipping weight, 3 pounds 11 ounces.
6A9163—Price **$2.45**

Beginner's Wireless Practice Set, $2.35.

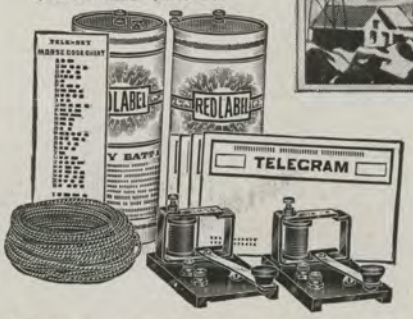
For the beginner this set has remarkable value. It not only provides an excellent method of quickly learning the code, but after the code is mastered the key may be used with a spark coil and the buzzer for testing detectors. By using a telephone Induction Coil, the Practice Set may be used for class instruction, using wireless phones.

Set consists of a wireless key and buzzer mounted on a polished wood base. Key has black enameled frame, nickel plated lever and adjusting screws. Buzzer is nickel plated and reproduces the high pitched sounds of the wireless stations accurately. The three binding posts are so constructed that the set may be used five different ways.

Complete with one dry cell, 3 feet insulated wire, diagram of connections, code chart and instructions. Size of base, 7x4½ inches. Shipping weight, about 4 pounds.

6A9200—Price **$2.35**

Complete Two-Station Telegraph Sets for $1.50 and $2.98.



Consists of two boys' practical and complete telegraph sets with battery, wire, code chart, instructions and miniature telegraph blanks. The two instruments are well made with adjustable sounding levers, nickel plated and mounted on a neat wooden base. The stations may be set up in different parts of a house, different buildings, etc. The instructions are easy to follow; dots and dashes are very clear. A neat and efficient outfit that many boys have been waiting for.

6A9164—Complete Two-Station Telegraph Set, with one dry cell, 25 feet insulated copper wire and instructions. Shipping weight, about 3½ pounds.
Price **$1.50**

6A9165—Same as 6A9164, but with two dry cells and 300 feet of wire. Shipping weight, about 6 pounds.
Price **$2.98**

If you want additional wire for use with the above instruments order 6A9900 Annunciator Wire No. 18, below.

Private Line Set.

$3.80
4-Ohm.

4-Ohm Private Line Set. Consists of our Aluminum Lever Giant Sounder 6A9180 and our Standard Steel Lever Key 6A9185, mounted on one base of polished hardwood. The quality and finish of this set is high grade throughout. Shipping weight, 3 pounds 13 ounces.
6A9174—Price **$3.80**

20-Ohm Private Line Set. Same as above, except that sounder magnets are wound to a higher resistance to increase the sensitiveness. Two of these instruments can be operated from two dry batteries through a line resistance of more than 25 ohms, which is equivalent to a mile of 12-gauge iron wire. The distance can be extended by increasing the battery power. Shipping wt., 3 lbs. 13 oz.
6A9175—Price **$4.15**

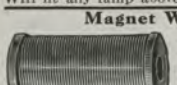
Miniature Mazda Electric Lamps.

These prices do not include receptacles. Shipping weight, 3 ounces.

Catalog No.	Volts	Amperes	Candle Power	Number of Dry Cells Required	Price, Each
6A8725	4	.35	1½	3	20c
6A8816	6	.35	2	5	20c
6A8727	8	.30	2	6	27c
6A8728	6	.85	4	5	30c
6A8729	10	.60	4	7	50c

6A8730—Round Miniature Lamp Receptacle. Will fit any lamp above. Shpg. wt., 2 oz. Price.....**10c**
6A8721—Miniature Weatherproof Pendant Socket. Will fit any lamp above. Shipping wt., 2 oz. Price..**13c**

Magnet Wire, B. & S. Gauge.



Double Cotton Covered Magnet Wire. One piece only on a spool. Insulation and wire are uniform. **State gauge and weight spool wanted.**

6A9907—Cotton covered.

Gauge	1-Oz. Spool	2-Oz. Spool	4-Oz. Spool	8-Oz. Spool	1-Lb. Spool
16	.....	.....	.....	.....	$1.01
18	.....	.....	.....	.....	1.10
20	.....	.....	.....	$0.76	1.19
22	.....	.....	.....	.82	1.38
24	.....	.....	$0.58	.95	1.51
26	29c	40c	.61	1.00	1.67
28	32c	43c	.65	1.12	1.91
30	34c	49c	.74	1.34	2.15
32	35c	52c	.82	1.48	2.52
36	43c	65c	1.16	2.17	3.71

Enameled Magnet Wire. One piece only on a spool. **State gauge and weight spool wanted.**

6A9906—Enameled.

Gauge	2-Oz. Spool	4-Oz. Spool	8-Oz. Spool	1-Lb. Spool
16	....	....	$0.56	$0.90
18	....	.....	.57	.91
20	....	....	.59	.95
22	....	....	.62	1.03
24	29c	41c	.66	1.05
26	30c	43c	.68	1.07
28	31c	44c	.73	1.09
30	32c	46c	.75	1.11
32	33c	48c	.78	1.14
34	36c	50c	.82	1.25
36	41c	59c	1.01	1.65

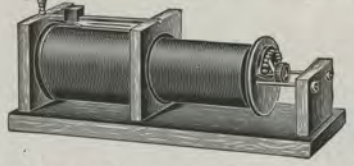
NOTE—Above prices include the spool and cost of spooling. The wire is furnished only on weight spools given.

Send for this Catalog

In this catalog we illustrate and describe Flat Irons, Percolators, Toasters, Grills, Fans, Ranges, Stoves, Radiators, Vacuum Cleaners, Vibrators, Hair Dryers, Curling Irons, Heaters and other home appliances operated by electricity, as well as Flash Lights of all kinds, Telephones and Telephone Accessories, Wire, Lamps, Switches and Motors. In fact, many things electrical will be found in this catalog.

Be sure to write for our Electrical Goods Catalog, which will be sent postpaid on request.

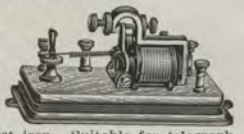
"NAA" Receiving Transformer.



One of the well known popular instruments on the market. Very efficient, receives Arlington, Key West, etc., and any stations up to 3,000 meters. Primary and secondary windings are of green silk covered copper wire. Primary is varied by slider on brass rod, secondary is varied by means of 10-point switch mounted on rubber block, on secondary coil head. All woodwork mahogany finished. Metal parts lacquered brass. Size of base, 18½x6 inches. Shipping weight, about 14 pounds.

6A9362—Price **$7.95**

Standard Relay, $3.00.



20-Ohm Standard Relay. This relay is a very sensitive, nicely adjusted and handsomely finished instrument. Frame is lacquered brass, the armature is nickel plated. Mounted on a polished hardwood base with subbase of black enameled cast iron. Suitable for telegraph lines up to 10 miles in length, and for burglar and fire alarm systems. Shipping weight, 2¼ pounds.
6A9188—Price **$3.00**

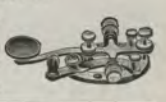
Giant Sounder, 4-Ohm, $2.45.

4-Ohm Giant Sounder. This is a rapid, loud, aluminum lever sounder with lacquered brass frame. Magnets are covered with polished hard rubber and leads are thoroughly insulated. The sounder is mounted so that a resonating air space is maintained between the base plate and the polished hardwood mounting board. All parts are adjustable. Shipping weight, 1½ pounds.
6A9180—Price **$2.45**

20-Ohm Giant Sounder. Same as 6A9180, except that magnets are wound to a higher resistance to increase its sensitiveness over longer lines. Shipping weight, 1½ pounds.
6A9181—Price **$2.70**

Legless Key, $1.98.

Standard Steel Lever Key, legless. Steel lever and switch strap are heavily nickel plated and buffed. Black composition key and switch knobs. Fully adjustable. Shipping weight, 10 ounces.
6A9185—Price **$1.98**



Steel Lever Key, $2.08.

Standard Steel Lever Key with legs. Same as 6A9185 except that it is made with legs 1¾ inches long, which pass through table, clamping the key and serving as binding posts. Shipping weight, 12 ounces.
6A9186—Price **$2.08**

Annunciator or Bell Wire.

Annunciator Wire No. 18, in ½ or 1-pound coils (about 150 feet to the pound).
6A9900—Per pound.....**64c**

Office Wire No. 18, in 1-pound coils (about 95 feet to the pound). Same as annunciator wire, but with heavier and thicker insulation.
6A9902—Per pound.....**64c**

Powerful Electro Magnet.

Operates by batteries. With one dry cell this magnet has a lifting power of 2 pounds, with two cells will lift about 5 pounds, with four cells will lift over 10 pounds. Shipping weight, 1 pound.

Price, with two 2-foot 9½-inch conducting cords, but without batteries.
6A8560—Price **$1.35**

Bells, Push Buttons, Transformers

Electric Bell Outfit.

For Door and Call Bell Service.

Consists of one Red Label dry battery, one push button, one 2½-inch bell, 75 feet of annunciator wire and necessary staples. Directions for installing furnished. Shpg. wt., 4½ lbs.

6A8522

Price **$1.15**

Picture shows that push button, battery and bell are all connected by wire. How much wire you need depends on where you place the three parts. If more than 75 feet is needed, order wire 6A9900 on this page.

Electric Door Bells.

High grade bell, 2½-inch gong; cover, stamped sheet steel, black enameled. Guaranteed to ring clearly through 200 feet of No. 18 annunciator wire (100 feet from bell to battery) on one battery cell. To get maximum sound, two batteries should be used. Add one cell for each additional 50 feet of wire. Suitable for use with transformer. Shipping weight, 1⅛ pounds.

6A8501—Price, each.....**43c**

Same as above, but with 3-inch gong. Shipping weight, 1⅝ pounds.

6A8500—Price, each.....**47c**

Same as above, but with 4-inch gong. Not suitable to use with transformer. Shipping weight, 1⅝ pounds.

6A8502—Price, each.....**54c**

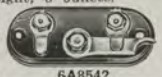
NOTE—These bells cannot be used with telephones.

Battery Switches.

6A8541

Recommended for use with stationary, portable and marine gasoline engines, telephone, telegraph, bell work, etc. Made with brass contacts and plain brass handle. Shipping weight, 3 ounces.

6A8541 — Single-Throw Switch.
Price **14c**



6A8542

Double-Throw Switch, for use with two sets of batteries and magneto.

6A8542—Price **19c**

Wood Base Switches.

For telephones, closed circuit bell systems, burglar alarms and battery circuits in general. Hardwood base. Shipping wt., 3 ounces.

6A8550—Price, 1-point.....**10c**
6A8551—Price, 2-point.....**12c**
6A8552—Price, 3-point.....**14c**
6A8553—Price, 4-point.....**16c**

Miniature Mazda Electric Lamps.

These prices do not include receptacles. Shipping weight, 3 ounces.

Catalog No.	Volts	Amperes	Candle Power	Number Dry Cells Required	Price, Each
6A8725	4	.35	1½	3	20c
6A8816	6	.35	2	5	20c
6A8727	8	.30	2	6	27c
6A8728	6	.85	4	5	30c
6A8729	10	.60	4	7	50c

6A8730—Round Miniature Lamp Receptacle. Will fit any lamp above. Shpg. wt., 2 oz. Price.....**10c**

6A8731—Miniature Weatherproof Pendant Socket. Will fit any lamp above. Shpg. wt., 2 oz. Price.....**13c**

Annunciator or Bell Wire.

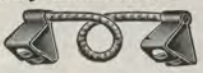
Annunciator Wire No. 18, in ½ or 1-pound coils (about 150 feet to the pound).

6A9900—Per pound **64c**

Office Wire No. 18, in 1-pound coils (about 90 feet to the pound). Same as annunciator wire, but heavier and thicker insulation.

6A9902—Per pound **64c**

Famous Bulldog Dry Battery Connectors.



One of the best battery connectors. Snapped on in a second and easily removed; prevents all ignition troubles caused by loose connections.

6A8656—Shpg. wt., 2 oz. Price, each..... **4c**

6A8657—Shipping weight, 4 ounces.
Price, package of ten.....**35c**

Save Bell Battery Expense

WHY not save the expense of renewing from time to time the batteries that ring your door bell or operate your buzzer or door opener? A bell ringing transformer connected into your electric lighting circuit will do the work beautifully, uses no current to speak of and once installed will last indefinitely without further attention. Easily installed. We furnish full directions.

Transformer, suitable for ordinary city current (105 to 115-volt, 60 to 133-cycle, alternating.) Has range of three voltages, 6, 8 and 14. Strong metal case, black enameled; 2½ inches wide, 4 inches high, 1⅝ in. thick. Shipping weight, about 2¼ pounds.

6A8516
Price **$1.20**

3-Inch Permanent Horseshoe Magnet.

Made by an American manufacturer. Fine quality steel. Guaranteed more powerful and to retain their magnetism longer than the magnets formerly imported from Europe. We will not sell cheap magnets, as they do not give satisfaction. Shipping weight, 3 ounces.

6A8561—Price **12c**

Powerful Electro Magnet.

Operates by batteries. With one dry cell this magnet has a lifting power of 2 pounds, with two cells it will lift about 5 pounds, with four cells will lift over 10 pounds. Shipping weight, 1 pound.

Price, with two 2-foot 9½-inch conducting cords, but without batteries.

6A8560—Price **$1.35**

Practical Electric Wiring.

By John M. Sharp. Furnishes not only general information but sufficient special information to enable the worker actually to install electric wiring, from the smallest detail to the completed job. Also has wiring tables and data. 256 pages. Fully illustrated. Bound in cloth. Size, 4¾x6¾ inches. Shipping weight, 1 pound.

3A4442—Price **$1.18**

Miniature Electric Lamp Outfit.

An interesting toy which is also useful for lighting dark closets, etc. Consists of three cells of Red Label dry battery, a 1½-candle power Mazda tungsten electric lamp, a receptacle, switch and 30 feet of insulated wire. Shipping weight, 8⅛ pounds.

6A9030
Price **$1.50**

Electric Door Opener.

Fit this opener into the door casing. Pressing the button upstairs or in the back part of the house opens latch, permitting door to be opened. As easily installed as a door bell. Will operate from two dry batteries or transformer like 6A8516 at left. Shipping weight, about 1½ pounds.

6A8519—Price **$1.50**

Buzzer.

High grade construction. Makes a comparatively low buzzing sound and is used in place of bell where the loud ringing is not desirable. Directions for installing furnished. Shipping weight, 12 ounces.

6A8517—Price, each.....**39c**

Push Buttons.

6A8538

Wood Push Button. High grade springs, porcelain center. Shipping weight, 3 ounces.

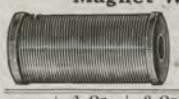
6A8535
Price, each.....**$0.15**
Per dozen..... **1.75**

6A8535

Anti-Wood Push Buttons. A metal push button, cheaper than wood. Very neat and serviceable. Shipping wt., 3 oz.

6A8538—Price, each.....**$0.10**
Per dozen..... **1.00**

Magnet Wire, B. & S. Gauge.



Belden Double Cotton Covered Magnet Wire. One piece only on a spool. Insulation and wire are uniform. **State gauge and weight spool wanted.**

6A9907—Cotton covered.

Gauge	1-Oz. Spool	2-Oz. Spool	4-Ounce Spool	8-Ounce Spool	1-Pound Spool
16	....	....	.....	.....	$0.97
18	....	....	.....	.....	1.06
20	....	....	.....	$0.71	1.16
22	....	....	.....	.78	1.35
24	....	....	$0.55	.90	1.47
26	26c	37c	.88	.96	1.63
28	28c	39c	.62	1.07	1.85
30	31c	45c	.70	1.26	2.10
32	32c	48c	.78	1.42	2.48
36	39c	61c	1.09	2.00	3.65

Enameled Magnet Wire. One piece only on a spool. **State gauge and weight of spool wanted.**

6A9906—Enameled.

Gauge	2-Ounce Spool	4-Ounce Spool	8-Ounce Spool	1-Pound Spool
16	....	....	54c	$0.87
18	....	....	55c	.88
20	....	....	57c	.93
22	....	....	59c	.98
24	28c	40c	63c	1.00
26	29c	41c	65c	1.02
28	30c	42c	68c	1.05
30	31c	44c	72c	1.08
32	32c	45c	74c	1.10
34	33c	47c	77c	1.21
36	37c	56c	97c	1.59

NOTE—Above weights are net weight of wire and prices include the spool and cost of spooling. The wire is furnished only in weights given.

Multiple and Gravity Batteries

Standby Multiple Batteries.

For Automobile or Stationary Engine Ignition.

The Standby Multiple Batteries consist of a number of 2½x6-inch Standby "Special" cells, connected in series and multiple. The cells, all connected up, are placed in a metal case, which is then completely filled with a paraffin-like wax, thus hermetically sealing the batteries, which greatly prolongs their life. One Standby Multiple Battery will outlast from two to three ordinary sets of batteries connected in series.

Standby Multiple Battery, consisting of ten cells, connected five in series, two multiples. This battery is suitable for all ignition systems using standard coils and timers, or using five or six coils to a set. Dimensions over all: 6⅜ inches wide, 14⅜ inches long, 9⅛ inches high. Net weight, 27 pounds.

6A8637¼—Price **$5.40**

Our Special Wet Battery.

Gives excellent service for telephones, door bells, etc. A sal ammoniac cell, easily and cheaply recharged when exhausted. Consists of a glass jar, a large circular carbon electrode, stick zinc electrode and one charge of sal ammoniac. Shipping weight, 5⅝ pounds.

6A8600—Price, complete.....**80c**

6A8601—Rectangular Stick Zinc, 1¼x ⅜x6½ inches.
Price, 3 zincs.....**25c**
Shipping weight, 12 ounces.
Price, per dozen.....**95c**
Shipping weight, about 3 pounds.

6A8603—Carbon for our Special Wet Battery. Shpg. wt., about 2⅜ lbs. Price..**45c**

6A8604—Sal Ammoniac. Price, per pound (shipping weight, about 1½ pounds).....**30c**

6A8605—Sal Ammoniac. Price, per package, sufficient for one charge (shipping weight, about 7 ounces).....**12c**

Gravity Battery.

The Gravity Battery is a closed circuit battery used almost entirely for telegraph work. The 5x7 battery requires 1½ pounds blue vitriol for a charge, the 6x8 battery requires 3 pounds. High grade batteries, satisfactory service guaranteed.

6A8610—Gravity Battery. Size, 5x7 in., consisting of jar, copper and zinc. Shipping wt., 6 lbs. Price, without blue vitriol....**90c**

6A8611—Gravity Battery. Size, 6x8 in., consisting of jar, copper and zinc. Shipping weight, 9¾ pounds.
Price, without blue vitriol.....**$1.12**

NOTE—Blue Vitriol is not furnished with these batteries. It is always sold extra. See statement above regarding quantity of blue vitriol required.

6A8612—Battery Jar, glass, 5x7 in. Shpg. wt., 4 lbs. Price.**45c**

6A8613—Battery Jar, glass, 6x8 inches. Shipping wt., 6½ lbs. Price **50c**

6A8614—Zinc for 5x7 battery. Shpg. wt., 2½ lbs. Price..**35c**

6A8615—Zinc for 6x8 battery. Shpg. wt., 4¾ lbs. Price...**50c**

6A8616—Copper for 5x7 battery. Shpg. wt., 3 oz. Price...**15c**

6A8617—Copper for 6x8 battery. Shipping weight, 4 ounces. Price **17c**

6A8618—Blue Vitriol. Price subject to market changes. Shipping weight of 1 pound, 1½ pounds. (Not mailable.)
Price, per pound.....**17c**

EVEREADY

Eveready Large Lens Nickel Plated Daylos

Large reflector and lens, 2½ inches in diameter, increases candle power and spreads light. Non-short circuit cases. **6A8964 is illustrated actual size.** Shipping weights, 2 pounds and 2¼ pounds, respectively.

Catalog No.	Diameter, In.	Lgth., In.	Battery	Price	Extra Battery No.	Extra Lamp No.
6A8964	1½	6½	2-cell	**$1.88**	6A9090	6A8807
6A8968	1½	9	3-cell	**2.20**	6A9005	6A8805

Extra lamps and batteries below.

Eveready Extra Large Lens Daylos.

The Daylos shown below have strong brass, non-short circuit cases, nickel plated. Extra large reflector and lens, 3 inches in diameter, throw light much farther than ordinary size. **The illustration shows 6A8954 actual size.** Shipping weights, 1⅞ pounds and 2½ pounds, respectively.

Catalog No.	Diameter, In.	Lgth., In.	Battery	Price	Extra Battery No.	Extra Lamp No.
6A8954	1½	6¾	2-cell	**$2.48**	6A9090	6A8807
6A8955	1½	9	3-cell	**2.80**	6A9005	6A8805

Extra lamps and batteries below.

Eveready Vest Pocket Daylos.

Very convenient for vest pocket or women's pocketbook.

Highly polished nickel plated case with hinged bottom. Three sizes. Shipping weights, 5, 6 and 7 ounces, respectively.

Catalog No.	Size, Inches	Price	Extra Battery No.	Extra Lamp No.
6A8900	¾x1¼x2½	**$0.80**	6A9000	6A8800
6A8902	¾x1½x3	**.80**	6A9050	6A8801
6A8903	¾x2⅛x3	**1.00**	6A9051	6A8802

Extra lamps and batteries below.

Batteries and Lamps.

Flash Light Batteries.

Listed below are genuine EVEREADY TUNGSTEN batteries.

6A9091—Double Cell Tubular. Diam., 1 in.; lgth., 3¾ in. Shpg. wt., 4 oz. Price. . . .**24c**

6A9090—Double Cell Tubular. Diam., 1⅜ in.; lgth., 4¾ in. Shpg. wt., 8 oz. Price. **28c**

6A9005—Three-Cell Tubular. Diam., 1⅜ in.; lgth., 7 in. Shpg. wt., 12 oz. Price. . . .**40c**

6A9000—Double Cell Battery, 9/16 in. thick, 1⅛ in. wide, 1⅞ in. high. Shipping weight, 2 ounces. Price. **24c**

6A9050—Double Cell Battery, ⅝ in. thick, 1 9/16 in. wide, 2¼ in. high. Shpg. wt., 3 oz. . .**24c**

6A9051—Triple Cell Battery, 1 1/16 in. thick, 2 in. wide, 2¼ in. high. Shpg. wt., 4 oz. Price.**32c**

Flash Light Lamps.

We offer genuine MAZDA Flash Light Lamps. The actual candle power of the lamps is magnified by the reflector and lens. Shipping weight of lamps, 2 ounces.

6A8800—Mazda Lamp, 2.5 volts, ¾-candle power.

6A8801—Mazda Lamp, 2.5 volts, 1-candle power.

6A8802—Mazda Lamp, 3.8 volts, 1½-candle power.

6A8805—Mazda Lamp, 3.8 volts, 1½-candle power.

6A8806—Mazda Lamp, 2.7 volts, 1-candle power.

6A8807—Mazda Lamp, 2.9 volts, 1-candle power.

Price, **10** for. **$1.50**
Each. . . . . **.20**

Be sure to state lamp number you want.

The illustrations on this page show actual size of all flash lights except the Vest Pocket Daylo.

Eveready Daylos.

Above light excellent around motor cars, motor boats, wherever hands are likely to be oily or wet. Strong brass non-short circuit case, nickel plated. **6A8958 is illustrated actual size.**

Catalog No.	Diameter, Inches	Length, Inches	Shpg. Wt., Lbs.	Price	Extra Battery No.	Extra Lamp No.
6A8958	1⅛	5½	⅞	**$1.24**	6A9091	6A8806
6A8960	1½	6¾	1⅛	**1.48**	6A9090	6A8807
6A8962	1½	9	1¼	**1.80**	6A9005	6A8805

Extra lamps and batteries above.

DAYLOS

Eveready Large Lens Daylos—Searchlight Type.

Throws a powerful light farther than the ordinary lens. Black vulcanized fiber non-short circuiting case, nickel plated trimmings. Switch has button for flashes and slide for continuous light. Large beveled lens, 3 inches in diameter. Two lengths. **6A8956, illustrated below, is actual size, except in length, which is 8½ inches.** Shipping weights, about 3 pounds and 5 pounds, respectively.

Catalog No.	Diam., In.	Lgth., In.	Battery	Price	Extra Battery No.	Extra Lamp No.
6A8956	1½	8½	3-cell	**$2.60**	6A9005	6A8805
6A8957	1½	13	5-cell	**3.08**	6A9015	6A8816

Extra lamps and batteries below.

Eveready Large Lens Daylos.

Black vulcanized fiber non-short circuiting case. The 2½-inch lens and reflector increases light. Diameter of case, 1½ inches. **6A8950 is illustrated actual size.** Trimmings are nickel plated. Throws light over a wider area than a straight tubular type. Switch constructed to give flashes or continuous light.

Catalog No.	Shpg. Wt., Lbs.	Lgth., In.	Battery	Price	Extra Battery No.	Extra Lamp No.
6A8950	1⅜	6¾	2-cell	**$1.60**	6A9090	6A8807
6A8953	1⅞	9	3-cell	**1.80**	6A9005	6A8805

Extra lamps and batteries below.

All illustrations are actual size, except 6A8956 and 6A8957, the length of which are 8½ and 13 inches, and Coat Pocket Daylo.

Eveready Coat Pocket Daylo.

6A8938—Metal case, covered with bookbinders' black cloth Nickel plated trimmings. Size, 1x2⅝x3½ inches. Triple cell battery. Shipping weight, 12 ounces.
Price, with Tungsten battery.....**$1.20**
For extra batteries see 6A9003, and for extra lamps see 6A8804 below.

Batteries and Lamps.

Flash Light Batteries.

You will find listed below genuine EVEREADY TUNGSTEN batteries.

6A9091—Double Cell Tubular Battery. Diam., 1 in.; length, 3¾ in. Shpg. wt., 4 oz.
Price.....**24c**

6A9090—Double Cell Tubular Battery. Diam., 1⅜ in.; lgth., 4¾ in. Shpg. wt., 8 oz.
Price.....**28c**

6A9005—Three-Cell Tubular Battery. Diameter, 1⅜ in.; lgth., 7 in. Shpg. wt., 12 oz.
Price.....**40c**

6A9003—Triple Cell Battery, ¾ in. thick, 2⅞16 in. wide, 2⅝ in. high. Shpg. wt., 6 oz.
Price.....**32c**

6A9015—Five-Cell Tubular Battery. Diam., 1⅜ in.; length, 11¾ in. Shpg. wt., 1¼ lbs.
Price.....**68c**

Flash Light Lamps.

We offer genuine MAZDA Flash Light Lamps. Shipping weight of lamps, 2 ounces.

6A8804—Mazda Lamp, 3.8 volts, 1½-candle power.

6A8805—Mazda Lamp, 3.8 volts, 1½-candle power.

6A8806—Mazda Lamp, 2.7 volts, 1-candle power.

6A8807—Mazda Lamp, 2.9 volts, 1-candle power.

6A8816—Mazda Lamp, 6.2 volts, 2-candle power.

Price, **10** for.....**$1.50**
Each..... **.20**

Be sure to state lamp number.

Eveready Fiber Case Daylos.

Vulcanfzed fiber non-short circuiting case, nickel plated trimmings. All 1½ inches in diameter, except **6A8940, which is illustrated actual size.**

Catalog No.	Shpg. Wt., Lbs.	Lgth., In.	Battery	Price	Extra Battery No.	Extra Lamp No.
6A8940	⅞	5¼	2-cell	**$1.08**	6A9091	6A8806
6A8943	1⅜	6¾	2-cell	**1.36**	6A9090	6A8807
6A8946	1⅝	9	3-cell	**1.60**	6A9005	6A8805

Extra lamps and batteries above.

United States Government Wireless Telegraph Regulations Governing the Amateur

The Radio Regulations are easily understood and complied with.

The Regulations governing the amateur are as follows:

A receiving station alone requires no license, no matter how large or small it may be, or the location thereof.

A transmitting station requires a license, which may be obtained free of charge from the Radio Inspector in charge of the district and located at the custom house in the following cities:

District No. 1 Boston, Mass.	District No. 4 Savannah, Ga.	District No. 7 Seattle, Wash.
District No. 2 New York, N. Y.	District No. 5 New Orleans, La.	District No. 8 Cleveland, Ohio.
District No. 3 Baltimore, Md.	District No. 6 San Francisco, Calif.	District No. 9 Chicago, Ill.

Address: Radio Inspector, c/o Custom House, in the city named above which is nearest you.

Power used for transmitting must not exceed 1 kilowatt and when a station is within five miles of a Government Wireless Station, the power is limited to ½ kilowatt.

The transmitting wave length of the station must not exceed 200 meters.

A copy of the "Radio Communication Laws" of the United States may be had from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents a copy. Every amateur will be benefited by reading this bulletin.

INDEX

Express Rates

Tables showing the Express Rates per 100 pounds on goods shipped from Chicago to a number of cities in each state, these cities being used as a basis for figuring rates for all the towns in the immediate vicinity of each city.

Your express agent will tell you the exact rates from Chicago to your home town and give you full information in reference to their delivery service. If there is no express agent at your shipping point you must send money to prepay express charges. If there is an agent you can pay the express charges when shipment reaches you. It is necessary to prepay only when there is no agent at your station.

HOW TO FIGURE EXPRESS CHARGES. First estimate the weight of goods you are ordering; then find the rate per 100 pounds by express to your nearest city in the Table of Rates below; then consult the Scale of Express Charges, following the line for the weight of your goods to the column headed by your express rate per 100-pounds, and the amount shown will be the express charges.

If the exact rate per 100 pounds to your town is not shown in any of the headings of this scale, take the rate shown for the town nearest you and the express charges will be about the same as to your town.

The table of Express Rates also shows the parcel post zone of the various cities named below, enabling you to make an approximate comparison between the express charges and the parcel post charges to the zone in which you live. For Parcel Post Rates see page 36.

EXPRESS RATES PER 100 POUNDS TO CITIES IN EACH STATE.

From Chicago to	Parcel Post Zone	Express, per 100 Pounds.
ALABAMA—		
Birmingham	4	$2.80
Brewton	5	3.30
Mobile	5	3.41
Montgomery	5	3.02
ARIZONA—		
Phoenix	7	8.96
Tucson	6	8.03
ARKANSAS—		
Arkansas City	4	2.91
Fort Smith	4	3.35
Hot Springs	4	3.35
Little Rock	4	3.08
Texarkana	5	3.63
CALIFORNIA—		
Bakersfield	7	9.95
Los Angeles	7	9.95
San Francisco	8	10.39
COLORADO—		
Denver	5	4.78
Durango	6	6.65
Grand Junction	6	6.31
Julesburg	5	4.23
Leadville	5	5.66
CONNECTICUT—		
Hartford	5	2.97
DELAWARE—		
Dover	5	2.69
DISTRICT OF COLUMBIA—		
Washington	4	2.64
FLORIDA—		
Jacksonville	5	3.96
Miami	6	5.17
Pensacola	5	3.57
Tallahassee	5	3.68
Tampa	5	4.56
GEORGIA—		
Atlanta	4	$3.02
Macon	5	3.30
Savannah	5	3.68
Waycross	5	3.63
IDAHO—		
Boise	7	8.80
Pocatello	6	7.86
ILLINOIS—		
Cairo	4	1.81
Joliet	1	.82
Rock Island	2	1.26
Springfield	3	1.43
INDIANA—		
Evansville	3	1.54
Fort Wayne	2	1.26
Indianapolis	2	1.26
Richmond	3	1.54
South Bend	2	.99
IOWA—		
Des Moines	3	2.14
Fort Dodge	4	2.31
Sioux City	4	2.86
KANSAS—		
Dodge City	5	4.07
Great Bend	5	3.63
Kansas City	4	2.47
Topeka	4	2.64
Wichita	4	3.63
KENTUCKY—		
Frankfort	3	1.70
Hopkinsville	4	1.92
Louisville	3	1.54
Morehead	4	1.92
LOUISIANA—		
Lake Charles	5	3.96
New Orleans	5	3.57
Shreveport	5	3.74
MAINE—		
Bangor	5	3.41
MARYLAND—		
Baltimore	4	$2.64
MASSACHUSETTS—		
Boston	5	2.91
MICHIGAN—		
Bessemer	4	2.64
Detroit	3	1.54
Grand Rapids	2	1.26
Traverse City	3	1.92
MINNESOTA—		
Aitkin	4	3.08
Crookston	4	3.52
Duluth	4	2.80
Grand Rapids	4	3.19
Minneapolis	4	2.36
Winona	3	2.03
MISSISSIPPI—		
Hattiesburg	5	3.19
Jackson	5	3.08
Natchez	5	3.35
MISSOURI—		
Kansas City	4	2.47
St. Louis	3	1.70
Springfield	4	2.64
MONTANA—		
Billings	6	6.10
Glasgow	6	5.39
Havre	6	6.27
Helena	6	7.37
Kalispell	6	7.64
Miles City	5	5.33
NEBRASKA—		
Lincoln	4	2.86
North Platte	5	3.90
Omaha	4	2.64
NEVADA—		
Austin	7	9.13
Carson City	7	9.68
NEW HAMPSHIRE—		
Concord	5	2.97
NEW JERSEY—		
Atlantic City	5	$2.80
Trenton	5	2.80
NEW MEXICO—		
Gallup	6	7.04
Santa Fe	6	5.39
Silver City	6	7.31
NEW YORK—		
Albany	5	2.69
Buffalo	4	2.14
New York	5	2.80
Syracuse	4	2.36
NORTH CAROLINA—		
Asheville	4	3.02
Raleigh	5	3.41
Wilmington	5	3.68
NORTH DAKOTA—		
Bismarck	5	4.18
Fargo	4	3.35
Grand Forks	5	3.74
Minot	5	4.34
Williston	5	4.67
OHIO—		
Cincinnati	3	1.54
Columbus	3	1.81
Toledo	3	1.43
OKLAHOMA—		
Oklahoma City	5	3.96
OREGON—		
Portland	7	9.90
PENNSYLVANIA—		
Harrisburg	4	2.53
Philadelphia	5	2.64
Pittsburgh	4	2.03
RHODE ISLAND—		
Providence	5	2.97
SOUTH CAROLINA—		
Charleston	5	3.90
Greenville	4	3.41
Sumter	5	3.68
SOUTH DAKOTA—		
Aberdeen	4	$3.63
Bellefourche	5	4.34
Sioux Falls	4	2.86
Watertown	4	3.19
TENNESSEE—		
Jackson	4	2.31
Knoxville	4	2.80
Memphis	4	2.47
Nashville	4	2.09
TEXAS—		
El Paso	6	6.71
Fort Worth	5	4.40
Houston	5	4.67
UTAH—		
Marysvale	6	8.19
Salt Lake City	6	7.42
VERMONT—		
Montpelier	5	2.91
VIRGINIA—		
Marion	4	2.86
Richmond	4	3.02
Rocky Mount	4	3.02
WASHINGTON—		
Seattle	7	9.62
Spokane	7	8.69
WEST VIRGINIA—		
Charleston	4	2.20
Elkins	4	2.58
Wheeling	4	1.92
WISCONSIN—		
Ashland	4	2.64
La Crosse	3	1.65
Madison	2	1.43
Marinette	3	2.09
Milwaukee	2	1.15
WYOMING—		
Cheyenne	5	4.73
Green River	6	6.54
Lander	6	6.05
Sheridan	5	5.33

SCALE OF EXPRESS CHARGES BASED ON THE RATE PER 100 POUNDS.

Rate per 100 lbs....	$0.82	$0.99	$1.15	$1.26	$1.43	$1.54	$1.65	$1.70	$1.81	$1.92	$1.98	$2.03	$2.09	$2.14	$2.20
CHARGES ON															
Package of 1 lb....	.29	.29	.29	.29	.29	.29	.29	.29	.29	.29	.30	.30	.30	.30	.30
Package of 2 lbs...	.29	.29	.30	.30	.30	.30	.30	.31	.31	.31	.31	.31	.31	.31	.31
Package of 5 lbs...	.30	.31	.32	.32	.33	.34	.34	.34	.35	.35	.36	.36	.36	.36	.37
Package of 10 lbs...	.33	.34	.36	.37	.38	.40	.41	.42	.43	.44	.44	.45	.45	.46	.46
Package of 15 lbs...	.35	.38	.41	.42	.45	.46	.48	.48	.51	.52	.53	.54	.55	.55	.56
Package of 20 lbs...	.38	.42	.45	.47	.51	.53	.55	.56	.58	.60	.62	.63	.64	.65	.66
Package of 25 lbs...	.41	.45	.49	.52	.56	.59	.62	.63	.66	.68	.70	.71	.73	.74	.76
Package of 30 lbs...	.44	.48	.54	.57	.62	.65	.68	.70	.74	.77	.78	.80	.81	.84	.85
Package of 35 lbs...	.46	.53	.58	.62	.68	.71	.76	.77	.81	.85	.87	.89	.91	.92	.95
Package of 40 lbs...	.49	.56	.63	.67	.74	.78	.82	.85	.89	.93	.96	.98	1.00	1.02	1.04
Package of 45 lbs...	.52	.59	.67	.71	.79	.85	.89	.91	.97	1.01	1.04	1.07	1.09	1.11	1.14

Rate per 100 lbs....	$2.31	$2.36	$2.47	$2.53	$2.58	$2.64	$2.69	$2.80	$2.86	$2.91	$2.97	$3.02	$3.08	$3.19	$3.24	$3.30	$3.35	$3.41	$3.52	$3.57	$3.63	$3.68
CHARGES ON																						
Package of 1 lb....	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.31	.31	.31	.31	.31	.31	.31	.31	.31	.31
Package of 2 lbs...	.32	.32	.32	.32	.32	.32	.32	.33	.33	.33	.33	.33	.33	.33	.33	.33	.34	.34	.34	.34	.34	.34
Package of 5 lbs...	.37	.37	.38	.38	.38	.40	.40	.41	.41	.41	.41	.42	.42	.42	.43	.43	.43	.44	.44	.44	.44	.44
Package of 10 lbs...	.47	.48	.49	.49	.51	.51	.52	.53	.53	.54	.54	.55	.55	.56	.57	.57	.58	.58	.59	.60	.60	.62
Package of 15 lbs...	.58	.58	.60	.62	.62	.63	.64	.65	.66	.67	.68	.68	.69	.71	.71	.73	.74	.75	.76	.77	.78	.78
Package of 20 lbs...	.68	.69	.71	.73	.74	.75	.76	.78	.79	.80	.81	.82	.84	.86	.87	.88	.89	.90	.92	.93	.95	.96
Package of 25 lbs...	.78	.79	.82	.84	.85	.87	.88	.90	.92	.93	.95	.96	.98	1.00	1.01	1.03	1.04	1.06	1.09	1.10	1.11	1.12
Package of 30 lbs...	.88	.90	.93	.95	.97	.98	1.00	1.03	1.04	1.07	1.08	1.10	1.11	1.14	1.17	1.18	1.20	1.21	1.24	1.26	1.28	1.30
Package of 35 lbs...	.99	1.00	1.04	1.07	1.08	1.10	1.12	1.15	1.18	1.20	1.22	1.23	1.25	1.30	1.31	1.33	1.35	1.37	1.41	1.43	1.45	1.46
Package of 40 lbs...	1.09	1.11	1.15	1.18	1.20	1.22	1.24	1.29	1.31	1.33	1.35	1.37	1.40	1.44	1.46	1.48	1.51	1.53	1.57	1.59	1.62	1.64
Package of 45 lbs...	1.19	1.21	1.26	1.29	1.31	1.34	1.36	1.41	1.44	1.46	1.48	1.51	1.54	1.58	1.61	1.64	1.66	1.68	1.74	1.76	1.78	1.80

Rate per 100 lbs....	$3.74	$3.90	$3.96	$4.01	$4.07	$4.18	$4.23	$4.34	$4.40	$4.56	$4.67	$4.73	$4.78	$5.17	$5.33	$5.39	$5.66	$6.05	$6.10	$6.21	$6.27
CHARGES ON																					
Package of 1 lb....	.31	.31	.31	.31	.31	.32	.32	.32	.32	.32	.32	.32	.32	.32	.33	.33	.33	.33	.33	.33	.33
Package of 2 lbs...	.34	.35	.35	.35	.35	.35	.35	.35	.35	.36	.36	.36	.36	.37	.37	.37	.38	.38	.40	.40	.40
Package of 5 lbs...	.45	.45	.46	.46	.46	.47	.47	.47	.48	.48	.49	.49	.49	.52	.53	.53	.54	.56	.56	.57	.57
Package of 10 lbs...	.62	.64	.64	.65	.65	.66	.67	.68	.68	.70	.71	.71	.73	.76	.78	.78	.81	.85	.86	.87	.87
Package of 15 lbs...	.79	.81	.82	.84	.85	.86	.87	.88	.89	.91	.93	.95	.95	1.01	1.03	1.04	1.08	1.14	1.14	1.17	1.18
Package of 20 lbs...	.97	1.00	1.01	1.02	1.03	1.06	1.07	1.09	1.10	1.13	1.15	1.17	1.18	1.25	1.29	1.30	1.35	1.43	1.44	1.46	1.47
Package of 25 lbs...	1.14	1.18	1.20	1.21	1.22	1.25	1.26	1.29	1.31	1.34	1.37	1.39	1.40	1.50	1.54	1.55	1.62	1.72	1.73	1.76	1.77
Package of 30 lbs...	1.31	1.36	1.31	1.40	1.41	1.44	1.46	1.50	1.51	1.56	1.59	1.61	1.63	1.74	1.79	1.80	1.89	2.00	2.02	2.06	2.07
Package of 35 lbs...	1.48	1.54	1.56	1.58	1.61	1.64	1.66	1.69	1.72	1.77	1.81	1.84	1.85	1.99	2.05	2.07	2.16	2.30	2.31	2.35	2.38
Package of 40 lbs...	1.66	1.73	1.75	1.77	1.79	1.84	1.86	1.90	1.92	1.99	2.03	2.06	2.08	2.23	2.30	2.32	2.43	2.58	2.61	2.65	2.67
Package of 45 lbs...	1.84	1.90	1.94	1.96	1.98	2.03	2.06	2.10	2.13	2.20	2.25	2.28	2.30	2.47	2.55	2.57	2.69	2.87	2.89	2.95	2.97

Rate per 100 lbs....	$6.54	$6.65	$6.71	$7.04	$7.31	$7.37	$7.42	$7.64	$7.86	$8.03	$8.19	$8.69	$8.80	$8.96	$9.13	$9.62	$9.68	$9.90	$9.95	$10.39
CHARGES ON																				
Package of 1 lb....	.34	.34	.34	.34	.34	.34	.34	.35	.35	.35	.35	.36	.36	.36	.36	.37	.37	.37	.37	.37
Package of 2 lbs...	.40	.41	.41	.41	.42	.42	.42	.42	.43	.43	.43	.44	.44	.45	.45	.46	.46	.46	.47	.47
Package of 5 lbs...	.58	.59	.59	.62	.63	.63	.63	.64	.65	.66	.67	.69	.70	.70	.71	.74	.75	.76	.76	.78
Package of 10 lbs...	.90	.91	.91	.95	.98	.98	.99	1.01	1.03	1.04	1.07	1.11	1.12	1.14	1.15	1.21	1.21	1.23	1.24	1.29
Package of 15 lbs...	1.21	1.23	1.24	1.29	1.33	1.34	1.34	1.37	1.41	1.44	1.46	1.54	1.55	1.57	1.61	1.67	1.68	1.72	1.73	1.79
Package of 20 lbs...	1.53	1.55	1.56	1.63	1.68	1.69	1.70	1.75	1.79	1.83	1.86	1.96	1.98	2.01	2.05	2.14	2.16	2.20	2.21	2.30
Package of 25 lbs...	1.84	1.87	1.88	1.97	2.03	2.05	2.06	2.11	2.17	2.21	2.25	2.38	2.41	2.44	2.49	2.61	2.63	2.68	2.69	2.80
Package of 30 lbs...	2.16	2.19	2.20	2.30	2.39	2.40	2.42	2.49	2.55	2.60	2.65	2.79	2.83	2.88	2.93	3.08	3.09	3.16	3.18	3.31
Package of 35 lbs...	2.46	2.51	2.53	2.64	2.74	2.76	2.77	2.85	2.93	2.99	3.05	3.22	3.26	3.31	3.38	3.54	3.56	3.64	3.66	3.82
Package of 40 lbs...	2.78	2.83	2.85	2.98	3.09	3.11	3.13	3.22	3.31	3.38	3.44	3.64	3.68	3.75	3.82	4.01	4.04	4.12	4.15	4.32
Package of 45 lbs...	3.09	3.15	3.17	3.32	3.44	3.46	3.49	3.59	3.68	3.76	3.84	4.06	4.11	4.18	4.26	4.48	4.51	4.61	4.63	4.83

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An Excellent Line of Guns and Ammunition, Fishermen's Equipment, Row Boats, Shoes for All Branches of Athletics, Baseball Goods of All Kinds, Golf Goods, Basket Ball and Football Requisites, Boxing Gloves, Tennis Goods, Bathing Suits and Accessories, Roller Skates, Vacuum Bottles, Flags and Pennants, Playground Equipment, Tents and Canvas Goods, Camp and Outdoor Furnishings, Home Billiard and Pool Tables, Billiard Supplies, Miscellaneous Sport Accessories, Barbers' Supplies, Razors, Shears and Clippers, Pocket Knives, Butchers' Supplies and Miscellaneous Cutlery.

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SEARS, ROEBUCK AND CO.
CHICAGO

THE FLASH LIGHT

The ever increasing need of an artificial light—one that is dependable and may be used anywhere with a knowledge of absolute safety—has made the flash light a necessity.

The light shown below is an Eveready Daylo. The light that says, "There it is!" The Daylo with a large lens, 3 inches in diameter, a splendid reflector and Mazda lamp, backed up by a three or five-cell Eveready Tungsten battery, makes an excellent general purpose light.

Your requirements may call for a light of straight tubular or flat type. We handle a large line which is fully described on pages 32 and 33 of this catalog.

Eveready Large Lens Daylos.

Throw a powerful light farther than the ordinary lens. Black vulcanized fiber case, nickel plated trimmings. Large lens, 3 inches in diameter. Diam. of case, 1½ in. Two lengths. Shpg. wts., abt. 3 and 5 lbs., respectively.

Catalog No.	Length, Inches	Price	Battery No.	Extra Lamp No.
6A8956	8½	**$2.60**	6A9005	6A8805
6A8957	13	**3.08**	6A9015	6A8816

6A9005—Eveready Tungsten Three-Cell Tubular Battery. Diameter, 1⅜ inches; length, 7 inches. Shipping weight, 12 ounces.
Price **40c**

6A9015—Eveready Tungsten Five-Cell Tubular Battery. Diameter, 1⅜ inches; length, 11¾ inches. Shipping weight, 1¼ pounds.
Price **68c**

For extra lamps, see page 33.

Rates for Parcel Post Shipments

Your postmaster will tell you the parcel post zone in which your postoffice is located, measuring from Chicago

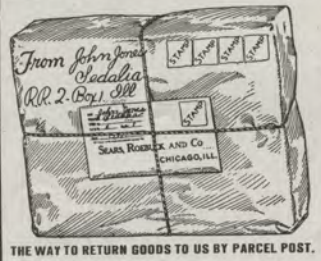
All merchandise shipped by mail takes parcel post rates. Packages up to 4 ounces in weight are carried at the rate of 1 cent an ounce, regardless of distance. Packages over 4 ounces are charged for by the pound. The rate per pound varies according to the distance, which is measured by the Government zone system, each zone covering a certain number of miles from point of shipment. Distances and rates are shown in the table below. Packages carried by parcel post are handled just like any other mail matter. They are delivered to your box by your rural mail carrier if you live on a rural route, or delivered to your door if you live in a city where there is carrier service, or delivered to your local postoffice if you live where there is no carrier service.

Loaded or primed cartridges or shells, other explosives, inflammable articles and poisons cannot be shipped by Parcel Post, nor articles measuring more than 7 feet in length and girth combined.

RATE TABLE FOR PARCEL POST SHIPMENTS

This table shows the charges when shipping by parcel post, according to the weight of the packages and according to distance by zones.	LOCAL ZONE	ZONES 1 & 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8
	For Shipments From Our Store in Chicago to Customers Within Chicago	Not Over 150 Miles From CHICAGO	151 to 300 Miles From CHICAGO	301 to 600 Miles From CHICAGO	601 to 1,000 Miles From CHICAGO	1,001 to 1,400 Miles From CHICAGO	1,401 to 1,800 Miles From CHICAGO	Over 1,800 Miles From CHICAGO
Weight of Package	Charges Required	Charges Required	Charges Required	Charges Required	Charges Required	Charges Required	Charges Required	Charges Required
Over 4 oz. up to 1 lb	5c	5c	$0.06	$0.07	$0.08	$0.09	$0.11	$0.12
Over 1 lb. up to 2 lbs	6c	6c	.08	.11	.14	.17	.21	.24
Over 2 lbs. up to 3 lbs	6c	7c	.10	.15	.20	.25	.31	.36
Over 3 lbs. up to 4 lbs	7c	8c	.12	.19	.26	.33	.41	.48
Over 4 lbs. up to 5 lbs	7c	9c	.14	.23	.32	.41	.51	.60
Over 5 lbs. up to 6 lbs	8c	10c	.16	.27	.38	.49	.61	.72
Over 6 lbs. up to 7 lbs	8c	11c	.18	.31	.44	.57	.71	.84
Over 7 lbs. up to 8 lbs	9c	12c	.20	.35	.50	.65	.81	.96
Over 8 lbs. up to 9 lbs	9c	13c	.22	.39	.56	.73	.91	1.08
Over 9 lbs. up to 10 lbs	10c	14c	.24	.43	.62	.81	1.01	1.20
Over 10 lbs. up to 11 lbs	10c	15c	.26	.47	.68	.89	1.11	1.32
Over 11 lbs. up to 12 lbs	11c	16c	.28	.51	.74	.97	1.21	1.44
Over 12 lbs. up to 13 lbs	11c	17c	.30	.55	.80	1.05	1.31	1.56
Over 13 lbs. up to 14 lbs	12c	18c	.32	.59	.86	1.13	1.41	1.68
Over 14 lbs. up to 15 lbs	12c	19c	.34	.63	.92	1.21	1.51	1.80
Over 15 lbs. up to 16 lbs	13c	20c	.36	.67	.98	1.29	1.61	1.92
Over 16 lbs. up to 17 lbs	13c	21c	.38	.71	1.04	1.37	1.71	2.04
Over 17 lbs. up to 18 lbs	14c	22c	.40	.75	1.10	1.45	1.81	2.16
Over 18 lbs. up to 19 lbs	14c	23c	.42	.79	1.16	1.53	1.91	2.28
Over 19 lbs. up to 20 lbs	15c	24c	.44	.83	1.22	1.61	2.01	2.40
Over 20 lbs. up to 21 lbs	15c	25c	.46	.87	1.28	1.69	2.11	2.52
Over 21 lbs. up to 22 lbs	16c	26c	.48	.91	1.34	1.77	2.21	2.64
Over 22 lbs. up to 23 lbs	16c	27c	.50	.95	1.40	1.85	2.31	2.76
Over 23 lbs. up to 24 lbs	17c	28c	.52	.99	1.46	1.93	2.41	2.88
Over 24 lbs. up to 25 lbs	17c	29c	.54	1.03	1.52	2.01	2.51	3.00
Over 25 lbs. up to 26 lbs	18c	30c	.56	1.07	1.58	2.09	2.61	3.12
Over 26 lbs. up to 27 lbs	18c	31c	.58	1.11	1.64	2.17	2.71	3.24
Over 27 lbs. up to 28 lbs	19c	32c	.60	1.15	1.70	2.25	2.81	3.36
Over 28 lbs. up to 29 lbs	19c	33c	.62	1.19	1.76	2.33	2.91	3.48
Over 29 lbs. up to 30 lbs	20c	34c	.64	1.23	1.82	2.41	3.01	3.60
Over 30 lbs. up to 31 lbs	20c	35c	.66	1.27	1.88	2.49	3.11	3.72
Over 31 lbs. up to 32 lbs	21c	36c	.68	1.31	1.94	2.57	3.21	3.84
Over 32 lbs. up to 33 lbs	21c	37c	.70	1.35	2.00	2.65	3.31	3.96
Over 33 lbs. up to 34 lbs	22c	38c	.72	1.39	2.06	2.73	3.41	4.08
Over 34 lbs. up to 35 lbs	22c	39c	.74	1.43	2.12	2.81	3.51	4.20
Over 35 lbs. up to 36 lbs	23c	40c	.76	1.47	2.18	2.89	3.61	4.32
Over 36 lbs. up to 37 lbs	23c	41c	.78	1.51	2.24	2.97	3.71	4.44
Over 37 lbs. up to 38 lbs	24c	42c	.80	1.55	2.30	3.05	3.81	4.56
Over 38 lbs. up to 39 lbs	24c	43c	.82	1.59	2.36	3.13	3.91	4.68
Over 39 lbs. up to 40 lbs	25c	44c	.84	1.63	2.42	3.21	4.01	4.80
Over 40 lbs. up to 41 lbs	25c	45c	.86	1.67	2.48	3.29	4.11	4.92
Over 41 lbs. up to 42 lbs	26c	46c	.88	1.71	2.54	3.37	4.21	5.04
Over 42 lbs. up to 43 lbs	26c	47c	.90	1.75	2.60	3.45	4.31	5.16
Over 43 lbs. up to 44 lbs	27c	48c	.92	1.79	2.66	3.53	4.41	5.28
Over 44 lbs. up to 45 lbs	27c	49c	.94	1.83	2.72	3.61	4.51	5.40
Over 45 lbs. up to 46 lbs	28c	50c	.96	1.87	2.78	3.69	4.61	5.52
Over 46 lbs. up to 47 lbs	28c	51c	.98	1.91	2.84	3.77	4.71	5.64
Over 47 lbs. up to 48 lbs	29c	52c	1.00	1.95	2.90	3.85	4.81	5.76
Over 48 lbs. up to 49 lbs	29c	53c	1.02	1.99	2.96	3.93	4.91	5.88
Over 49 lbs. up to 50 lbs	30c	54c	1.04	2.03	3.02	4.01	5.01	6.00
Over 50 lbs. up to 51 lbs	30c	55c	1.06					
Over 51 lbs. up to 52 lbs	31c	56c	1.08					
Over 52 lbs. up to 53 lbs	31c	57c	1.10					
Over 53 lbs. up to 54 lbs	32c	58c	1.12					
Over 54 lbs. up to 55 lbs	32c	59c	1.14					
Over 55 lbs. up to 56 lbs	33c	60c	1.16					
Over 56 lbs. up to 57 lbs	33c	61c	1.18					
Over 57 lbs. up to 58 lbs	34c	62c	1.20					
Over 58 lbs. up to 59 lbs	34c	63c	1.22					
Over 59 lbs. up to 60 lbs	35c	64c	1.24					
Over 60 lbs. up to 61 lbs	35c	65c	1.26					
Over 61 lbs. up to 62 lbs	36c	66c	1.28					
Over 62 lbs. up to 63 lbs	36c	67c	1.30					
Over 63 lbs. up to 64 lbs	37c	68c	1.32					
Over 64 lbs. up to 65 lbs	37c	69c	1.34					
Over 65 lbs. up to 66 lbs	38c	70c	1.36					
Over 66 lbs. up to 67 lbs	38c	71c	1.38					
Over 67 lbs. up to 68 lbs	39c	72c	1.40					
Over 68 lbs. up to 69 lbs	39c	73c	1.42					
Over 69 lbs. up to 70 lbs	40c	74c	1.44					

How to Return Goods to Us by Parcel Post.



THE WAY TO RETURN GOODS TO US BY PARCEL POST.

When you return goods by parcel post, put the letter you write and the bills for the goods in an envelope and paste or tie the envelope securely to the outside of the package. In addition to the postage you put on the package, put 2 cents postage on the envelope.

About Transportation Charges.

When goods are to be shipped by parcel post, it is not necessary to send stamps to pay the postage for shipping package. Simply add the amount for charges to the amount of the merchandise and include in the money order, check or currency you send us. This charge for mailing must be paid in advance, as no provision has been made for the collection of mailing charge on delivery.

When goods are to be shipped by freight or express and there is no freight or express agent at your shipping point, you must send money to prepay the transportation charges. If there is an agent you can pay the transportation charges when shipment reaches you. It is only necessary to prepay freight or express charges when there is no agent at your station. See our big General Catalog for complete information about freight rates and charges.

Throughout our catalogs you will find the shipping weight is given in the description of merchandise. Occasionally, according to the nature of the merchandise, we are obliged to give the actual weight. In such cases a few ounces extra in weight must be allowed for wrapping and packing, according to the nature of the goods.

Books **Parcel post rates apply to books as follows:** All books up to and including 8 ounces in weight will be carried at the rate of 1 cent for 2 ounces to any part of the United States, regardless of distance, and all books over 8 oz. in weight will take the regular parcel post rates according to weight and zone.

Within Local Zone and Zones 1, 2 and 3, packages up to 70 pounds in weight are carried. The limit of weight for all other Zones is 50 pounds. Articles measuring more than 7 feet in length and girth combined, explosives, inflammable articles and poisons cannot be shipped by parcel post.