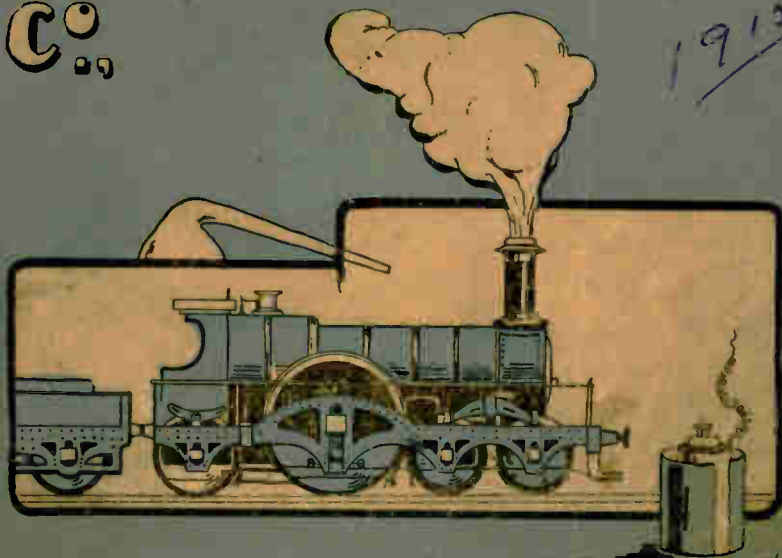


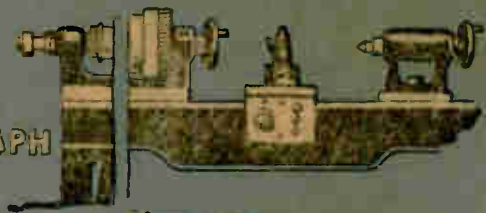
# ADAMS - MORGAN C<sup>o</sup>.

1915



A. P. MORGAN  
K10

ELECTRICAL APPARATUS  
AND SUPPLIES  
DYNAMOS, MOTORS  
CHEMICALS  
WIRELESS TELEGRAPH  
AND TELEPHONE  
INSTRUMENTS  
BOOKS AND TOOLS



"THE  
EXPERIMENTER'S  
SUPPLY  
H<sup>o</sup>USE."

...



UPPER MONTCLAIR, N. J.

## CATALOG NUMBER SIX

### How to Order

#### Write your Name

plainly and give town, state, street and number. If your town has no post office, give *post office address*.

#### In Ordering

please give name of goods, catalogue number and page.

#### Remittances

should be by New York draft, post office or express money order or registered letter. *Positively* not over one dollar's worth of stamps accepted. Only two-cent stamps are acceptable.

#### Give Shipping Directions

whether goods are to be sent by mail, express or freight. Always include postage if goods are to be mailed. In the absence of directions we will use our best judgment.

#### Goods by Mail

when so ordered, must be at purchaser's risk of loss and damage. We pack goods very carefully and use every precaution to protect customer.

#### All previous Prices are Withdrawn with this Issue

Every article listed in this catalogue is equal in every detail to the illustration and description. At the same time we reserve the right to improve or better any article by slight changes in detail if possible. All defective apparatus will be cheerfully replaced if returned prepaid within five days after receipt.

We are not responsible for goods lost or damaged in transit.

**"AMCO" is a synonym for QUALITY**

CATALOG NUMBER SIX

# ADAMS-MORGAN COMPANY

*The Experimenter's Supply House*

Manufacturers of the Largest Line  
in America of Reliable

Wireless Telegraph Apparatus, Small  
Motors, Dynamos, Storage Batteries,  
Novelties, etc.

GOODS OF RECOGNIZED MERIT

Office and Factory: ALVIN PLACE  
UPPER MONTCLAIR, N. J., U. S. A.

## How to Figure Parcels Post Rates

Parcels Post Rates are computed according to the weight of the package to be shipped and the distance which it is to be sent. For this purpose the United States is divided into eight zones, with different rates of postage applicable to each zone.

We state the Exact Shipping Weight of each article in this Catalog. Ask your Postmaster which Zone you are in from Upper Montclair.

### U. S. PARCELS POST RATES

Weight in Lbs.	Local	1 & 2	3	4	5	6	7	8
1.....	\$0.05	\$0.05	\$0.06	\$0.07	\$0.08	\$0.09	\$0.11	\$0.12
2.....	.06	.06	.08	.11	.14	.17	.21	.24
3.....	.06	.07	.10	.15	.20	.25	.31	.36
4.....	.07	.08	.12	.19	.26	.33	.41	.48
5.....	.07	.09	.14	.23	.32	.41	.51	.60
6.....	.08	.10	.16	.27	.38	.49	.61	.72
7.....	.08	.11	.18	.31	.44	.57	.71	.84
8.....	.09	.12	.20	.35	.50	.65	.81	.96
9.....	.09	.13	.22	.39	.56	.73	.91	1.08
10.....	.10	.14	.24	.43	.62	.81	1.01	1.20
11.....	.10	.15	.26	.47	.68	.89	1.11	1.32
12.....	.11	.16	.28	.51	.74	.97	1.21	1.44
13.....	.11	.17	.30	.55	.80	1.06	1.31	1.56
14.....	.12	.18	.32	.59	.86	1.13	1.41	1.68
15.....	.12	.19	.34	.63	.92	1.21	1.51	1.80
16.....	.13	.20	.36	.67	.98	1.29	1.61	1.92
17.....	.13	.21	.38	.71	1.04	1.37	1.71	2.04
18.....	.14	.22	.40	.75	1.10	1.45	1.81	2.16
19.....	.14	.23	.42	.79	1.16	1.53	1.91	2.28
20.....	.15	.24	.44	.83	1.22	1.61	2.01	2.40
21.....	.15	.25						
22.....	.16	.26						
23.....	.16	.27						
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46.....	.28	.50						
47.....	.28	.51						
48.....	.29	.52						
49.....	.29	.53						
50.....	.30	.54						

### Parcels Post Service to Foreign Countries

The Parcels Post Rates to PORTO RICO, CANAL ZONE, HAWAII, PHILIPPINE ISLANDS, TUTUILA (Pago-Pago), and other parts of SAMOA in the possession of the United States, and GUAM (Ladrone Island) are the same as for the Eighth Zone.

Rates to CANADA, CUBA and MEXICO are 12 cents per lb. The limit of weight is 4 lbs. 6 ounces.

Rates to EUROPE, including GREAT BRITAIN and IRELAND, NEWFOUNDLAND, AUSTRALIA and all other countries to which the Parcels Post is extended are 12 cents per lb. The limit of weight is 11 lbs.

## U. S. Parcels Post Rates

Knowing the weight of any article you wish to purchase and the zone in which your post office is located, you can find the correct amount of postage applying to the goods you are ordering by consulting the table given on preceding page. The table shows the amount of postage required, according to the weight of the package, and the distance in zones.

**PACKAGES WEIGHING 4 OUNCES** or less go at the rate of 1 cent for each ounce or fraction thereof, regardless of distance. Packages weighing more than 4 ounces and less than 16 ounces must be mailed at the 1 pound rate.

**BOOKS** are mailable at Parcels Post Rates. Books weighing not over 8 ounces go at the rate of 1 cent for each 2 ounces. If they weigh over 8 ounces the rate is the same as for other Parcel Post matter.

**NOTE**—Use every care in figuring out the postage rates on the goods you order. In case you order two items weighing four ounces each the two together would weigh eight ounces, but **YOU ARE REQUIRED TO PAY FOR ONE POUND**, because the Parcel Post regulations state that a package weighing more than 4 ounces but less than 16 ounces must be paid for as a full pound. Some items listed in this catalog and sold by the pound as, for instance, wire, wax, core iron, etc., must always be figured **PLUS** the packing material. For example, if you order a pound of wire, the spool and wrapper are in addition to the weight of the wire, and it is necessary to include sufficient postage for two pounds. Two actual pounds of wire will weigh three pounds when wrapped, three actual pounds of wire will weigh four pounds wrapped, etc.

If in computing the cost of your order and the amount of postage you have sent, we find that you have made a mistake and that your remittance is short, we will forward the goods by Parcel Post C.O.D., including in your shortage the U. S. Postal Fee. We trust that this method of handling your order in such an instance will meet with your approval. It is our desire to ship all orders as promptly as possible and such action enables you to immediately obtain your goods without long correspondence and waiting while you send us the amount due.

**BE CAREFUL TO WRITE YOUR  
NAME AND ADDRESS PLAINLY  
ON ALL ORDERS OR OTHER  
COMMUNICATIONS SENT TO US**

**Read the directions "How to  
Order" on inside of cover.**

**ADAMS-MORGAN CO.  
UPPER MONTCLAIR, N. J.**



## The Advantage of Storage Cells

The superiority of the storage cell over any other form of battery is universally recognized. The dry cell has an E.M.F. of only 1.5 volts and deteriorates rapidly with age. The E. M. F. of a storage cell is 2 volts, 33 1-3 per cent. higher. Storage cells will operate almost any electrical device with increased power over any other battery. A wireless set will send farther, lamps will burn steadier and a motor give more power.

If properly cared for a storage cell will last indefinitely. It may be recharged an unlimited number of times and is exactly as good as new each time. *A dry cell must be thrown away when discharged.*

Storage cells are rated by their output in *Ampere Hours*. An *Ampere Hour* is the amount of current represented by one ampere flowing for one hour. A 10 ampere hour cell will give 2 amperes for five hours, 1 ampere for ten hours, ½ ampere for twenty hours, etc. The ampere hour capacity of a cell divided by the amount of current being used will determine how long that current can be drawn before recharging is necessary.

### RECHARGING

Storage cells may be recharged from any source of *direct* current, that is, from the lighting circuit in series with a lamp, from a small shunt wound dynamo, from dry cells or other primary batteries or from alternating current by using an "Amco" Rectifier.

The liquid in a storage cell is dilute sulphuric acid. It is usually mixed with the aid of a hydrometer and should have a specific gravity of 1.250. Acid may be purchased at any drug store for a few cents.

Storage cells are fully charged when they read 2.5 volts per cell across the terminals with the charging current on. Never attempt to measure the charge with an ammeter. The meter would be immediately burned out. *A 10 ampere hour cell will test over 100 amperes.* It will melt a piece of No. 18 copper wire when short circuited. Never try this however. It will injure the cell. Directions for recharging are given on the label of each cell.

### CAUTION

The Adams-Morgan Storage Cells are the result of many years of experience and conform in every detail with the high standards that we have set and maintain in the manufacture of our products. Every operation from the crude lead to the finished cell is carried out in our own shops. We can, therefore, vouch for the quality.

It is one of our principles to never make any remarks about articles of other manufacturers in imitation of our own. We issue this statement merely as a *caution* for the protection of our prospective customers. Several concerns of questionable reputation are offering cheap storage cells. They are fabulously over rated regarding capacity in order to make the prices appear attractive. These concerns do not *manufacture* storage cells, even though they claim to do so. They buy second-hand materials and plates from old ignition batteries and seal them in a jar.

All genuine "Amco" Storage Cells bear our name. That name is a guarantee of an **HONESTLY MADE** battery. *Think twice before you buy a battery from an unknown concern.* A cheap cell is dear at any price. It won't last. An "Amco" will.

**Read some of the Testimonials in this Catalogue**

## Amco Storage Cells

UNEXCELLED FOR QUALITY AND DURABILITY



### THE REMEDY for all your Battery Troubles

Amco Storage Cells are the most satisfactory source of current for operating any device requiring a constant, unfailing supply of electricity, such as: Small Motors, Electric Lights, Models, Xmas Tree Displays, Time Stamps, Toys, Wireless Out-fits, Induction Coils, Railways, etc.

Dry batteries are unsatisfactory for such work because they do not deliver a steady current, wear out quickly, and must be thrown away when exhausted.

A Wireless Coil will send 25 per cent. to 50 per cent. farther when AMCO Storage Cells are used to replace other forms of battery

The spark will be much heavier and longer and the interrupter will operate more evenly.

### AMCO STORAGE CELLS ARE IDEAL

for operating miniature lighting plants. They will burn tungsten lamps brilliantly for long periods without attention. A 10 amp. hour cell (No. 5502) will light a 2.5 volt tungsten lamp brightly for 30-40 hours without recharging. A set of three No. 5506 cells will light a 6 v. 4 c.p. tungsten lamp for over 30 hours of *continuous* running without recharging. By connecting two sets in multiple, the period can be doubled, and these cells will be found a very convenient method of lighting a small workshop, a dark hallway, bedroom, attic or barn, etc.

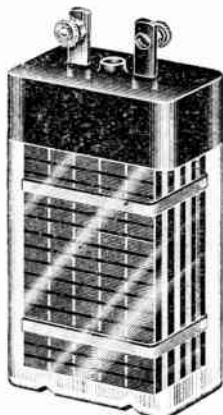
The Cells are easily re-charged from direct current. Any of our rectifiers will change alternating current into direct. They may be re-charged from a small shunt wound dynamo. One of our hydro-electric plants and a set of storage batteries form a miniature power plant that cannot be equalled for many purposes.

Our storage cells are manufactured in our own works under careful supervision. **A TRIAL WILL CONVINCe YOU OF THEIR MERITS**

The paste is gripped firmly by wedge-shaped, interlocking strips of lead, so staggered as to securely lock the active material in place. The jars are extremely thick flint glass of unusual strength and will not easily break. The binding posts are extra large, insuring a firm and ready connection.

	PRICE
No. 5502 10 ampere hours, two volts, weight 2 lbs., packed 3½ lbs., size 5¼x3¾x1¼ inches .....	\$1.00
No. 5506 15 ampere hours, two volts, weight 3 lbs., packed 4½ lbs., size 6¼x3¾x1¼ inches .....	\$1.60

## Amco Storage Cells in Glass Jars



No. 5505

These cells are similar in construction to our No. 5502 and 5506 but are considerably larger and of greater capacity. The plates are identical in grid construction but are much larger and consequently able to withstand a heavier charge or discharge. The grid itself is an improved design whereby great strength and rigidity are secured, together with large paste area. We believe that there is no other electrical product which is so hopelessly useless and which represents a greater loss than a cheap, poorly constructed storage cell. A high grade storage cell or battery, such as the AMCO is perfect in every detail of its construction and is a product which can only be made by experienced workmen in a properly equipped factory. The difference in quality between the highest grade of storage cells, as represented by the famous AMCO products and an unreliable, cheap product, is far out of proportion to the difference in price. Adams-Morgan Co. have the largest and most modernly equipped factory for the manufacture of small storage cells in the country, and the fact that we sell more small storage cells than all other manufacturers put together is sufficient evidence of the high quality of our product.

AMCO STORAGE CELLS ARE THE MOST SATISFACTORY SOURCE OF CURRENT for operating small motors, incandescent lamps, for laboratory work and any other purpose where an exceptionally durable, compact battery is required. Our No. 5503 and No. 5505 cells are recommended wherever size and weight are not a consideration.

The cells in hard rubber jars are to be recommended wherever the least weight and smallest size are desirable. The jars are extremely thick flint glass of unusual strength and will not easily break. They are heavily reinforced with moulded projections in the bottom to raise the plates clear of any sediment. The jars are large enough to give generous acid space. The cells are sealed; that is, closed at the top save for a small vent. The nuisance of spilling or evaporation is thereby avoided. The binding posts are large, insuring a firm and ready connection. Each cell has an E.M.F. of 2 volts and has sufficient plate area to withstand an exceptionally heavy discharge. They will hold their charge practically indefinitely and so are always ready for service.

No. 5503 25 ampere hours, two volts, weight 4½ lbs., packed 8 lbs. . . . . \$2.00

No. 5505 10 amp. hours, 2 volts, weight 6½ lbs., packed 10 lbs., size 7½x4x2½ \$3.50



POCKET TYPE

## Amco Boat and Model Storage Cells



BOAT TYPE

These are our well known Storage Cells made in small sizes for driving small model boats, supplying current for portable medical outfits or for any purpose where a small, compact battery of great power is required. They may be carried in the pocket. Their small size and weight adapts them for service in supplying current for runs, etc. They may be used to run motors, lamps, etc.

We have molds and facilities for building practically any size of storage cell and are pleased to furnish quotations on various sizes of special batteries for any particular purpose, provided a quantity are desired. We only stock the sizes listed below. Each cell has an E.M.F. of 2 volts and is capable of exceptionally heavy discharge. They will hold their charge practically indefinitely and so are always ready for service. The 6 ampere hour size will light a miniature 2.5 volt lamp for over 20 hours.

### JUST THE THING FOR A BICYCLE LIGHT

No. 5508 Pocket Type, 2 volts, 6 amp. hours, size 4½x3¾x1¼, weight 1¼ lbs. \$1.00

No. 5509 Pocket type, 2 volts, 10 amp. hours, size 4½x3¾x1¼, weight 1½ lbs. \$1.30

No. 5511 Boat Type, 2 volts, 14 amp. hours, size 6x2½x1¼, weight 2 lbs. . . . . \$1.60

Shipping weight of any of above cells, 3 lbs.



## Amco Storage Cells in Hard Rubber Jars



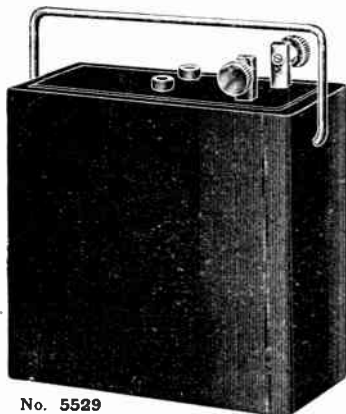
In hard rubber battery jars more than in any other article of hard rubber, it is almost impossible for even the expert to tell the difference between first quality and the great mass of cheaper inferior grades. But defects always show up in the end. They may slip by for a time—only to appear ultimately with expensive results to the user. The jars may contain a fraction of one per cent. of metal which the acid slowly but surely attacks. There may be over curing or under curing of the rubber. Our jars have so consistently proven their merit and quality that we are positively justified in stating that they are unequalled and absolutely to be relied upon. They are impervious to the action of the acid and do not deteriorate. Rubber jars are lighter than glass and will stand rough treatment.



No. 5510	12 amp. hrs., two volts, shipping weight 3½ lbs.....	\$1.25
No. 5512	25 amp. hrs., two volts, shipping weight 5½ lbs.....	2.00
No. 5514	40 amp. hrs., two volts, shipping weight 8 lbs.....	3.50

Prices of larger sizes on application

## Amco "General Utility" Battery



No. 5529

### Especially Adaptable to Audion Detector Outfits

These handy sets are very useful and convenient wherever a portable battery is required for furnishing a steady, unflinching current. They are used by many experimenters for lighting the filament of audion detectors and are far better for that purpose than dry cell batteries. The current is steadier and since storage batteries may be recharged at small cost an innumerable number of times, they are far cheaper in the end. The storage cells are encased in rubber jars sealed in a strong hardwood box. Each cell is provided with a non-spilling rubber vent. Extra large terminals and a convenient handle for carrying are provided.

No. 5529	Amco General Utility Storage Battery, 4 volts, size 8½ x 7 x 3¾ inches, weight 10½ lbs.....	\$4.80
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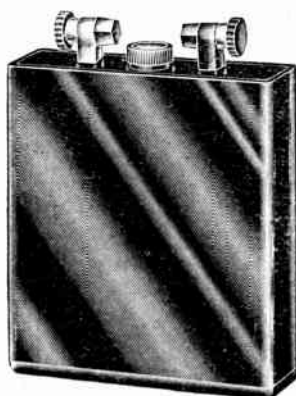
Shipping weight, 16 lbs.

Adams-Morgan Company, Upper Montclair, N. J.

Gentlemen:—Your goods received and am greatly pleased with same. Please accept my thanks for all courtesies extended.

Youngstown, Ohio.

Very truly yours,  
ALBERT MILLIMAN.



No. 5515

## Amco Power Storage Cells

These are our well known storage cells made in large sizes for work requiring a large ampere hour capacity. The rubber cases are very strong and durable and will not easily break. Provided with rubber vent caps which screw in and out. Extra large cast lead alloy terminals to accommodate large wires.

Especially recommended for light power service in operating small motors, incandescent lamps, for laboratory work and any other purpose where an exceptionally durable, compact battery is required.

Will withstand a heavy discharge. The pillars, straps etc., are extra large and are "lead burned" to insure perfect mechanical and electrical connection.

		PRICE
No. 5515	Amco Power Storage Cell, 2 volts, 60 ampere hours capacity, weight 12 lbs. ....	<b>\$5.00</b>
No. 5516	Amco Power Storage Cell, 2 volts, 80 ampere hours capacity, weight 16 lbs. ....	<b>6.50</b>



## Amco Storage Battery Sets

These sets are made up of Amco Storage Cells encased in well-finished oak boxes with interlocking corners. Each cell is separately removable for examination. Fitted with a strong rubber strap handle. Very handy and portable. Prices for larger sets furnished on application.

No.	Capacity		Jar	Price	Shipping Weight
	Amp.	Hrs. Voltage			
5522	10	6	Glass	<b>\$4.00</b>	13 lbs.
5523	15	6	Glass	<b>5.75</b>	17 lbs.
5524	12	6	Rubber	<b>4.75</b>	11 lbs.
5526	25	6	Rubber	<b>7.00</b>	14 lbs.
5528	40	6	Rubber	<b>12.50</b>	19 lbs.

**Amco Storage Cells are Unexcelled for Quality and Durability**

110 Gifford Avenue, Jersey City, N. J., June 24, 1912.

Adams-Morgan Co., Upper Montclair, N. J.

Gentlemen:—Some time ago I bought some No. 5502 Amco Storage Cells of you. I take the liberty of writing you now to tell you that they are the best batteries I have ever seen. At one time I had them standing on open circuit for six or eight weeks. They held their charge well and showed no signs of sulphating at all. I don't know any other battery that could do this. I would recommend them to anybody. Yours very truly,

R. C. BENNETT.

## Amco "Gnome" Battery Set



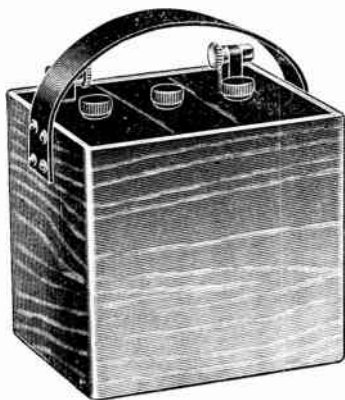
The "Gnome" sets are made up of our glass jar storage cells, sealed in a strong wooden box treated with a black acid-resisting paint. *An Amateur Wireless Telegraph Transmitter will send signals from 25-30 per cent. further when Amco Storage Cells are used in lieu of dry cells.*

The "Gnome" sets will be found of especial value where a small portable battery is required. They are very convenient for operating Christmas tree and decorative outfits. They are similar in construction to the 5522—5523 sets with the exception that the cases are not so highly finished nor is each cell separately removable.

No. 5520 "Gnome" Storage Battery, 6 volts, 10 amp. hours..... \$3.75  
 No. 5521 "Gnome" Storage Battery, 6 volts, 15 amp. hours..... 5.50

Shipping weight: No. 5520, 13 lbs.; No. 5521, 17 lbs.

## The Amco Sparking Batteries



No. 5570

Amco Sparking Batteries are almost too well-known to require any extensive description of the qualities that have given them their wide reputation. Their superiority is quickly revealed by careful examination of the design and construction. There is not a single unnecessary part, yet all the necessary precautions have been taken against every possible trouble to which batteries might be liable in daily practical use.

Amco Storage Batteries always inspire confidence because their superior qualities have been proven by years of experience. Their longer life and efficiency makes their cost the least in the end. THE WOOD CONTAINER CASE is selected, well seasoned wood, free from knots and has lock corners.

THE SPACE BETWEEN THE JARS and the case is poured full of an acid-resisting compound which insures added rigidity and strength to the walls of the jars and also provides against leaks in case of mechanical injury to the jars.

THE CONNECTORS, Plate Lugs, Plate Strap, Pillar Posts and Terminals are cast from an acid-proof, mechanically strong lead alloy and are "lead burned" into mechanical and electrical union.

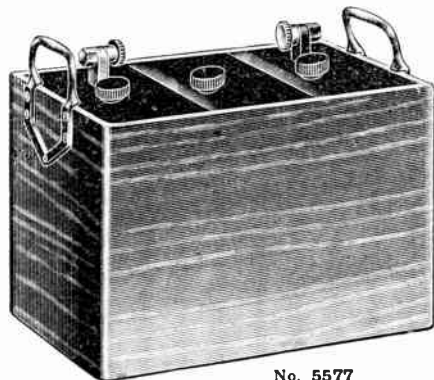
THE JARS are the best grade of hard rubber and are not brittle. They are fitted with hard rubber covers which fit snugly and have the hard rubber vent plug screwed in, not simply inserted. The plastic asphaltum compound is poured over this cover and entirely covers the top of each battery. There is no wooden top to rot or disintegrate. Each cell is fitted with a hard rubber vent plug which permits free escape of all gases.

THE HANDLE of the battery is rubber webbing, which is far superior to leather in that it does not rot or corrode.

The Amco Sparking Battery is rated well within its actual capacity. It is under-rated and not over-rated. Experience, much thought and care, quality of material and workmanship with fidelity to detail insures a battery which when purchased means money wisely spent.

List No.	Voltage	Amp. Hr. Capacity	Length	Width	Height	Weight	Price
5570	4	60	5½	7	7½	21 lbs.	\$10.75
5571	6	40	5½	7	7½	20 lbs.	12.00
5572	6	60	8½	7	7½	31 lbs.	16.00
5573	6	80	10½	7	7½	42 lbs.	22.00

## The Amco Lighting and Power Batteries



No. 5577

The Amco Lighting Batteries are similar to the Sparking Batteries in all details of design and construction with the exception that they are larger and are fitted with reinforced cast handles instead of a rubber strap. Motor car owners are to-day so familiar with the advantages of electric lights that it is unnecessary to point out why they are superior to oil and gas. Any motorist who has had experience with smoky oil lamps or with generators and gas tanks, liable to fail at the moment when most needed, requires no word picture to recall the feeling of dread and anxiety that comes over him when in the midst of a night drive on a lonely country road, his lights flicker and go out. One experience of this sort is usually enough to set a man in search of a

more reliable means of illuminating the road, and it is with no small degree of satisfaction that hundreds have adopted the Amco Lighting Battery.

List No.	Voltage	Amp. Hr. Capacity	Length	Width	Height	Price
5575	6	40-60	8	7	7½	\$12.00
5576	6	60-80	8½	7½	8	16.00
5577	6	80-100	10¾	7½	8	22.00
5578	6	100-120	13¾	7½	8¾	29.00
5579	6	120-150	15¾	7½	8¾	36.00

**We will ship any Amco Lighting, Sparking or Power Batteries, Nos. 5570-5579, to any point not over 500 miles from New York City by PREPAID freight.**

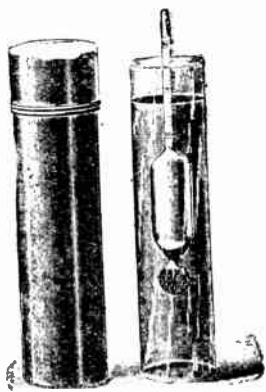
### TESTIMONIAL

222 N. Grand Street, Marshall, Mich., May 17, 1912.

Adams-Morgan Co.

Dear Sirs:—Enclosed you will find \$6.53 for which please send me tuning transformer No. 7720, three No. 31 binding posts, two No. 2 binding posts and two rubber knobs Nos. 8007 and 8004. Please send at once as I need the tuner. You have been very highly recommended to me by other Marshall boys. Yours truly,

CLARE W. JENNINGS.



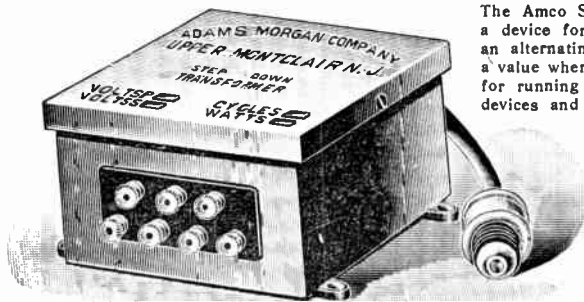
## Hydrometer

A Hydrometer is an instrument for determining the specific gravity of solutions. It is very necessary to know the specific gravity of the electrolyte, when preparing it for storage batteries, etc. Our Hydrometers are packed in a strong wooden box and provided with an acid glass as shown in the cut. A necessity for every laboratory.

No. 5530 Acid Hydrometer, each.. \$ .35  
By mail, extra..... .04

## Amco Step-down Transformer

THE BEST MADE



The Amco Step-down Transformer is a device for lowering the voltage of an alternating electric light circuit to a value where it may be safely utilized for running all kinds of low voltage devices and toys such as advertising novelties, small fans, motors, miniature electric railways, lamps, induction coils, etc.

In view of the current saved through its use an Amco transformer will soon pay for itself. No renewals or other maintenance expenses are necessary. The device is indestructible

and is not to be classed with any form of battery. The secondary terminals are mounted upon the outside of the case and permit ready connection. Six different voltage values are obtainable in two volt steps from 2 to 12.

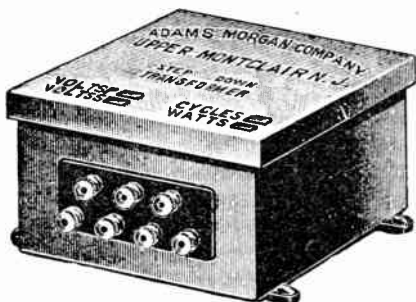
Our machine embodies all the essentials of perfect design, electrical, mechanical and magnetic. It is enclosed in an iron case impregnated with an insulating compound. Each transformer is equipped with an attachment plug and eight feet of flexible lamp cord.

The transformer is just the thing for the young experimenter. *Not only will it afford him amusement and make possible endless instructive and interesting experiments, but it will give him the fundamental working principles of electricity.* It is impossible to get a shock from the instrument and any child can handle it with safety.

No. 5561 Amco Transformer with eight feet of flexible lamp cord and attachment plug, complete..... \$5.00  
Shipping weight, 21 lbs.

## Amco Wireless Transformer

Get three times the Efficiency from your Spark Coil by using the  
**THE NEW DEPARTURE**



This transformer has succeeded in doing away with the nuisance of batteries. It operates coils directly from the A. C. 110 volt circuit current supply and makes an induction coil *four times as efficient* as when operated by batteries. No more satisfactory or convenient means could be devised. It is always ready, simply press the key and the coil will throw a crashing spark, much thicker and heavier than usual and capable of sending twice as far. A one-inch coil will send twenty miles under ordinary conditions when used in connection with an Amco Step-down Wireless Transformer. The windings are of a special design and arrangement, so they are

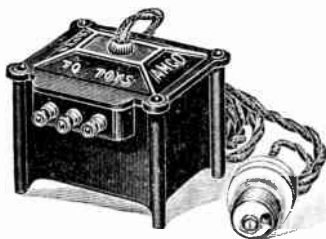
self-adjusting and will operate any size of coil from  $\frac{1}{4}$  to 4 inches. An ordinary step-down transformer or a bell-ringer will not operate a coil satisfactory. It must be special. We have solved the secret. This transformer is mounted in an iron case like our No. 5561 except that two binding posts are provided for the primary, instead of the attachment plug and cord and two posts for the secondary.

No. 5562 Amco Wireless Transformer..... \$4.50

Shipping weight, 20 lbs.

**The Ideal Means of Operating an Induction Coil**

## Amco Junior Step-Down Transformer



No. 5563

The Amco Junior Transformer is a device whose purpose is to transform a high voltage into a low voltage. This is one of the most popular articles we have ever placed on the market. The Junior Transformer is carefully and durably made and places a source of current supply in the hands of a boy which will permit him to safely perform all sorts of experiments and afford an endless amount of amusement and instruction.

### A VERITABLE MINIATURE POWER HOUSE

Simply screw the attachment plug into any 110-volt alternating electric light socket. The secondary binding posts of the transformer will then deliver a low voltage current which may be used for lighting miniature lamps, driving small

electrically operated machines, heating physicians' cauteries, running toy railways, lighting Christmas trees, operating small motors and for general experimental purposes.

The voltage of the secondary is so low that it is impossible to get a shock and the smallest child may use the device to operate toys with perfect safety.

The transformer is perfectly designed and constructed. It is enclosed in an iron case. Each transformer is equipped with a flexible lamp cord and attachment plug. The transformer is provided with three binding posts from which an E.M.F. of 3, 5 and 8 volts may be obtained. The complete transformer weighs  $4\frac{1}{2}$  lbs. The Junior Transformer is not as large or as powerful as the No. 5561 machine.

No. 5563 Amco Junior Step-down Transformer with cord and plug.. \$3.20

Shipping weight, 6 lbs.

## Amco Step-down Transformers

TYPE A  
WITH CONTROL LEVER

JUST THE THING FOR THE YOUNG EXPERIMENTER



No. 5564

This transformer is similar in size to our No. 5561 but differs somewhat in construction. Instead of a number of binding posts from which various voltages may be obtained, this transformer is equipped with a large lever projecting from the front of the case which will vary the voltage from 0-12 in seven steps when moved back and forth.

**It is the best type of Transformer to use in connection with Toy Railroads**

because the train may be instantly controlled from a dead stop to full speed, no matter what section of the track it is on, by merely moving the handle back and forth. The young engineer is thus enabled to slow down his train on the curves and to allow

it to run ahead full speed on the straight stretches of track.

This feature of having the current under instant control by means of a lever instead of being obliged to change the wires from one post to another, makes this transformer invaluable in the laboratory, for general experimental purposes, or for a boy wishing a source of electric current which is under perfect control and may be suited to any toy. The case of the transformer is iron finished in black enamel. Each instrument is fitted with eight feet of flexible lamp cord and an attachment plug which may be screwed into the nearest socket. No renewals or other maintenance expenses are necessary. The device is practically indestructible.

No. 5564 Amco Step-down Transformer with control lever..... \$7.50

Shipping weight, 25 lbs.

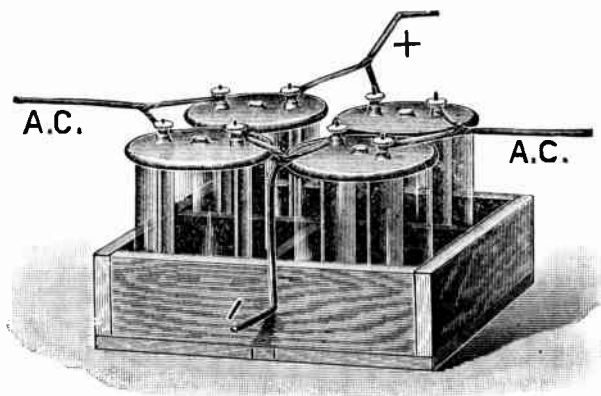
WE MANUFACTURE  
ELECTRO MAGNETIC WINDINGS  
HIGH FREQUENCY APPARATUS

SPECIAL  
Spark Coils, Transformers,  
Wireless Apparatus, Etc.

Do you want "Something Electrical" Made  
to Order? WRITE US.

## Amco Electrolytic Rectifier

The Best Electrolytic Rectifier on the Market



For changing alternating current into direct current. Constructed in a unique and approved manner so that both sides of the alternating cycle are converted into direct current. A single cell rectifier can be used with satisfaction, but for experimental work requiring considerable current it is necessary to use the four-cell type and use an adjustable resistance in series with it. The glass jars are exceedingly tough and will not easily break. The electrodes are thick and heavy so that they will last indefinitely. They are provided with rubber insulating gaskets which prevent the creeping of the liquid. The binding posts are brass, nickel plated.

	PRICE
No. 5580 Electrolytic Rectifier, single cell, two electrodes, with chemicals. Shipping weight, 11 lbs.....	\$1.50
No. 5582 Electrolytic Rectifier, single cell, three electrodes, with chemicals. Shipping weight, 12 lbs.....	2.00
No. 5584 Electrolytic Rectifier, four cell two electrodes in each cell, with chemicals, in handsome hardwood case. Shipping weight, 40 lbs.....	5.50
No. 5586 Electrolytic Rectifier, four cell type, three electrodes in each cell, with chemicals, in handsome hardwood case. Shipping weight, 44 lbs.....	7.00
No. 5588 Electrolytic Rectifier, four cell type with three electrodes in each cell, with chemicals and one No. 5561 Step-down Transformer. Shipping weight, 60 lbs.....	11.50

Adams-Morgan Company, Upper Montclair, N. J.

Bridger, Mont.

Dear Sir:—I received your order to-day and I can say I am more than pleased with same. The goods were in excellent condition. You may expect a larger order from me soon.

Sincerely,

MAURICE O. NORDSTROM.





### PLEASE READ THIS CAREFULLY

There has never been any desire on the part of Adams-Morgan Co. to become "quantity producers," but rather to manufacture a line of exceptional merit in sufficient numbers to insure an economic production. As a result the business has grown and the output been sold without the usual campaign of extensive advertising. A volume of business *compelling* us to produce great quantities has been *forced* on us solely through the merits of our goods.

THERE IS NO RECOMMENDATION equal to a satisfied customer who is so pleased that he wants his friends to also share his pleasure. The customers of Adams-Morgan Co. are "Amco" *enthusiasts*, and we daily receive many letters from thoroughly satisfied and well pleased purchasers of our goods who take the trouble to write and tell us so.

Certain concerns make a practice of claiming to be the manufacturers of all the goods shown in their catalogs, whereas in many cases they actually make only a very small part or else none at all. We do not do so. We do not claim to manufacture everything in our catalog but on the other hand we *do manufacture a majority* of the articles shown, and for the convenience of our customers have prefixed the title of every article of our own manufacture by the word "AMCO." The word "Amco" is a synonym for quality and means that such an article incorporates the *brains, honesty and skilled workmanship* of the Adams-Morgan Co.

In business, as in social life, old and tried friends are the best friends, and it has always been our policy to so conduct our business that we shall always maintain the willing support of our old customers.

We attribute the steady growth of our business to the fact that we manufacture and supply only goods of unquestionable quality and give our customers PROMPT and CAREFUL attention.

The unquestionable superiority of "Amco" Wireless Telegraph Apparatus is a matter so well known and of such long standing that it is almost unnecessary to make any comments on that subject. The mark "Amco" or the name Adams-Morgan are synonyms for QUALITY, backed by experience and skill. In offering our catalog to the trade and general public we have not burdened them with unreliable statements or remarks about competitors goods, but have confined ourselves to simple descriptions of the article in question. Our best references are our customers and we only request prospective purchasers to ask them or to make the only fair

test there is, that of COMPARISON, in order to be convinced of the truth of such claims. Our name is a fair one, with a reputation for HONESTY and SQUARE-DEALING. When we say that an instrument has a "hard rubber" base, we mean genuine hard rubber and not composition, and when we say "hard rubber composition" we mean hard rubber composition.

Every instrument is guaranteed to be exactly as represented and we also guarantee our apparatus against all mechanical and electrical imperfections.

**ALWAYS MAKE SURE YOUR POSTAGE IS CORRECT**  
**It will save delays**

All goods listed in this catalog under the name "Amco" are our own manufacture.

**PROMPT DELIVERY**  
**REASONABLE COST**  
**EFFICIENT DESIGN**  
**EXCELLENT MATERIALS**  
**SKILLFUL WORKMANSHIP**

are all yours when you buy Amco Apparatus.

The satisfaction that comes from having efficient, good looking instruments of real excellence, and the knowledge that you have the BEST is guaranteed if they are made by Adams-Morgan Co.

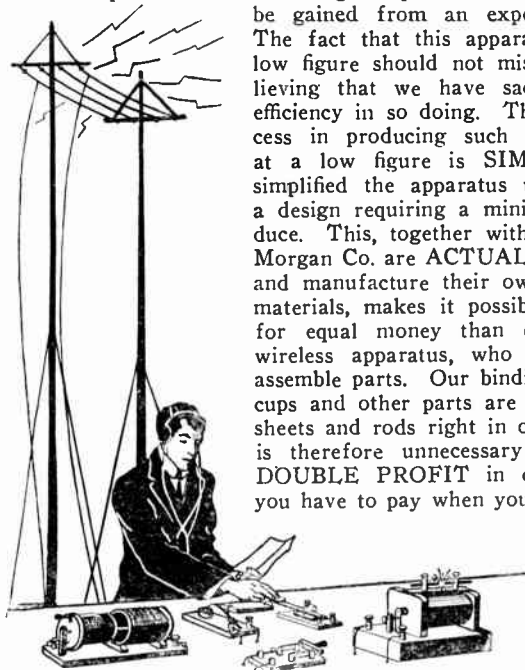
These are the reasons why we are the largest manufacturers of wireless apparatus in the country.

## EVERY BOY CAN NOW OWN A WIRELESS OUTFIT

**The Amco "Simplex" Apparatus brings the cost of a Wireless Telegraph Outfit within the reach of every boy**

Heretofore the cost of Wireless Telegraph Apparatus has prevented many boys from taking up the instructive and interesting pastime of experimental wireless telegraphy. After considerable experimental work we have succeeded in producing a line of simplified wireless apparatus listed in this catalog under the name of "Simplex," which can be sold at a price well within the reach of every boy, and there is now no reason why anyone should be prevented from having the pleasure and instruction which can

be gained from an experimental wireless set. The fact that this apparatus is sold at such a low figure should not mislead any one into believing that we have sacrificed the quality or efficiency in so doing. The keynote of our success in producing such wonderful instruments at a low figure is **SIMPLICITY**. We have simplified the apparatus until we have secured a design requiring a minimum of labor to produce. This, together with the fact that Adams-Morgan Co. are **ACTUAL MANUFACTURERS** and manufacture their own parts from the raw materials, makes it possible to give more value for equal money than other concerns selling wireless apparatus, who in most cases merely assemble parts. Our binding posts, thumbscrews, cups and other parts are turned out of the raw sheets and rods right in our own factory, and it is therefore unnecessary for you to pay the **DOUBLE PROFIT** in dealing with us which you have to pay when you buy from others.



Jersey City, N. J.

Dear Sir:—I thank you very much for the attention you gave my order for the one glass jar. It was packed nicely and came all safe.

Very truly yours,

A. T. LUCK.

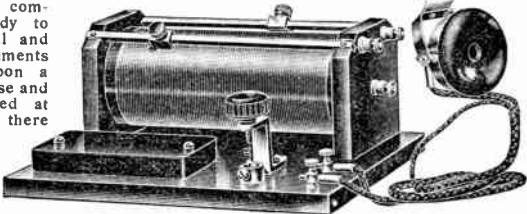
## Amco Junior Receiving Set

### DOUBLE SLIDE TUNER

Here is a set that you will be proud to own. Wireless messages are flying all around. Get started in this fascinating pastime. This receiving set is a winner. It is the greatest value ever offered in a wireless set.

### THE IDEAL SET FOR THE BEGINNER

The set comprises a complete outfit all ready to connect to the aerial and ground. The instruments are all mounted upon a mahogany finished base and permanently connected at the factory, so that there is no possibility of a faulty connection which might lower the efficiency. The set consists of a double slide tuning



coil, a vertical detector and a fixed condenser. The wiring is all entirely concealed, being inlaid in grooves in the bottom of the base. The set is provided with binding posts for the aerial, ground and phones. The woodwork is all finished in dark mahogany.

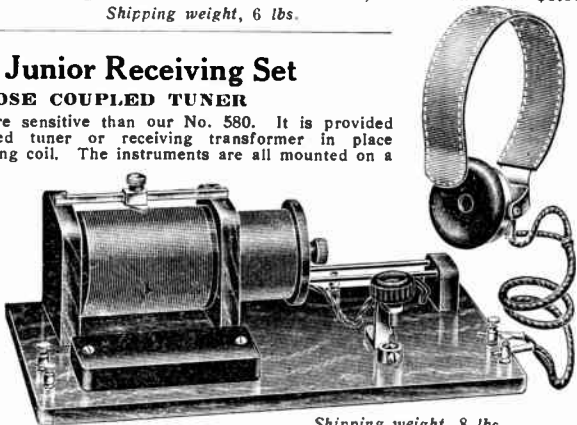
No. 580	Amco Junior Receiving Set, weight when packed 6 lbs.....	\$4.00
No. 581	Same set with a 75-ohm double pole telephone receiver with 3-ft. cord	\$4.75
No. 582	Amco Junior Receiving Set with 1000-ohm receiver, cord and headband	\$6.00
No. 583	Amco Junior Receiving Set with two 1000-ohm receivers, headband and cord	\$8.00

*Shipping weight, 6 lbs.*

## Amco Junior Receiving Set

### LOOSE COUPLED TUNER

This set is even more sensitive than our No. 580. It is provided with a loose coupled tuner or receiving transformer in place of a double slide tuning coil. The instruments are all mounted on a mahogany finished base and permanently connected at the factory. The set comprises a loose coupled tuner, detector and fixed condenser. The loose coupler is our well known No. 520. It makes very selective tuning possible and enables the experimenter to tune out any unwanted station and bring the one desired in loudly and clearly.

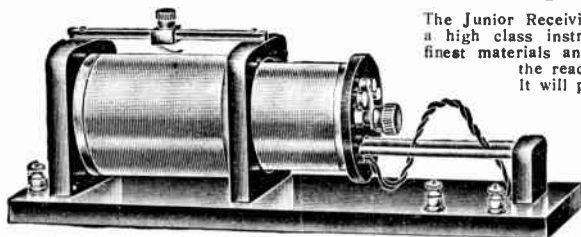


*Shipping weight, 8 lbs.*

No. 585	Amco Junior Receiving Set with Loose Coupled Tuner, 8 lbs.....	\$6.00
No. 586	Amco Junior Receiving Set No. 585 with 1000 ohm telephone receiver, headband and cord .....	8.00
No. 587	Amco Junior Receiving Set No. 585 with two 1000 ohm receivers, headband and cord.....	10.00

**NOTE.**—The Junior Receiving Sets can be supplied with either our No. 500 or 504 Detector. We stock sets fitted with the No. 500 Detector in largest quantity and since the popular demand seems to be for this type we always supply it unless otherwise specified on the order.

## Amco Junior Loose Coupler



No. 520

The Junior Receiving Transformer places a high class instrument, embodying the finest materials and workmanship, within the reach of all experimenters. It will perform with equal efficiency when placed in competition with other loose couplers, and in most cases will show superior results.

The primary consists of 150 turns of wire wound over a specially treated tube which will not shrink. Variation of the primary

is by means of a slider. The secondary is varied by a five-point switch. The coupling is changed by moving the secondary in and out of the primary on the two horizontal rods.

**THE LOUD SIGNALS AND SELECTIVE TUNING** it is possible to obtain with this instrument has made it a general favorite and it has earned enthusiastic praise by its splendid service and efficiency. It makes very selective tuning possible and enables the experimenter to tune out any unwanted station and bring that desired in loudly and clearly. All metal parts are brass, finished in gold lacquer. The wood is finished in dark mahogany.

**The Best Looking and Best Working Receiving Transformer at Anywhere near the price.**

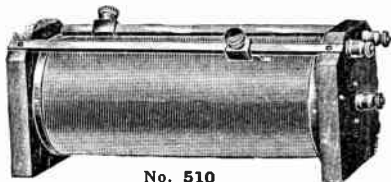
No. 520 Amco Junior Loose Coupler..... \$4.00

Shipping weight, 3 lbs.

## The Amco Junior Tuning Coil

### DOUBLE SLIDE

This is the best-looking and most efficient low priced tuner on the market. In fact it is such a fine little instrument that it has been widely imitated. It is properly designed and very carefully constructed. An inferior tuning coil will go far towards weakening signals and reducing the general efficiency of a station. We can guarantee the "Junior" tuner will give excellent results and bring signals in loud and clear.



No. 510

The cylinder is wound with over three hundred turns of wire. The cylinder is also specially treated to prevent warping, and the construction of the winding is such that it is impossible for any of the turns to short circuit. Our method of winding gives the maximum amount of inductance it is possible to obtain in a given space. The wave length of this coil is as great as that of many coils almost twice as large. The coil ends are polished wood finished in dark mahogany. The metal parts are all brass finished with gold lacquer. The coil is provided with two sliders which move very smoothly and make contact with each turn independently.

No. 510 Amco Junior Double Slide Tuning Coil..... \$1.75

Shipping weight, 2 lbs.

Cleveland, Ohio.

Dears Sirs:—I wish to thank you for your prompt service to me. I will take pleasure in recommending you to my friends. A firm which does business like you do is bound to succeed.

Yours for the best of business,

C. A. RAUCH.

## Variable Condenser

This condenser is constructed so that there is combined rotary and slide plate action, the plates being arranged to operate in circular grooves. There are four stationary plates which in combination with three movable ones, give a total capacity of .0005 m.f. The top and bottom are hard rubber composition. The top is provided with a scale, which together with the pointer attached to the handle, indicates the relative capacities in circuit. The sides are made of transparent celluloid so that the interior workings and motion of the plates can be plainly seen. We recommend its use only in secondary of receiving circuits.

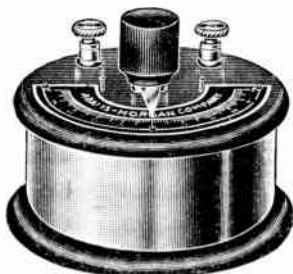
No. 7734 Variable Condenser ..... \$3.00

Shipping weight, 2 lbs.



No. 7734

## Amco Junior Variable Condenser



No. 7731

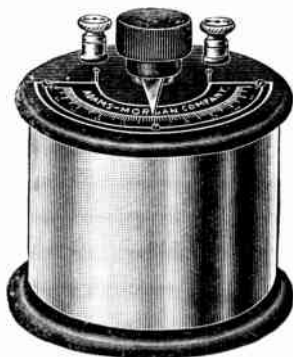
This little instrument is the best small capacity variable receiving condenser on the market today at a price within reach of all. It is very carefully and substantially made and is particularly striking in appearance. It consists of 19 semi-circular metal plates, 9 being movable and 8 fixed, mounted upon a hardwood top finished in dark mahogany. The top is provided with a 180 degree scale, knurled knob, handle, indicating pointer and suitable binding posts. The container is a brass shell, highly polished and finished in gold lacquer. The case is oiltight so that it may be filled with castor oil or some other good insulating oil and the capacity of the condenser increased thereby five times. The condenser has ample capacity without oil for most secondary work and will prove an invaluable part of almost any wireless equipment. It will increase the selectivity and range of the station. It will tune out unwanted stations and bring in those desired loudly and clearly.

7731 Amco Junior Rotary Variable Condenser \$2.25 Shipping weight, 2 lbs.

## Amco Junior Rotary Variable Condenser

This is one of the most handsome and efficient small rotary variable condensers made. All details of construction have been worked out with a view to securing the greatest efficiency. The case is a highly finished brass cylinder fitted with a polished hardwood top and bottom, finished in dark mahogany. A knurled rubber composition knob is provided, with a brass pointer moving over an etched brass scale. The condenser unit consists of 31 semi-circular metal plates spaced very close together with air as the dielectric. The case is oiltight and if it is filled with a good grade of insulating oil the capacity of the condenser may be increased five times. The movement of the plates is smooth and easy. Perfect satisfaction is guaranteed. Constructed in a thoroughly workmanlike manner throughout. The low price of this instrument may mislead some into the erroneous notion that it is a cheaply-built, poor looking condenser. Nothing could be further from the truth. This instrument will add greatly to the appearance and efficiency of any set. It will reduce all disturbances due to interference, static, power lines, etc., to a minimum, as well as bring in distant stations loud and clear.

7733 Amco Junior Rotary Variable Condenser \$3.00



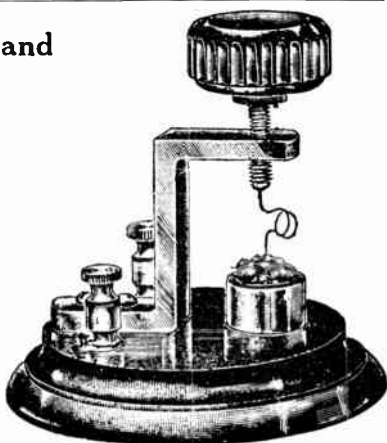
Shipping weight, 2 lbs.

## Amco Junior Detector Stand

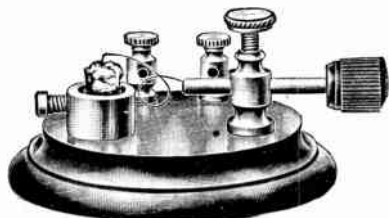
### VERTICAL TYPE

Contact with the mineral is established by a fine wire spring, the tension of which may be accurately adjusted. This provides a much more sensitive arrangement than the spring strip used on many detectors. *Our detector will maintain its adjustment and is not easily disarranged by jars and jolts.* The base is finished in dark mahogany, carefully polished. All metal fittings are polished brass, gold lacquered. The crystal is fastened in the cup by means of a small set-screw. The adjusting screw is provided with a large knurled composition knob.

**No. 504** Amco Junior Vertical Detector Stand, diameter 3 inches, height 3 inches..... **95 Cents**  
*Weight packed, 6 ounces*



## Amco Junior Detector



No. 500

most sensitive adjustment is only secured when this detector is such that the point may be brought into contact with any portion of the mineral surface and the latter thoroughly searched for the most sensitive spot.

**No. 500** Amco Junior Detector, diameter of base 3 inches..... **75 Cents**  
*Shipping weight, 5 ounces*

This detector has proven extremely popular because of its excellent appearance and high efficiency. Although of simple design, it may be quickly adjusted to a degree of sensitiveness that is often hard to obtain with many higher priced instruments. **WHEN ONCE ADJUSTED IT WILL STAY SO.** The mineral is clamped in a small brass cup by means of a set-screw. Contact is made with the surface of the crystal by means of a "feeler" or "cat whisker" made from a special composition which has been found to give the best results. The tension is adjustable through a wide range by turning the knob. This is important, for the tension is right. The construction of the detector is such that the point may be brought into contact with any portion of the mineral surface and the latter thoroughly searched for the most sensitive spot.

## Amco Junior Wireless Key

This is a standard sized telegraph key with no circuit breaker and with very large extra heavy points, especially for wireless telegraphy and experimental purposes. The bushings are of mica, which will stand the heat caused by breaking extra heavy currents. The points burn off and stick. The base of the key is enameled. The lever is solid brass. The trunnions screws, etc., are brass, carefully polished and lacquered. Connections are made in two binding posts so that the key can be mounted on desks and tables without boring holes as required for a leg pattern key.



No. 562

**No. 562** Amco Junior Wireless Key..... **75 Cents**  
*Shipping weight, 1 lb.*

## Amco Junior Helix

### PANCAKE TYPE

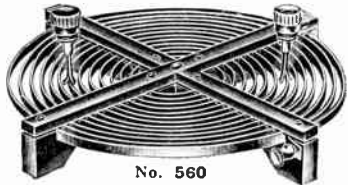
This is a strong, well designed Helix, and we can claim without fear of contradiction that it is the best instrument for the purpose ever offered at anywhere near the price.

A Helix is used to *tune* the transmitting apparatus of a wireless station. When properly tuned with a helix the range of the station will be greatly increased.

**INCREASE THE RANGE OF YOUR COIL** by using a Junior Helix. It is properly designed and carefully made. The inductance is in the form of a spiral of heavy brass ribbon wound in a slotted hardwood frame. The woodwork is finished in dark mahogany.

**Every inch of the Inductance is Accessible to the Clips, making it possible to tune very closely.** The construction of the helix is such that it may be mounted either on the wall or directly on the operating table. Fitted with heavy brass binding posts and two clips.

No. 560 Amco Junior Helix..... \$1.75      Shipping weight, 3 lbs.



No. 560

## Amco Junior Oscillation Transformer

### PANCAKE TYPE

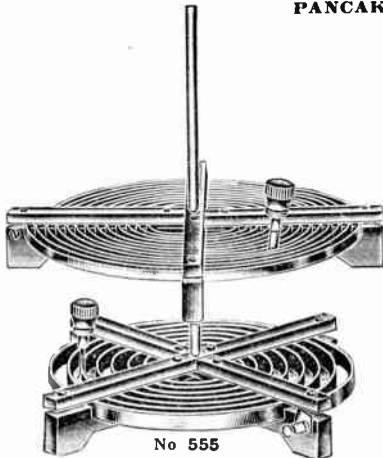
An Oscillation Transformer is *necessary* in order to produce a *pure*, well maintained wave which can be closely tuned at the receiving station.

An Oscillation Transformer is really a double helix, one coil forming a primary winding and the other a secondary. The primary is connected to the spark gap and condenser and the secondary to the ground and aerial.

**An Amco Oscillation Transformer is necessary in order to produce a Pure Wave in compliance with the new Federal Regulations.**

It will enable you to easily obtain a wave length of 200 metres without hampering the efficiency of your station. Its use will increase your transmitting distance. Our instrument is far superior to any thing else of its kind.

**The Construction and General Efficiency of the Juuor Oscillation Helix is of the Highest Order and stands distinctly by itself.**



No 555

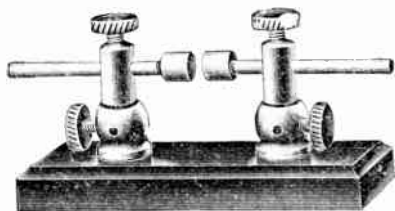
The primary and secondary windings are heavy brass ribbon wound spirally in specially slotted frames. The coupling between the two windings is variable by sliding the secondary up and down on a heavy brass rod. It may be locked in place by a set-screw. The woodwork is finished in dark mahogany. Every inch of the brass ribbon is accessible to the clips. Two clips are furnished with each instrument. The construction of the transformer is such that it may be mounted vertically on the operating bench or ceiling, or horizontally on the wall.

No. 555 Amco Junior Oscillation Transformer..... \$4.00

Shipping weight, 6 lbs.



## Amco Junior Spark Gap



No. 550

zinc. Zinc is superior to all other metals for this purpose. The points are removable. The gap is adjustable through a distance of one inch. *Shipping weight, 8 ounces.*

**No. 550 Amco Junior Spark Gap, 5 inches long. . . . . 55 Cents**

## Spark Balls



No. 7603

Spark balls will be found to be much more efficient than a spark gap when a small coil is used in sending messages which are to be picked up with a coherer. These balls are made of the best spun zinc. They may be adjusted for any desired length of spark by simply loosening one of the binding posts and sliding them back and forth. They are made so that they may be mounted directly on the secondary terminals of one of our coils.

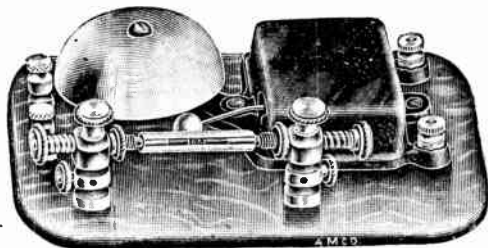
**No. 7603** One pair of Double Adjustable Polished Zinc Jump Spark Balls,  
1 3/4 inch diameter, together with two brass sending rods and stands 95 Cents

*Shipping weight, 10 ounces*

## Coherer and De-coherer

This coherer is capable of finer adjustment than our No. 7600. It is made of the very finest material throughout. The coherer arms are fitted with micrometer screws so that they can easily be adjusted to one-thousandth of an inch.

The apparatus is mounted upon a mahogany finished base. It is designed for use in connection with a relay and sounder.



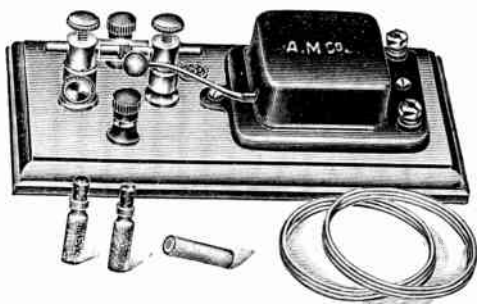
No. 7602

**No. 7601** Coherer alone . . . . . **\$1.35**      *Shipping weight, 1 lb.*  
**No. 7602** Coherer and De-coherer. . . . . **\$2.00**      *Shipping weight, 2 lbs.*

## Amco Coherer and Decoherer

The coherer is a device almost too well known to need description. It may be used in connection with a relay and sounder or bell to receive wireless signals or to give warning that a message is coming. For distances not exceeding one mile these coherers will perform their work exceedingly well.

The instruments are mounted on a seasoned hardwood base. All metal parts are japanned or nickel plated. The coherer arms are silver plated. The coherer is provided with a decoherer which strikes against the glass tube and decoheres the filings as soon as an electric wave causes the relay to move.

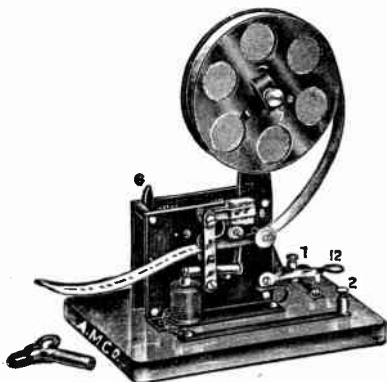


No. 7600

We supply a package of very sensitive filings, an extra tube and a pair of "catch" wires.

No. 7600 Coherer and Decoherer complete as described..... \$1.00  
 Weight packed, 1½ lbs.

## Printing Tape Telegraph Register



No. 7605

This instrument is almost an exact duplicate of those used in large telegraph offices, but is built on smaller lines. It is provided with a spring motor which winds up with a key. It is fitted with an ink wheel, tape reel exactly as shown in the illustration, and when connected to an ordinary telegraph line will print the messages in dots and dashes on the paper tape.

If you have a telegraph line with your chum you do not need to be on hand to receive a message. The machine will print it in your absence.

The register may be connected to one of our coherers and will print wireless messages providing the distance is not over one mile. Only one dry cell is required to work the register. This is one of the best methods of learning the telegraph code, for the clicks are translated into dots and dashes before your very eyes.

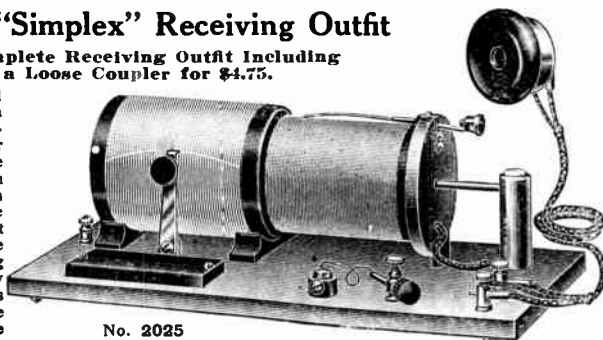
Shipping weight, 2 lbs.

No. 7605 Printing Tape Telegraph Register, size over all 5½x4x7 ins.  
 Weight, one pound. Comes carefully packed in a box..... \$3.50  
 No. 7606 Extra roll of tape for above..... .10

## Amco "Simplex" Receiving Outfit

A Complete Receiving Outfit Including  
a Loose Coupler for \$4.75.

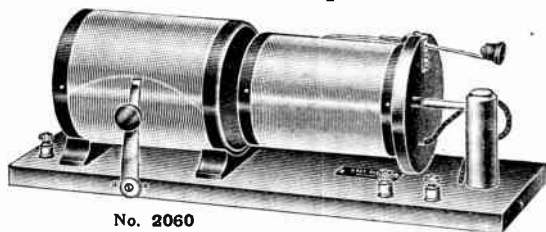
This loosely coupled receiving outfit is a winner. It is another member of our "Simplex" Line which has proven so popular with boys. A loose coupler makes it possible to secure much finer tuning and consequently greater distances than a double slide tuning coil. The loose coupler supplied with this outfit is our well-known "Simplex" instrument. The set consists of the loose coupler together with a sensitive cat-whisker detector and a fixed condenser all mounted on a hardwood base. The instruments are all connected at our factory so that they are ready for operation when you receive them. Considerable advantage is derived by purchasing a receiving set complete, for the instruments are then permanently connected by experienced workmen and there is no possibility of a faulty circuit which might lower the efficiency. Our receiving outfits stand pre-eminently in a class by themselves among high grade popular outfits. They are the very finest it is possible to make and are far superior to anything of the kind offered in imitation. Comparative tests have proven them to be absolutely unexcelled in reliability, efficiency, appearance and construction. All the woodwork on the Simplex Loose Coupled Receiving Outfit is carefully finished. The metal parts are brass, buffed and gold lacquered. The separate parts will be found listed in the back of this catalog.



No. 2025

		PRICE	WEIGHT
No. 2024	Complete Simplex Receiving Set.....	\$4.25	6 lbs.
No. 2025	Complete Simplex Receiving Set with a 75 Ohm Telephone Receiver with Cord.....	4.75	7 lbs.
No. 2026	Complete Simplex Receiving Set with Telephone Receiver, one lb. of Aluminum Aerial Wire, 25 feet of Ground Wire, and eight Porcelain Aerial Insulators.....	5.50	9 lbs.

## Amco "Simplex" Loose Coupler



No. 2060

A trial will prove to the most skeptical the truth of the assertion that this instrument is superior in sensitive selectivity to many instruments costing five times as much.

The primary consists of over 120 turns of heavy copper wire wound over a specially treated non-shrinkable tube. The primary is varied by a switch which moves back and forth making connection with each and every turn of wire. The secondary slides in and out of the primary so that the coupling may be varied through a wide range at will.

Here is a loose coupler within the reach of everybody with which it is possible to obtain the very finest tuning selectivity. We are willing to place it in comparative competition with any other loose coupler or receiving transformer of any other make. The simplification of materials and structure is all that makes the price difference.

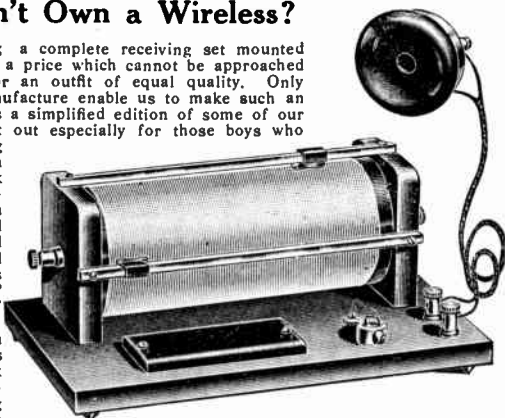
The secondary is varied by means of a slider which moves over the top of the coil and which makes contact with any number of turns at will. Most loose couplers have a switch on the end of the secondary so that it can only be varied in groups of several turns at a time, but the "Simplex" is so arranged that any number of turns from 1 to 175 can be had, and this is one of the features which accounts for the wonderful results it is possible to obtain with this tuner. The slider is so arranged that it operates whether the secondary is inside the primary or not. The woodwork is all carefully finished. All metal parts are brass, buffed and lacquered. The instrument is the same loose coupler described in "Wireless Construction and Installation for Beginners." Parts will be found listed in the back of this catalog. *Shipping weight, 3 lbs.*

No. 2060 Amco "Simplex" Loose Coupler, size 12 x 4 x 4 inches, weight 1½ lbs. \$3.15

**A COMPLETE RECEIVING SET FOR \$2.98. Here is the set young America has "gone crazy over." This set has received messages 500 miles.**

## Who Says He Can't Own a Wireless?

One of our great amateur offers; a complete receiving set mounted upon a base and all connected, at a price which cannot be approached by any other firm in America for an outfit of equal quality. Only the large quantities which we manufacture enable us to make such an offer. This set is a winner. It is a simplified edition of some of our larger sets and has been brought out especially for those boys who wish to buy an efficient receiving outfit but who are prevented on account of a limited pocketbook from buying a larger, more elaborate outfit. It consists of a double slider tuning coil, mounted on a hardwood base with a fixed condenser and a sensitive mineral detector. We have named this outfit the "Simplex Receiving Set" and it is the same outfit described in Chapter III. of our book "Wireless Construction and Installation for Beginners." The separate parts will be found listed in the back of this catalog. Considerable advantage is derived in purchasing one of our complete receiving sets for the instruments are then carefully tested and permanently connected at the factory.



The low price of the "Simplex Outfit" should not mislead anyone into thinking that the quality or efficiency of any essential parts have been sacrificed or that the set is a miniature of a larger set. It measures 9 x 6 x 4 inches. The woodwork is carefully finished. The metal parts are brass, buffed and gold lacquered.

	PRICE	WEIGHT
No. 2020 Complete Simplex Receiving Set.....	\$2.49	5 lbs.
No. 2021 Complete Simplex Receiving Set with a 75 ohm Telephone Receiver and Cord.....	\$2.98	6 lbs.
No. 2022 Complete Simplex Receiving Set with Telephone Receiver, 1 lb. Aluminum Aerial Wire, 25 ft. Ground Wire, and eight Aerial Insulators	\$3.75	8 lbs.

## Amco "Simplex" Detector



No. 2070

This Detector consists of a turned brass cup mounted upon a wooden base with a phosphor bronze "cat-whisker." The detector is recommended to beginners and is especially adapted to galena. The cup is provided with a set screw to clamp the mineral in position. Two brass binding posts are provided to facilitate connections. All metal parts are buffed and gold lacquered. This is the same detector described in our book "Wireless Construction and Installation for Beginners."

No. 2070 Amco Simplex Detector, size 2¼ x 1¾ x ¾ inches..... 30c.  
No. M2070 Complete Set of Parts for Assembling Simplex Detector 25c.

*Shipping weight, 4 ozs.*

## Amco "Simplex" Fixed Condenser

Consists of a fixed condenser of proper capacity contained within a black enameled metal case. The material used to space the tinfoil has a very high di-electric strength and will not easily puncture. The condenser terminals consist of two flexible silk covered wires led through the top of the case. This is the same condenser described in Chapter IV. of "Wireless Construction and Installation for Beginners." *Shipping weight, 4 oz.*

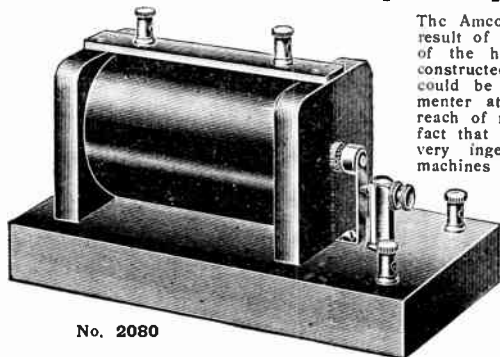


No. 2075

No. 2075 Amco Simplex Fixed Condenser..... 35c.  
No. M2075 Parts for Building the Simplex Fixed Condenser yourself 25c.

HERE IT IS AT LAST A Chance for Every Boy to Own a Spark Coil

## The Amco "Simplex" Spark Coil



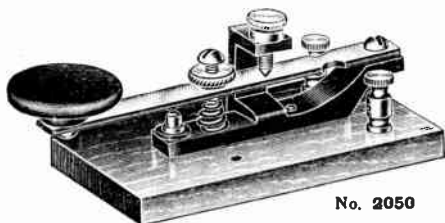
No. 2080

The Amco "Simplex" Spark Coil is the result of our endeavor to produce a coil of the highest quality throughout, but constructed along simple lines so that it could be offered to the young experimenter at a price which is within the reach of most boys. It is a well known fact that our factory is fitted with some very ingenious semi-automatic winding machines which enable us to build coils far more efficiently and at a lower cost than any other manufacturer. We give our customers the benefit by selling them coils which are of a higher quality than those sold by other firms for more money. Most other manufacturers have given up trying to wind their own coils and now buy their windings from us.

The Amco "Simplex" Spark Coil enables any boy to perform the hundreds of interesting and extraordinary experiments that can only be performed with an induction coil capable of giving a good strong spark. For instance, the most beautiful and startling effects can be obtained by connecting any of our Geissler tubes to the secondary of the coil. This coil will light five or six of the tubes at the same time. If an old incandescent lamp is connected to one of the secondary terminals of the coil it will emit a wierd greenish light in the dark when the coil is set in operation. The spark from the coil will charge a Leyden jar, ignite gunpowder, puncture paper. An unlimited number of other experiments may be performed. This spark coil will form an efficient transmitter for your wireless station and will send good clear signals easily from one-half to one mile. If you wish to become familiar with wireless telegraphy, X-Rays, etc., you must experiment with a spark coil first. All the good features of the most up-to-date coils are incorporated in the "Simplex." The insulation is the highest, internal sparking is quite impossible and we will cheerfully replace any Junior Coil on which the secondary breaks down or burns out, provided that no more than six volts have been connected to the primary. It only requires three or four dry cells to operate the coil and they will last a very long time on account of the small amount of current consumed. The secondary is wound with enameled wire and has two layers of insulating paper between each layer of wire. The coil will give a hot spark one-half inch long. A longer spark than this can be obtained by changing the adjustment of the vibrator. The vibrator contacts are very large and are hardened so that they will last indefinitely. A condenser of large capacity is connected across the interrupter so as to eliminate sparking at the contacts. The base is wood, finished in mahogany. The ends are imitation ebony. All metal parts are brass, gold lacquered. The complete coil is 3 in. long, 4 in. wide and 5 in. high. Weight lbs. This is the same coil described in Chapter VI. of "Wireless Construction and Installation for Beginners." Parts for building the coil yourself will be found elsewhere in this catalog. *Shipping weight, 5 lbs.*

No. 2080 Amco "Simplex" Spark Coil ready for operation, packed in strong box \$2.60

## Amco "Simplex" Wireless Key



No. 2050

wood base and provided with two binding posts. **Shipping weight, 1 lb.**

No. 2050 Amco Simplex Wireless Key . . . . . 56 cents

*Shipping weight, 1 lb.*

## Amco Spark Coils

Amco Spark Coils are made especially for use in wireless telegraph work. The spark is very thick and heavy. Moreover in building them we have not endeavored to save every possible cent's worth of material in order to increase our profit or reduce the selling price.

Our spark coils are widely known as being far superior to all other makes of coil on the market. We manufacture them in large quantities and are able to turn out a better coil at the same cost than any other concern. We are equipped with automatic winding machinery of our own design and manufacture, and for a long time have made a specialty of furnishing all sorts of windings for use in spark coils, magnetos, transformers, telephones, telegraphs, etc., to other manufacturers who have recognized high quality of material and workmanship we put into our products.

**WILL GIVE FIFTY PER CENT. MORE SPARK THAN THEIR RATED LENGTH.**

Amco Spark Coils are made somewhat larger than would actually be necessary in order to get the results from them that ordinary coils give. This generous design has been faithfully carried out in the construction of all the various parts of the coils and has resulted in a considerable increase of efficiency. For instance, in the case of the ordinary spark coil rated at "one inch," you have to *overwork* the coil in order to secure a one inch spark. Quite the contrary is true in the case of an AMCO spark coil and you are *underworking* an AMCO one inch spark coil when you get an inch spark, because they will in most cases give fifty per cent. more than their actual rating. By this we mean that an AMCO one inch coil will give a spark *one and one-half inch long* between sharp needle points. Coils somewhat lower in price than ours can be purchased in the open market. The lower price is only made possible by reducing the size of the windings and the quality of the platinum used in the contacts. When you buy one you get exactly what they are advertised to be and that is a *cheap coil*. These are some of the reasons why you get a better instrument and far more value when you buy an Amco Spark Coil.

**AN AMCO COIL LASTS LONGER, LOOKS BETTER, SENDS FARTHER AND USES LESS CURRENT THAN ANY OTHER.**

TYPE B.



No. 7415

Type B Coils are enclosed in hardwood cases finished in dark mahogany. The metal fittings are all brass. The vibrators are specially made for wireless work. They will operate at high speed and with uniform, positive action. They can be very accurately adjusted.

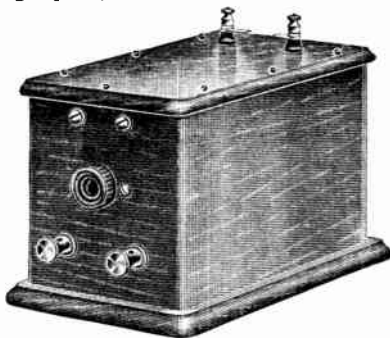
			SHIPPING WEIGHT	PRICE
No. 7411	¼ inch	Spark Coil.....	4 lbs.	\$2.20
No. 7413	½ inch	Spark Coil.....	5 lbs.	3.20
No. 7415	1 inch	Spark Coil.....	7½ lbs.	4.50
No. 7417	1½ inch	Spark Coil.....	8 lbs.	6.50
No. 7419	2 inch	Spark Coil.....	9 lbs.	9.00
No. 7421	3 inch	Spark Coil.....	11 lbs.	18.00
No. 7423	4 inch	Spark Coil.....	20 lbs.	30.00

### UNUSUAL EFFICIENCY. THE IDEAL SMALL TRANSFORMER

## The Amco Humming Transformer

(Humming Spark)

This transformer is a radical departure from all ordinary transformer building and is entirely different from anything else of the kind in existence. It is absolutely one of the most unique pieces of wireless apparatus ever put on the market. Its wonderful efficiency and operation are due to brand new principles entering into its design and construction. It is another instance where the ADAMS-MORGAN Co. makes good its claim of always being ahead of all competitors and of always being the first to market new ideas which



others afterwards imitate. More than fifty per cent. of all wireless instruments offered by competitors are poor attempts at imitating something of "AMCO" manufacture and design. The transformer operates directly from the alternating current supply without any electrolytic interrupters, impedance or resistance coils. It does not blink the lights or cause them to flicker. There is no "kick-back" on the line to cause trouble with your other apparatus. This statement cannot be made of any other transformer.

**THE IDEAL TRANSMITTER.** Unlike any other transformer it does not send out a mushy or hissing spark but gives forth a PURE MUSICAL HUM that rings clear in the receivers and is very easy to read. The tone never varies; it is always the same, humming pure and clear among the sounds of other stations.

#### SIGNALS ARE READABLE THROUGH INTERFERENCE

No condenser or helix are required with this transformer, which is a big saving in itself. Simply connect the secondary terminals to the spark gap and to the aerial and ground, and high voltage high frequency currents will go surging through the aerial system, sending out waves that produce a peculiar humming tone easily recognizable at the receiving station. The voltage of the transformer is over twenty-five thousand volts and the spark will jump over an inch between the secondary terminals. A low voltage transformer never charges the aerial properly and is one of the reasons why low voltage transformers never give good results. The spark discharge is very thick and flaming. This transformer will send twenty-five miles under ordinary conditions. That is all that we claim. It will really send much farther, so we have a safe margin. In the hands of an experienced amateur or on the west coast, where greater distances are possible than in the east, 100 miles would not be difficult to obtain. The transformer is enclosed in a hardwood case, carefully finished.

No. 7658 Humming Transformer..... \$9.00 Shipping weight, 15 lbs.

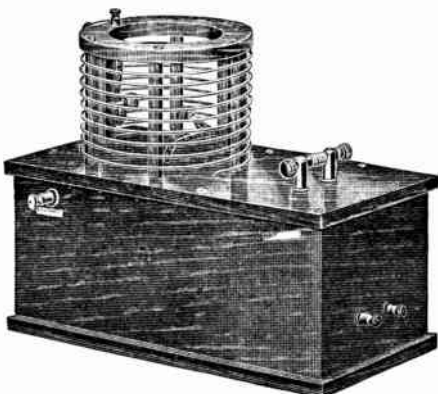
## The Amco Peerless Transmitting Set

**THE NEATEST, MOST EFFICIENT TRANSMITTER MADE**

This transmitting set is so far superior to anything of a similar nature that there can be no comparison. The combination in one set of the many desirable features embodied in the separate instruments has resulted in an unusual degree of efficiency.

**You will be Justly Proud of This Equipment**

The Peerless Transmitter is constructed in a compact unit, beautifully finished, with all woodwork carefully stained and polished and the brass work gold lacquered. The set comprises one of the famous Gnome



Transformers mounted in a case with a glass plate oscillation condenser. The spark gap and the helix are mounted on the top, convenient for adjustment. The spark gap is of special design made purposely for this set and is very carefully and substantially built. The helix is also of special design. The coil is of heavy spring brass, spaced so as to give the greatest inductive effect. Every inch of wire is accessible to the clips. The instruments are all connected and ready for operation. Simply connect the power wires and the aerial and ground as indicated by the small name plates. No impedance coils or rheostat are required. The current consumption is exceedingly small so that the nuisance of flickering lights is avoided. The range is from twenty-five to fifty miles under ordinary conditions. Under favorable circumstances or over water twice this distance may be readily obtained. Made for alternating current only.

**Ideal Wherever a Compact, Efficient Transmitter is Desired**

The Peerless Transmitting Set is all that can be desired. Camps, yacht owners or any one requiring a small, compact transmitter of the highest efficiency will find the Peerless to fill every requirement.

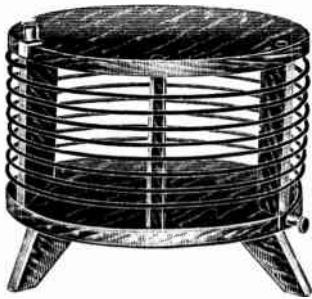
No. 7430 Peerless Transmitting Set .....	\$25.00
No. 7431 Peerless Transmitting Set with Oscillation Transformer in place of Helix.....	28.00

*NOTE—If a Wireless Key is desired and it is purchased together with this set ten per cent. may be deducted from the regular price of the key.*

**The Construction and Operation of the Amco "Simplex" Apparatus is fully explained in our book, "Wireless Construction and Installation for Beginners." Price, 25 Cents Postpaid.**



## Amco Oscillation Helix



The transmitting range of any station may be increased several times by using a helix of careful design and construction. We have given considerable thought and time to the design of the helixes listed above, with the result that the Amco Helix will make a very appreciable increase in the range of a station when substituted for any other. Exceedingly close tuning of the transmitting circuit can be effected with these helixes. Every inch of wire is accessible. The frame is of well seasoned hardwood, carefully stained and

polished. The coil is of very heavy spring brass, spaced so as to give the greatest inductive effect. Two lacquered spring clips, fitted with hard rubber handles, are furnished with each helix. This helix is especially suitable for use with our "Gnome" transformer. The secondary is formed by the top turns. The primary is the two lower turns. With leads of short length and proper condenser capacity, this inductance will give 200 meters in the closed circuit.

No. 7620 Amco Oscillation Helix... \$3.50

Shipping weight, 10 lbs.

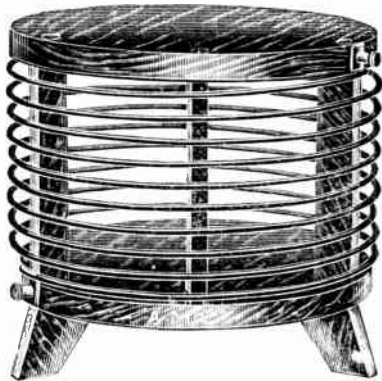
## Amco Helix or Transmitting Tuning Coil

This helix is of the same design as our No. 7620, but is much larger and heavier. The height and diameter of the coil are greater and the brass wire much heavier and longer. Two clips furnished with each coil. Suitable for all stations using a large induction coil or a transformer.

7622 Amco Helix,  $\frac{1}{4}$  K. W.... \$6.00

7624 Amco Helix,  $\frac{1}{2}$  K. W.... 10.00

7626 Amco Helix, 1 and 2 K. W. 15.00



309 So. Ohio Street, Butte, Montana, April 3, 1912.

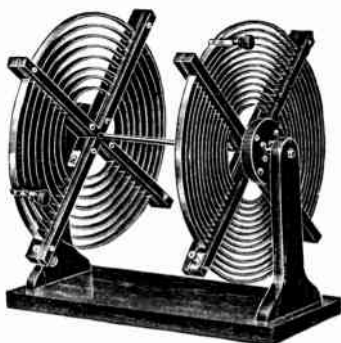
Adams-Morgan Company, Montclair, New Jersey.

Dear Sirs:—I received the Amco rotary condenser and insulator and am well pleased with both. The condenser works to perfection and is a beautiful instrument. I am enclosing P. O. money order for 40 cents for which please send me post paid another insulator No. 7342. Please send me a catalog or pamphlet showing the different lead-in insulators and porcelain insulators such as are used to mount wireless instruments on. I remain in eager anticipation, yours truly,

HAROLD SATTER.

## Amco Oscillation Transformer

An important and exclusive feature of the Amco Oscillation Transformer lies in the fact that it permits either direct or inductive coupling in such a degree that a *pure*, well maintained wave, which can be closely tuned at the receiving station, is easily secured. It will work wonders in decreasing the damping and raising the efficiency of a station. Every portion of both windings is accessible to the clips so that the variation of inductance is gradual, thus insuring absolute resonance between the two circuits and permitting the radiation of a greater amount of energy from the aerial, instead of wasting it in heat at the spark gap.



**An Amco Oscillation Transformer is necessary in order to produce the Pure Wave in Compliance with the new Federal Regulations.**

The range of a station using one of these oscillation transformers is not only greatly increased, but the wave made pure so that interference is largely eliminated.

The primary and secondary windings are heavy brass ribbon wound spirally in specially slotted frames. The coupling is variable by a sliding movement of the secondary coil. The woodwork is all finished in dark mahogany, nicely polished. All metal fittings are brass. The instrument is of very pleasing appearance and may be set either on the operating bench or mounted on the wall.

Its use is recommended in every amateur station because interference with naval and commercial stations may thereby be avoided.

No. 7628 Amco Oscillation Transformer up to 1 K.W. capacity..... \$6.75  
Shipping weight, 10 lbs.

## Sectional High Tension Condenser



(FIVE SECTION)

This high tension condenser is made of thin brass plates with composition dielectric, formed under high pressure. Each section has a capacity of approximately .0015 M. F. This condenser is of the highest quality and can be safely recommended. The capacity is slightly too great for use with induction coils and the sections are recommended for transformer work only.

PRICE  
No. 7644 High Tension Condenser  
per section ..... \$2.00

Shipping weight per section, 4 lbs.

## The Amco Gnome Transformer

### A WIZARD OF POWER AND RELIABILITY

The line of famous high potential transformers to which the Gnome belongs is the recognized peer of any other on the market for wireless telegraph purposes. One of the most important branches of our business is winding transformers for ozone machines, armatures for automobile magnetos, spark coil secondaries, telephone induction coils, ringer magnets and almost a thousand other forms of coils and electro-magnets. All this vast experience in designing and making coils for various purposes has been incorporated into the manufacture of our coils and transformers.

The Gnome Transformer is a wizard of power and reliability. It contains all of the desirable features of the largest machines and the same high grade of workmanship. The output is more than six times the energy derived from an induction coil of twice the price. It represents unequalled value, only made possible by the best of manufacturing facilities and quantity of production. It will send from 25 to 50 miles under ordinary conditions and much farther under favorable circumstances. The power consumption is small and the nuisance of flickering or blinking of the electric lights is thereby avoided. No impedance coil or rheostat are required.

The secondary potential is unusually high, making it possible to store a large amount of energy in the condenser and aerial in a short space of time. All losses or leakage are carefully guarded against. Each transformer is carefully tested before leaving our factory.

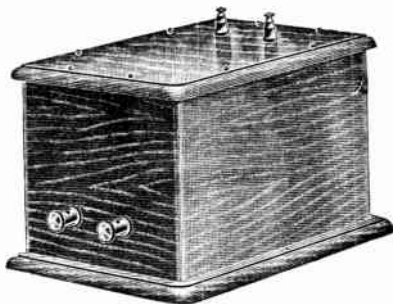
#### THE IDEAL TRANSFORMER

The Gnome Transformer cannot be too highly recommended. It is the equal of any  $\frac{1}{4}$  K.W. machine of other make. Its marvelous reliability and efficiency have brought us more satisfied customers than any amount of advertising could possibly do.

The transformer is enclosed in a well finished hardwood case, beautifully stained and polished. It is provided with lacquered brass primary and secondary terminals. It is a beautiful instrument, in construction, reliability and finish.

No. 7659 Gnome Transformer . . . \$12.00 *Shipping weight, 22 lbs.*

**The Peer of any other make of  $\frac{1}{4}$  K. W. Transformers on the Market**



## Wireless Key



This is undoubtedly the best small wireless key on the market. It is a standard telegraph key fitted with extra heavy contact points, bearings and strap. This key will not heat up, even if 30 amperes are passed through it. The insulation is MICA throughout. Contacts are removable. Well suited for coils up to 12 inches.

No. 7663 Wireless Key . . . . . \$1.95 *Shipping weight, 1 lb.*

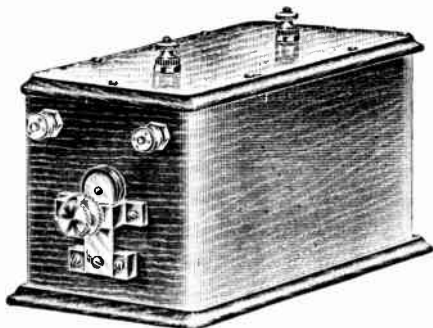
Washington, D. C.

Dear Sirs:—The order about which I wrote you yesterday has been received this morning. The workmanship and finish of your Receiving Transformer exceeded my expectations. It is without a doubt, the best that I have seen at anywhere near the price.

KARL E. KRITSCHE.

## Wireless Spark Coils

### TYPE A



Our Wireless Spark Coils are undoubtedly the finest instruments of their kind ever placed upon the market. Our coils are much larger than other coils of the same rated spark length. We put more material into them and they can be depended upon to give a spark which is much longer than our rating. All of our coils will give 50 per cent. longer spark than their rated length, which is to say that our one-inch spark coil will easily give a spark over an inch and one-half long.

Designed purposely for wireless and high frequency work. The spark produced is very hot and thick and is guaranteed to be of the rated length provided the proper number of good batteries

are used. The interrupter contact points are extra heavy platinum iridium, shunted by a primary condenser of proper capacity to reduce the sparking to a minimum. Nos. 7422 and 7424 are provided with adjustable condensers built in ten sections.

These coils are positively the most efficient and well made coils now on the market. The secondaries of the Type A coils are wound with enameled wire with two servings of oiled insulating paper between each layer of wire. The cases are beautifully stained and polished. All metal parts are buffed and gold lacquered.

The Type B coils are not so highly finished as the Type A, in order to meet the demand for a lower priced instrument. They must not however, be considered to be cheap in any sense of the word, but first class coils minus the polish.

			PRICE	SHIPPING	WEIGHT
No. 7410	Spark Coil,	$\frac{1}{4}$ inch spark on 4 dry cells.....	\$3.00		4 lbs.
No. 7412	" "	$\frac{3}{8}$ " " " " 5 " " .....	3.60		4 lbs.
No. 7414	" "	$\frac{3}{4}$ " " " " 5 " " .....	4.80		7 lbs.
No. 7416	" "	1 " " " " 6 " " .....	5.40		7 lbs.
No. 7418	" "	$1\frac{1}{2}$ " " " " 6 " " .....	8.40		11 lbs.
No. 7420	" "	2 " " " " 8 " " .....	12.00		11 lbs.
No. 7422	" "	3 " " " " 8 " " .....	20.00		
No. 7424	" "	4 " " " " 10 " " .....	32.50		

## Amco Kick-Back Preventer

The proper protection of the system supplying current to a wireless transformer or induction coil from possible short-circuit and burnout from "kick-back" requires the use of a reliable kick-back preventer.

The Fire Underwriters require that two  $\frac{1}{2}$  micro-farad condensers be connected in series across the primary circuit supplying the spark coil or transformer. The center connection between the two condensers is connected to a good ground. The condensers are protected by two fuses and two needle spark gaps.

The Amco Kick-back Preventer meets all of these requirements and is the only really reliable device of its kind on the market.

Mounted on a nearly finished hardwood base and provided with all of the necessary binding posts.

No. 7657 Amco Kick-back Preventer..... \$4.50

Shipping weight, 3 lbs.

## Amco Adjustable Oscillation Condenser



The transmitting range of an ordinary induction coil can be more than doubled by connecting a properly built oscillation condenser across the spark gap. The Amco Oscillation Condenser is more efficient and durable than any other instrument designed to serve a similar purpose. It will change the spark of an ordinary induction coil to a thick, white, crashing discharge, which can be heard a long distance away.

The Leyden jars are each separately removable and are constructed throughout in a similar manner

to those used in the most modern European wireless telegraph stations. They are coated with heavy tin-foil which will not blister. The frame is made of the best seasoned hardwood, carefully finished and proportioned, so as to add to the appearance of any station. Each jar is seven inches long. The four-jar set is suitable to coils giving sparks from 1 to 1½ inches in length, the six-jar set to coils giving from 1½ to 2 inches, and the eight tube set to coils giving from 2 to 3 inches. The jars are connected in series multiple, so that the voltage is divided between them and they are impossible to puncture.

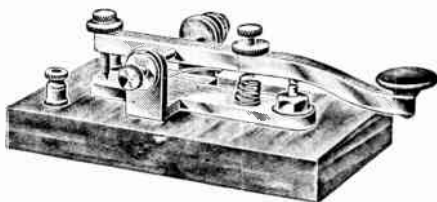
No. 7640	Amco Four Tube Oscillation Condenser.....	\$2.00
No. 7642	Amco Six Tube Oscillation Condenser.....	2.75
No. 7644	Amco Eight Tube Oscillation Condenser.....	3.50

*Shipping weight, 5 lbs.*

## Amco Wireless Key

**BEAUTIFULLY FINISHED. PERFECT BALANCE**

This is our No. 7660 Wireless Key mounted on a base of polished "Blue Dove" marble. It is provided with two large binding posts so that it may be readily connected. The metal parts are nickel plated and polished. The auxiliary spring gives the lever an excellent balance, making it possible to telegraph smoothly and rapidly



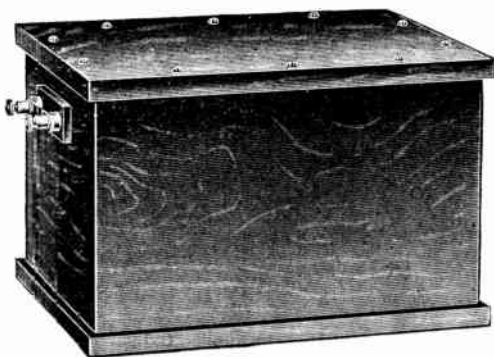
without fatigue. Bushings are of mica. A truly beautiful key.

No. 7661	Wireless Key on marble base.....	\$7.50
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*Weight 3½ lbs., packed 6 lbs.*

## Amco Closed Core Transformer

Amco Transformers are the recognized peer of any wireless transformer now on the market. They have been designed by competent engineers who have had long experience in this field, and are entirely above comparison with any of the instruments advertised by mail order houses and amateur experimenters. They are entirely self-contained and self-regulating. No impedance coil or rheostat is required. They



are twenty-five to fifty per cent. more efficient than any type of transformers employing a metal tongue to produce magnetic leakage, so that the current impulses correspond with the voltage.

The voltage of the AMCO transformers is one hundred per cent. higher than any other similarly rated machine. The potential is in the neighborhood of 12,000—16,000 volts, and will jump  $\frac{3}{4}$  inch without a condenser. The ordinary transformer only gives 8,000 to 12,000 volts, which is insufficient to properly charge the aerial. For this reason the AMCO transformers will send 25 to 50 per cent. farther than others of equal rated capacity.

The secondary is wound with many thousands of turns of enamelled wire, carefully insulated with two servings of oiled paper between each layer. It is then impregnated and wound with an insulating cloth which requires 8,000 volts to puncture a single thickness. It is impossible to break down the secondary of an AMCO transformer.

Each lamination of the iron core is dipped in insulating paint to prevent the eddy current losses present in a core built up in the ordinary way. The binding posts are large and heavy.

Each transformer is carefully tested before leaving our factory and is fully protected by the ADAMS-MORGAN guarantee. A cheap transformer will prove dear at any price and the cost of an AMCO is more than justified by the increased signalling range and reliability. A  $\frac{1}{4}$  K.W. transformer of our make will transmit from 25 to 200 miles. You cannot make a mistake by buying an AMCO transformer.

The merits of the AMCO transformers have been appreciated by several makers of ozone apparatus and they are now in daily operation in many of the large hospitals, etc. The transformers are enclosed in a highly polished mahogany finished case with heavy terminals and insulating bushings.

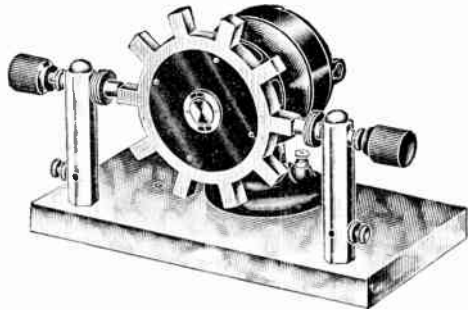
No. 7650	$\frac{1}{4}$ K. W. Transformer.....	\$15.00
No. 7652	$\frac{1}{2}$ K. W. Transformer.....	25.00
No. 7654	1 K. W. Transformer.....	35.00

*Prices of larger machines or special windings upon application*

## Amco Rotary Gap

**Will Increase the Efficiency and Range of Your Transmitter  
THE BEST ROTARY GAP ON THE MARKET**

The Rotary Spark Gap is a device which has recently found an extended application in both private and commercial installations. Now that the power of amateur stations has been limited to 1 K.W. by the Department of Commerce and Labor the only way open to increasing the transmitting range of a station is to increase its efficiency. The Amco



Rotary Spark Gap will go farther in this direction than almost any other device. It has been constructed with the utmost care according to the most approved design and produces a high musical note which can be very easily read through interference. It operates with entire absence of heating.

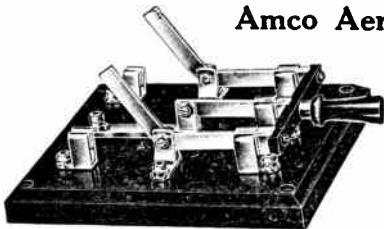
One of the features of the Amco Rotary Gap not found in others is the mounting of the electrodes on the periphery thus rendering impossible any changes in the sparking distance such as take place in a gap in which the electrodes are mounted on the face, due to play in the shaft of the motor.

The Amco Rotary Gap not only produces a high note the frequency of which may be varied from 50 to 500 a second at will, but prevents arcing and will double the indication of a hot wire ammeter in most cases. The instrument is very attractive in appearance and is mounted upon a polished marble base. The rotary electrodes are cast solid and machined to fit. They are cast from a special alloy which has been found to possess a very high efficiency and being light permits the motor to start and stop very rapidly. The motor is of the enclosed type and is fitted with ample bearings and mica insulated commutator. The rotary electrodes are insulated from the shaft by a heavy rubber bushing. The stationary electrodes are provided with check nuts and insulating handles. The Amco Rotary Spark Gap is the highest grade instrument of its kind on the market. Quotations upon larger or special types upon request.

	PRICE
No. 7633 Amco Rotary Spark Gap, capacity up to 1 K.W., motor to operate on four dry cells.....	<b>\$12.00</b>
No. 7635 Amco Rotary Spark Gap with motor to operate on 110 v. A. C. or D. C. in series with lamp.....	<b>15.00</b>
<i>Shipping weight, 15 lbs.</i>	

**NOTICE.—If you show this Catalog to your friends, kindly ask them when writing for same to inclose five cents in stamps to help cover postage and mailing expenses.**

## Amco Aerial Switch

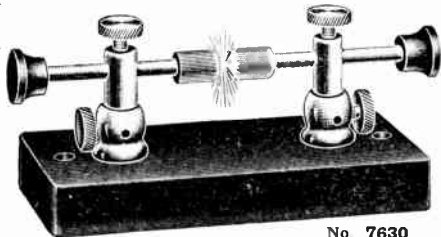


By the use of bent knife blades it is possible to operate this switch by moving the handle through but sixty degrees. Arranged with three contacts on the receiving side and two on the sending side, this switch is adapted for use in any of the usual wireless telegraph circuits and is suited to stations ranging from the smallest up to 2 K.W. in capacity. Finished in bright copper, on heavy hardwood base.

No. 7690 Aerial Switch..... \$1.95      Shipping weight, 5 lbs.

## Amco Zinc Spark Gap

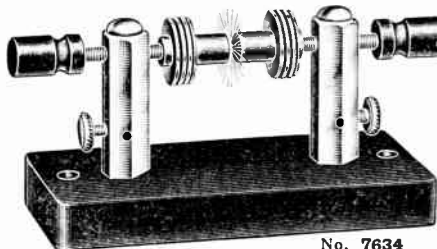
The peculiar properties of zinc make it particularly efficient for the electrodes of a spark gap. The little gap shown here has two zinc electrodes of generous proportions, mounted on brass rods, provided with insulating handles so that the spark gap may be easily adjusted while the gap is in operation. The base is of moulded hard rubber composition and all metal parts except the electrodes are brass, polished and lacquered. The standards are provided with screw holes to accommodate any ordinary sizes of wire. This spark gap is designed for use on spark coils which will give up to a three-inch spark.



No. 7630

No. 7630 Amco Zinc Spark Gap..... 75 cents      Shipping weight, 1 lb.

## Amco High Efficiency Spark Gap



No. 7634

This is a very efficient spark gap and will give far better results than any other small gap on the market. The remarkable results obtained with this type of gap has led to its adoption by several well-known manufacturers of high frequency apparatus. The secret of its efficiency lies in the method of constructing the electrodes and radiating fins so that all heat is dissipated as fast as it is generated. When a spark becomes hot the spark has a tendency to arc, with a noticeable falling off of the high frequency currents. The standards are hexagonal brass rods. The electrodes

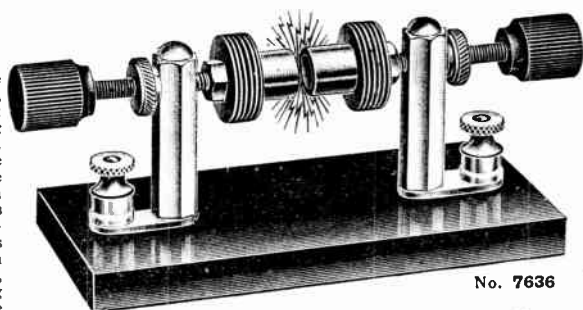
are ELECTROLYTIC COPPER, mounted on threaded brass rods fitted with insulating handles. Each electrode is fitted with four large radiating disks which offer a large cooling surface and consequently dissipate the heat. The threaded rods upon which the electrodes are mounted permit of very fine adjustment of the spark gap. The base is hard rubber composition, thus insuring excellent insulation. This gap is recommended for coils giving from  $1\frac{1}{4}$  to 4-inch spark and for transformers up to  $\frac{1}{4}$ -K.W.

No. 7634 Amco High Efficiency Spark Gap..... \$1.20  
Shipping weight, 1 lb.



## Amco Spark Gap

This spark gap is designed for use with transformers of any size up to 1 K. W. The standards are hexagonal brass rods, mounted on foot straps, which connect to the binding posts. The electrodes are provided with large radiating disks which dissipate all heat as fast as it is generated. The electrodes are mounted on threaded brass rods, fitted with insulating handles so that the gap may be adjusted while in operation. Locknuts are provided so that the adjustment may be made permanent. The base of the spark gap is genuine hard rubber, thus insuring excellent insulation. A special metal is used for the electrodes so as to obtain the highest possible efficiency and wearing qualities. This gap has no superior. It is very efficient and will give far better service and results than any other on the market. Size 7x3x4 ins.

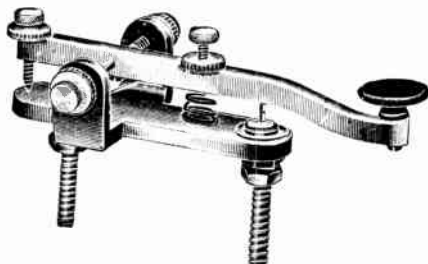


No. 7636

No. 7636 Amco Spark Gap ..... \$4.00

Shipping weight, 2 lbs.

## Amco Transmitting Key, United Wireless Type



This is a heavy key, milled from brass castings. It is of especially fine design and finish. Although of heavy construction, our unique auxiliary spring and carefully balanced lever permit operation with the utmost ease and comfort. Wireless operators have long recognized this and there are more of these keys in commercial service than any other type made.

The auxiliary spring also serves the purpose of relieving the pivots from carrying a heavy current. Large contacts of our own special alloy eliminate all sparking. The contacts are adjustable and removable, so as to permit accurate alignment. Seven inch cast brass lever, with hard rubber knob. All metal parts heavily nickel plated; mica insulating bushings.

No. 7660 Amco Wireless Key..... \$5.50

Shipping weight, 3 lbs.

Montgomery, Ala.

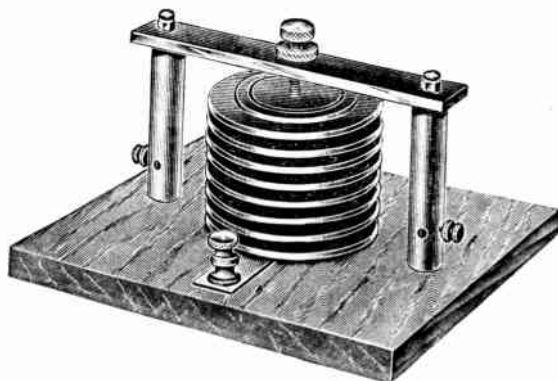
Gentlemen:—Pardon delay in owning receipt of the rotary spark gap, with 110 volt A. C. motor, encased in sound-proof box. The gap is fine, and I thank you for the excellent workmanship. There is no sound at all in our home and the motor runs very smoothly without heating.

Yours very truly,

W. H. AMERINE.

## Amco Quenched Gap

ENTIRELY ELIMINATES THE NOISE FROM SPARK



In offering the "Amco" Quenched Spark Gap we are placing before the experimenter the most distinct advance that has been attained in wireless experiment in recent years.

The unusual efficiency of the quenched gap is almost too well known to need comment. It will increase the hot-wire ammeter

reading from 25 to 50 per cent. and produce louder, clearer signals than the ordinary form of gap. The results obtained by the use of a quenched gap are so remarkable that it is hard to believe that the same equipment is being employed. Quenched spark transmitting sets have been adopted by the United States Government and nearly all foreign countries. The Amco Quenched Spark Gap renders the emitted wave-length much sharper and will bring your equipment into compliance with the regulations of the Department of Commerce and Labor.

The Amco Quenched Spark Gap is absolutely noiseless in operation. A watch can be heard in the same room while transmitting. *The annoyance of the crashing discharge of a large coil or transformer is entirely eliminated with this gap.* The gap sections are turned from solid brass castings and are provided with large radiating fins which effectively dissipate the heat. The separators are the best grade of India Mica. The frame of the gap is machined from a heavy casting and provided with a setscrew so that the sections may be properly compressed. The base is dove marble, highly polished.

No. 7639 Amco Quenched Gap, eight sections, frame and separators complete, capacity up to and including 1 K. W. . . . . \$15.00  
Shipping weight, 20 lbs.

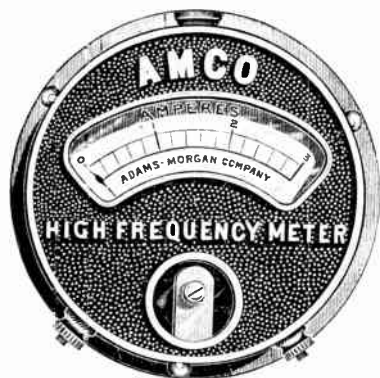


## Leyden Jars

These Leyden Jars are made of the best German glass jars, coated with heavy foil. They are excellent for all high frequency and wireless telegraph uses, there being practically no brushing.

		PRICE	SHIPPING WEIGHT
No. 7680	Half Pint Leyden Jar . . . . .	\$1.05	1 lb.
No. 7681	One Pint Leyden Jar . . . . .	1.26	2 lbs.
No. 7682	One Quart Leyden Jar . . . . .	1.50	3 lbs.
No. 7683	Two Quart Leyden Jar . . . . .	2.00	5 lbs.

## Amco Hot Wire Ammeter



A Hot Wire Ammeter is the only device for showing when the circuits are in exact resonance and the greatest amount of energy is being radiated by the aerial system. A pilot lamp is almost worthless, because it dampens the oscillations and lowers the efficiency of the transmitter. The meter shown here is carefully and substantially made. The instrument is encased in a heavy cast brass case, with an embossed cover. The scale is hand calibrated and furnished to read to one, three or five amperes, as ordered. Compensation for temperature changes is to be had by means of a hard rubber knob at the top of the instrument. Diameter, five inches.

No. 7670 Amco Hot Wire Ammeter \$6.00

Shipping weight, 4 lbs.

## Amco High Potential Oscillation Condenser

The Glass Plate Condenser has many advantages over the various forms of Leyden jars in stations of over  $\frac{1}{4}$  K. W. capacity. They take up only a small fraction of the space, are more efficient and the first cost is considerably less. These condensers are built of the finest selected plate glass, coated in the most approved manner. They are built in units and cast solid in a non-hygroscopic insulating material, which effectively prevents all corona or brush discharges.

The units are mounted in a box with separate connections led out from each, so that any desired capacity can readily be secured. These condensers are especially suitable for use with the Amco Transformers, but they will conserve the power and add to the efficiency of any station when substituted for the usual Leyden jars or a poorly built plate condenser.

No. 7645	Amco Oscillation Condenser for "Gnome" Transformer...	\$6.00
No. 7646	Amco Oscillation Condenser, $\frac{1}{4}$ K. W.....	9.00
No. 7647	Amco Oscillation Condenser, $\frac{1}{2}$ K. W.....	18.00
No. 7648	Amco Oscillation Condenser, 1 K. W.....	35.00
No. 7649	Amco Oscillation Condenser, 2 K. W.....	71.00

## Lightning Switch and Ground Wire



No. 7835

Required by the National Board of Fire Underwriters to ground the aerial when not in use as a protection against lightning. Consists of a single pole, double throw 100 amp. switch mounted on an asbestos insulating base.

No. 7835 Lightning Switch ..... \$3.00

Shipping weight, 6 lbs.

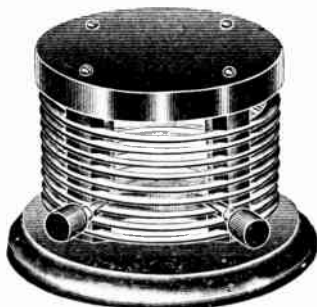
No. 4 E.S. gauge copper wire is required by Underwriters as a ground wire for lightning

No. 7836 No. 4 B. S. Copper Wire, price per foot..... 5 1/2 Cents

## Amco Oscillation Helix

This admirable Oscillation Helix is suitable for induction coils and transformers up to 1 K.W. The winding consists of nine turns of edgewise-wound copper ribbon. The top and base of the instrument are finished in dark mahogany and are highly polished. Two clips which snap on and off the ribbon are provided. One end of the ribbon is fitted with a binding post. This is a substantial high grade instrument of approved design and thorough workmanship. It is bigger and better than similar types of instruments which have been built in imitation. The tuning and range of almost any station will be improved by the addition of this instrument.

No. 7621 Amco Oscillation Helix, size  
9 x 9 x 6 inches..... \$4.80  
Shipping weight, 5 lbs.



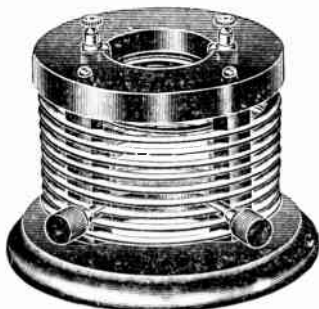
No. 7621

## Amco Oscillation Transformer

FOR 200 METER WAVE LENGTHS

This is a loosely coupled transmitting inductance designed so that the closed or primary circuit will have natural period of 200 meters, using leads about one foot in length and a condenser of the proper capacity. The primary consists of three turns of copper ribbon wound edgewise and placed inside of the helix near the top. The winding terminates in two binding posts mounted on the top of the instrument. The secondary consists of nine outside turns of edgewise-wound copper ribbon. The woodwork is finished in mahogany and carefully polished. Suitable for sets up to 1 K.W. Two clips are supplied with each instrument.

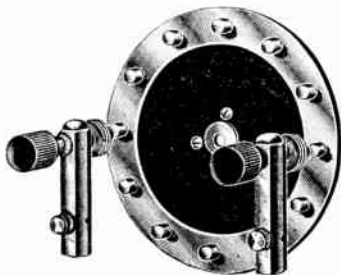
No. 7627 Amco Oscillation Transformer  
size overall 9 x 9 x 7 inches \$5.80  
Shipping weight, 5 lbs.



No. 7627

## Amco Rotary Gap Parts

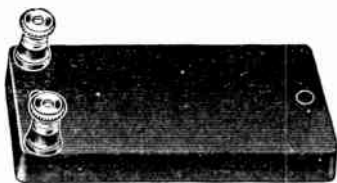
This rotary spark gap wheel consists of a hard rubber disk,  $5\frac{3}{4}$  inches in diameter, fitted with twelve brass spark electrodes. The electrodes are mounted upon a brass connecting ring. The disk is fitted with a cast iron hub. The hub is provided with a set screw and can be supplied to fit shafts,  $\frac{1}{4}$ ,  $\frac{5}{8}$  or  $\frac{3}{4}$  of an inch in diameter, from stock. Almost any other size can be supplied to order. Be sure to specify the shaft diameter of your motor when ordering. The stationary electrodes are electrolytic copper and are mounted on heavy hexagonal brass standards. The stationary electrodes are set upon threaded rods so that they may be carefully adjusted. Each electrode is fitted with four radiating disks which dissipate the heat. A knurled hard rubber composition knob on each electrode shaft permits them to be adjusted while the gap is in



No. M205

operation. Brass locknuts to maintain the adjustment are provided. All metal parts are carefully polished and lacquered. The wheel and electrodes are suitable for building a rotary spark gap which may be used with any transformer up to 1 K.W. The gap may be used to give a fine clear note with considerable increase in the efficiency of the station.

- No. M201 Amco Rotary Spark Gap Wheel,  $5\frac{3}{4}$  inches in diameter, as described **\$3.75**  
*Shipping weight, 2 lbs.*
- No. M203 Stationary Electrode and Upright complete with radiating fins, lock-nut and handle, per pair..... **\$1.50**  
*Shipping weight, 2 lbs.*
- No. M205 COMPLETE ROTARY WHEEL AND TWO STATIONARY ELECTRODES WITH UPRIGHTS, per set..... **\$4.95**  
*Shipping weight, 3 lbs.*



## Amco Fixed Condenser

This Condenser is an exceedingly efficient and high grade instrument, with respect to both workmanship and material. The condenser itself is entirely contained within the hard rubber composition base. The material used to space the tin-foil has a very high di-electric strength and

will not easily puncture. The condenser is of correct capacity.

- No. 7736 Amco Fixed Condenser..... **\$.80**  
*Shipping weight, 1 lb.*

## Amco Electrolytic Detector

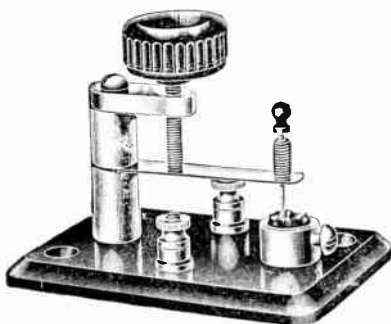
The Electrolytic Detector has long been acknowledged to be one of the most sensitive types of detectors ever devised. Long distance records are made with detectors of this kind. To be at its best however, an electrolytic detector should be so constructed that the fine Wollaston wire can be moved up and down with the utmost precision and with no side play. Some detectors now on the market allow the wire to wobble from side to side, rendering accurate adjustment impossible. The Amco Electrolytic Detector is the only one in which this fault is entirely overcome. The Wollaston wire is held in the lower end of a plunger which slides with machine fit, inside of a specially turned barrel mounted on a heavy cast brass upright. By means of the large thumb knob on the top of the instrument, the wire may be raised or lowered with micrometer accuracy. Provision is made for the easy renewal of the fine platinum wire. Finished in polished brass, gold lacquered, on composition base. A neat and efficient detector.



- No. 7718 Amco Electrolytic Detector..... **\$1.25**  
*Shipping weight, 1 lb.*

## Amco Peerless Crystal Detector

### A PERFECT DETECTOR STAND



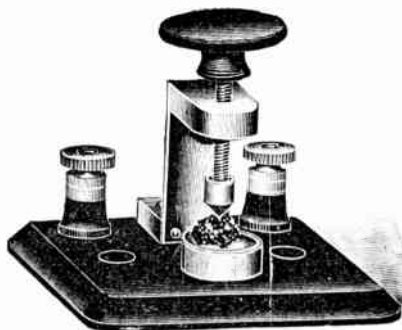
No. 7712

absorber so that when the detector is jarred the motion is taken up by the spring and the point will not move from its spot on the crystal. The contact pin is provided with a small rubber knob so that the metal parts do not have to be touched when adjusting the detector. The pin is arranged so that its adjustment is universal. It may be moved in any direction and brought into contact with any portion of the mineral in the cup below, so that the crystal may be very easily and quickly searched for the most sensitive spot. Base of detector and large knob are hard rubber composition. Metal parts are all brass, highly polished and gold lacquered. Base measures  $3\frac{1}{2} \times 2\frac{1}{2}$  and the detector is  $2\frac{3}{4}$  ins. high. It is a precision instrument of handsome appearance and unequalled efficiency.

No. 7712 Amco Peerless Detector..... \$2.25      Shipping weight, 1 lb.

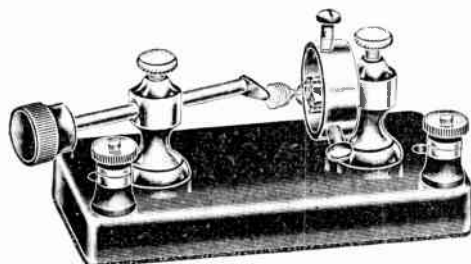
## Amco Vertical Detector

This Detector is unusually sensitive and has a wide range of usefulness, being adapted to the use of almost any crystal or metal. Two different types of electrodes are furnished with each instrument, one a plain conical point, the other a fine hair spring. The advantages of this will be readily appreciated by the careful experimenter. The cup will accommodate crystals of various sizes. The back of the standard is of spring brass, so as to permit of finer adjustment. All metal parts are of polished brass, finished in gold lacquer. The base and adjusting knob are moulded hard rubber composition.



No. 7710 Amco Upright Detector..... \$1.25      Shipping weight, 1 lb.

## Amco Crystal Detector



This Detector has been brought out to meet the demand of those who prefer a sensitive instrument in which the crystals may be permanently mounted. One standard is provided with a large cup for holding the minerals. The other supports a rod carrying a fine offset spring, of conical form, with sharp point. The rod slides back and forth and revolves in the standard, which turns from side to side, so that the point of the hairspring can be brought into contact with all portions of any of the crystals. All metal parts are heavily nickel plated and mounted on a hard rubber composition base. This is an exceedingly sensitive and well finished instrument.

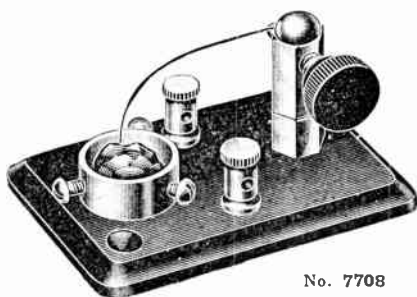
	PRICE
No. 7714 Amco Crystal Detector.....	\$2.25
No. 7715 Amco Crystal Detector, with condenser in base.....	3.25
<i>Shipping weight, 12 ounces</i>	

## Amco Cat-Whisker Detector

### COMMERCIAL TYPE

This type of detector may be seen in many commercial stations, where it has been adopted on account of its extreme sensitiveness and permanence and ease of adjustment. It consists of a large turned brass cup fitted with three set screws so that the mineral may be clamped tightly, and a "whisker" mounted upon one end of a horizontal shaft. The shaft is provided with a knurled rubber composition knob and it may be either revolved or twisted from side to side. The upright is pivoted, thus permitting the entire upper surface of the mineral contained in the cup to be searched for the most sensitive spot. The pressure of the "whisker" upon the mineral may be very carefully adjusted.

Both the shaft and the upright are so constructed that they will remain in any position in which they are placed. This type of detector is noted for its permanency of its adjustment and once the "whisker" is set on a sensitive spot on the mineral it will not easily lose that adjustment even though jarred. The metal parts are all brass so as to insure the highest efficiency. The base is rubber composition. The detector is provided with two convenient binding posts.



No. 7708

No. 7708 Amco Cat-Whisker Detector, finished in gold lacquered brass	\$1.50
No. 7709 Amco Cat-Whisker Detector, finished in polished nickel....	1.75
<i>Shipping weight, 1 lb.</i>	

## Amco Vertical Detector

This Detector is similar in general type to our No. 7710 but differs considerably in detail and finish. The base is polished marble and all the metal fittings are nickel plated.

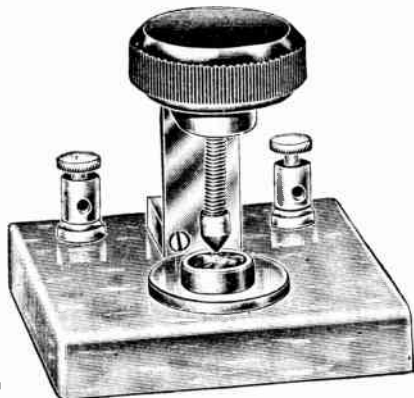
The electrode is in the form of a conical point and may be brought to bear with almost any degree of pressure upon the detector elements. The detector is provided with a spring back. The cup may be moved over a radius of one-half inch in any direction so that the most sensitive portion of the detector element may be easily and quickly found.

The adjustment knob is solid hard rubber, carefully turned and polished.

This detector is a very attractive instrument of extreme sensitiveness.

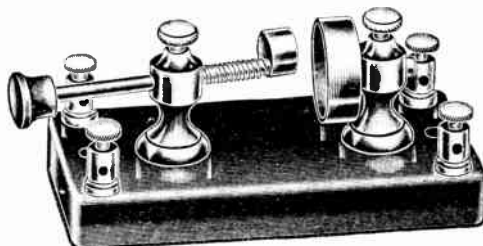
No. 7711 Amco Vertical Detector, nickel plated ..... \$2.50

Shipping weight, 12 ounces



No. 7711

## Amco Crystal Detector



No. 7717

All metal parts are heavily nickel plated and polished and are mounted upon a hard rubber composition base. The detector is provided with four binding posts two for the telephone receiver cords and two for connection to the tuning device. Weight, 12 ounces.

No. 7717 Amco Crystal Detector..... \$2.50 Shipping weight, 1 lb.

This type of detector is a general favorite among experimenters. One standard is provided with a large turned cup. The other supports a rod carrying a small offset cup. The rod slides back and forth and revolves in the standard, which turns from side to side, so that any substance placed in the small cup may be brought into contact with any portion of that in the large cup. A small spring acts against the cup so as to exercise a slight pressure between the detector elements.

## Amco Low Temperature Alloy

Melts below the temperature of boiling water. Used for mounting crystals. High temperatures destroy the sensitiveness of a mineral or crystal.

No. 1999 Amco Low-temperature Alloy, per ounce..... \$ .35 Postage, 2 cents

Adams-Morgan Company, Upper Montclair, N. J.

Dear Sirs:—I received the lighting outfit all right and like it well. Thank you.

Yours truly,

ARTHUR MARTIN.

Nashville, Tenn.



## Audion Bulb Detector

The Bulb Detector consists of a vacuum bulb containing two filaments of tantalum with a lead taken off at the connecting points of both filaments so that one filament may be used at a time. At the exhausting of one filament, the other may be resorted to. The bulb also contains a "grid" and a "plate" of nickel. The Bulb Detector not only ranks the highest in sensitiveness but possesses absolute stability of adjustment. Jarring or vibration cannot throw it out of adjustment.

The Bulb Detector is *one and one-half* times as sensitive as the electrolytic detector and *three times* as sensitive as the perikon. The signals are extremely loud and no difficulty is had in receiving most messages without putting the telephone receivers on the head. There is no detector on the market to-day which can equal this type of detector in sensitiveness, loudness of signals or stability of adjustment. Audion bulbs are furnished for renewal purposes only, and then only on return of the old bulb or the wing and grid system of an old bulb to us.

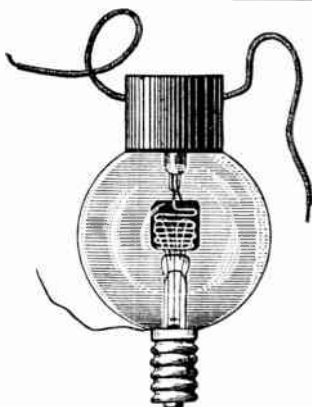
There are two general styles of Audion bulbs, those with tantalum filaments and those with Hudson filaments. The Hudson filament bulbs have a much longer operating life than the tantalum bulbs, their average life being from 800 to 1,000 actual burning hours. Both styles of bulbs are supplied in the standard or type "S" grade and also in the extra-sensitive or type "X" grade.

No. 8000	Type "S" Grade Standard Audion Bulb (Tantalum Filament)	\$3.50
No. 8001	Type "X" Extra Sensitive Audion Bulb (Tantalum Filament)	5.00
No. 8002	Type "S" Grade Standard Audion Bulb (Hudson Filament)	5.00
No. 8003	Type "X" Extra Sensitive Audion Bulb (Hudson Filament)	7.50

Amplifier bulbs are not exchangeable for Audion bulbs and are made in "X" grade only.

No. 8004	Audion Amplifier Bulb with tantalum filament	7.50
No. 8005	Audion Amplifier Bulb with Hudson filament	10.00

Shipping weight, 2 lbs. Allow 5 cents extra for insurance



No. 8000-01

## Audion Detector, Type RJ4

### LICENSED FOR PRIVATE USE ONLY

The merits of the Audion are to-day too generally known to require lengthy detailing. It possesses a sensitiveness from one-half to three times that of the electrolytic or crystal detectors, and represents the highest development of wireless detecting apparatus known to science. Tests conducted by the United States Bureau of Standards have shown it to be fully fifty per cent. more sensitive than any other form of detector (Bulletin, Bureau of Standards, Vol. 6, No. 4, P. 540).

Its adjustment is instantaneous, and is unaffected by mechanical or electrical disturbances. This instrument is complete in itself, the only necessary connections being to the secondary terminals of the tuner, to the phones, and to a four-volt battery. All these connections are plainly marked on the cabinet. Throwing on the switch at the right of the Audion bulb to the left or right, lights one or the other of the filaments. The battery switch at the left of the lamp and the rheostat lever are then moved to a position where signals are at their best. After these adjustments are once made, the throwing off of the switch instantly places the detector out of service. *Do not keep the Audion bulb lighted when not using the instrument.* These detectors are thoroughly tested before shipment, and are guaranteed to leave our factory in perfect working order. This detector may be operated by three dry cells. The best results, however, are obtained from the use of a storage battery. The cabinet is hardwood, finely polished. All metal parts are brass, buffed and lacquered.

No. RJ4 Audion Detector ..... \$18.00      Shipping weight, 10 lbs.



No. RJ4

## Audion Detector, Type RJ5

LICENSED FOR PRIVATE USE ONLY



No. RJ5

being received, and the extraordinary

This instrument is complete in itself, the only necessary connections being to the secondary terminals of the tuner, to the phones, and to a four-volt battery. All these connections are plainly marked on the cabinet. Throwing on the two-point switch at the right of the Audion bulb lights one of the filaments. The battery switch at the left of the lamp and the rheostat lever are then moved to a position where signals are at their best. After these adjustments are once made, the throwing on or off of the two-point switch instantly places the detector in or out of service. After the first filament has been consumed wind the little copper wire tightly around the brass base of bulb underneath the rubber band. This connects the second filament. These detectors are thoroughly tested before shipment, and are guaranteed to leave our factory in perfect working order.

No. RJ5 Audion Detector ..... \$25.00      *Shipping weight, 12 lbs.*

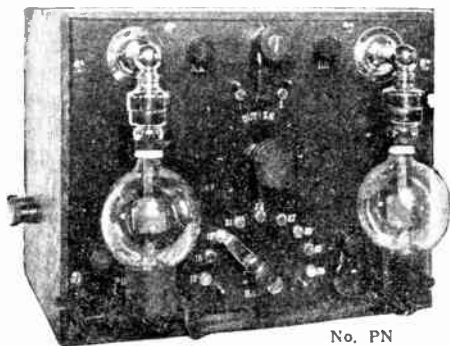
## Audion Detector, Type PN

(COMMERCIAL TYPE)

This is the most sensitive and reliable detector in existence. It is provided with two super-sensitive Audion Bulbs, high voltage local battery, potentiometer switch graduated to show voltage at any point, switch to change from one bulb to the other, and rheostat to change brilliancy of filament. Used by the U. S. Navy and Army. Finished in oak and hard rubber. Size,  $9\frac{1}{4} \times 9 \times 7$  inches. Thoroughly recommended for the very best stations. Three dry cells to light filament are necessary, but are not furnished at this price.

No. PN Audion Detector.. \$50.00

*Shipping weight, 20 lbs.*



No. PN

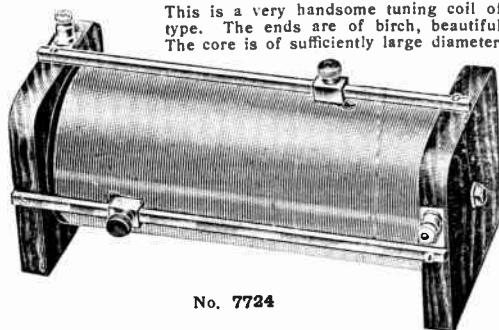
Winfield, Kansas.

Adams-Morgan Company, Upper Montclair, N. J.

Gentlemen:—I received the Midget Buzzer today and it is O. K.—just what I wanted.

Very truly yours,  
E. G. TUTTLE.

## Amco Tuning Coils



No. 7724

This is a very handsome tuning coil of the double-slide, close-coupled type. The ends are of birch, beautifully finished to match mahogany. The core is of sufficiently large diameter

(over 3 inches) to give enough range so that any station can be tuned in, even with a small aerial. It is wound with bare wire after special treatment, which eliminates the loosening of the wire due to temperature changes. The sliders are milled brass, which move with perfect freedom. The contact is formed by a spring which touches only one wire at a time, so that it is impossible to short circuit adjacent turns. This is a very valuable feature, which the careful experimenter, anxious for the best results, cannot afford to overlook. The ball

bearing slider used on many of the inferior grades of wireless telegraph apparatus is a clumsy makeshift forced upon the uninitiated by extravagant claims. This instrument is thoroughly well built and is really a beautiful piece of apparatus. The cylinder is wound with two hundred turns of wire, each one carefully insulated from the other. The wave length of this coil is considerably greater than that of any other of similar size. With the average amateur aerial and this tuning coil it is possible to tune to wave lengths up to about 800 meters.

**THREE SLIDE COILS**—We can supply our tuning coils with three sliders. The additional slider will wonderfully increase the selectivity and loudness of the signals.

### Our Tuning Coil for Long Wave Lengths

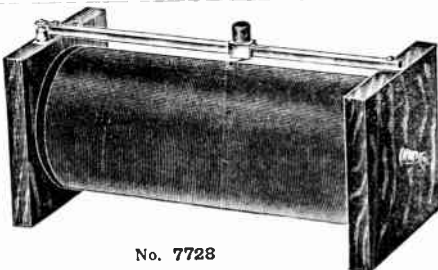
is fitted with three sliders and with the average amateur aerial will tune in waves up to 1,500 meters. With this coil it is possible to tune in practically any high power station in the country. The importance of this cannot be overestimated for unless you have a coil with which you can tune closely you are practically closed to high power stations.

	PRICE	WEIGHT
No. 7724 Amco Double Slide Tuning Coil, 9 inches long.....	\$2.00	2 lbs.
No. 7725 Amco Three-Slide Tuning Coil, 9 inches long.....	2.50	2 lbs.
No. 7726 Amco 3-Slide Tuning Coil for long wave lengths, 14½ in. long	3.50	4 lbs.

## Amco Loading Coil

Most of the larger high power radio telegraph stations now employ a wave length which is beyond the range of ordinary receiving transformers or loose couplers used in amateur or experimental stations, making it necessary to use a loading coil whenever it is desirable to receive stations having a long wave length.

The Amco Loading Coil consists of a large diameter non-shrinkable cylinder wound with a single layer of large silk covered wire and provided with a slider. The ends of the loading coil are finished in dark mahogany and carefully polished. All metal fittings are lacquered brass. The loading coil is connected in series with the aerial. The advantages of this form of loading coil are that it is wound in a single layer, thus reducing the effects of the distributed capacity of the winding itself and also that large wire is used so that the efficiency of the receiving set is increased rather than impaired as is usually the case when an ordinary tuning coil is used as a loading coil. The Amco Loading Coil contains approximately 300 turns of wire, each turn being over one foot long.

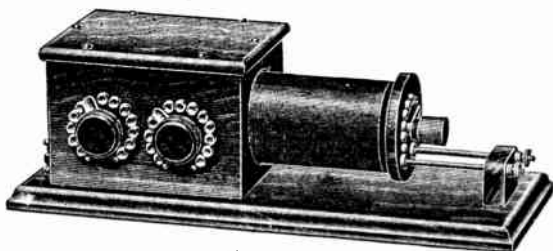


No. 7728

No. 7728 Amco Loading Coil, single slider, length 10 in. \$2.50 Shipping weight, 5 lbs.

## Amco Receiving Transformer

This Receiving Transformer is constructed according to the most approved design. The primary is enclosed in a cabinet having two multiple point switches on the front, fitted with large knurled hard rubber knobs. One switch controls the primary in groups of several turns and the other controls one turn at a time. The entire variation of the primary is thus secured by the rotary

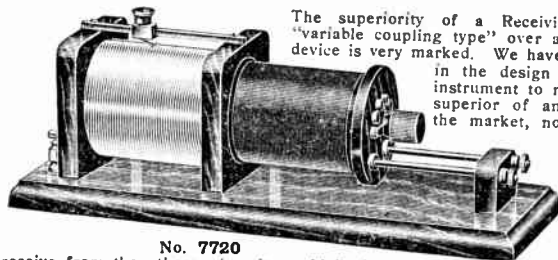


No. 7722

motion of a knob rather than the movement of a slider, and the primary may be varied to include any number of turns from 1-156 in *steps of one turn at a time*. The secondary is designed for long wave lengths and has *ten contact points*. Variation is had by means of a switch operating in the usual manner. It is possible to accomplish closer tuning with this transformer than with any other. To those who can appreciate its many points of excellence we offer this instrument as the finest tuner at present offered for experimental and private use. Beautifully finished in dark mahogany and highly polished, with gold brass trimmings.

No. 7722 Amco Receiving Transformer, 15x6x5 ins.... \$12.00 *Shipping weight, 12 lbs.*

## Amco Receiving Transformer



No. 7720

The superiority of a Receiving Transformer of the "variable coupling type" over any other form of tuning device is very marked. We have taken the greatest pains in the design and construction of our instrument to make it the unquestionable superior of any similar tuner now on the market, no matter what the price.

The proportions have been worked out only after the most exhaustive experiments, making it possible with this tuner to exclude any stations not wanted and at the same time to

receive from the others when it would be impossible to do so without its aid.

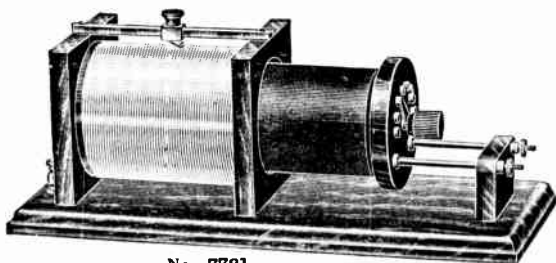
### The Most Serviceable and Efficient Loose Coupler on the Market

The design of this instrument is a step forward in the wireless art and has met with the praise of many experts. It more than satisfies the demands of even the most discriminating purchaser. It will increase your range wonderfully, and the sharp tuning impossible to obtain with other instruments will delight you. **LOUDER AND CLEARER SIGNALS** are easily obtained by using an Amco Receiving Transformer in place of your old tuning coil or other loose coupler. This is the instrument with which you can copy **LONG DISTANCE MESSAGES**. The primary is wound with bare wire on a specially treated cylinder, with a single slide contact, so arranged that it does not short-circuit the turns. The secondary is wound with silk covered wire on a concentric cylinder, which is carried on two rods and slides with easy movement in and out of the primary. The secondary is variable by means of a multi-pointed switch, controlled by the same handle that varies the coupling. The advantage of this cannot be overestimated. The instrument is beautifully finished in dark mahogany, and highly polished, with gold brass trimmings.

No. 7720 Amco Receiving Transformer, 14 x 5 x 5 ins. \$6.00 *Shipping weight, 5 lbs.*

## Amco Receiving Transformer

This instrument has earned the enthusiastic praise of experimenters by its splendid appearance and its excellent service in hundreds of stations throughout the country. It will surpass any other tuning transformer of other make offered for experimental use and we guarantee a perfectly satisfactory performance. The primary winding is bare copper wire wound on a non-shrinking tube four



No. 7721

inches in diameter. The secondary winding is green silk covered wire. The coupling is varied by movement of the secondary on two horizontal rods. The primary variation is by means of a smooth working slider and the secondary variation secured by an eight-point switch this making it possible to secure a much finer adjustment than is possible with many receiving transformers. It will tune to approximately 1500-1800 metres with a good aerial without a loading coil.

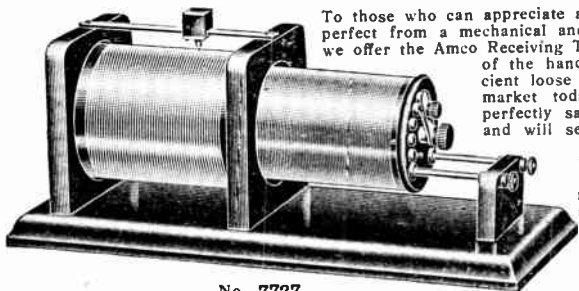
The woodwork is finished in dark mahogany, highly polished. All metal fittings are brass, polished and lacquered. The adjustment knobs are hard rubber composition.

Size of base, 6 x 15 x  $\frac{3}{4}$  ins. Weight of instrument, 4 lbs. Shipping weight, 7 lbs.

No. 7721 Amco Receiving Transformer..... \$7.00

## Amco Radio Receiving Transformer

AN INSTRUMENT OF UNUSUAL EFFICIENCY AND HANDSOME APPEARANCE



No. 7727

loose coupler in place of an instrument of other manufacture. The windings are unusually long and especially adapted to the close tuning of long wave length. The primary is wound with green silk wire on a specially treated cylinder and contains 155 turns of wire. We wish to call particular attention to the slider, which is made of genuine polished hard rubber. This type of slider is the same as that employed on all commercial instruments. The contact mechanism consists of a plunger working up and down inside of a brass tube and actuated by a spiral spring so that it does not short circuit the turns. The secondary is wound with silk-covered wire, on a concentric cylinder, which is carried on two rods and slides with easy movement in and out of the primary. The secondary is variable by means of a multi-pointed switch, constructed in the same approved manner usually found in high grade commercial apparatus. We wish to particularly call attention to the fact that

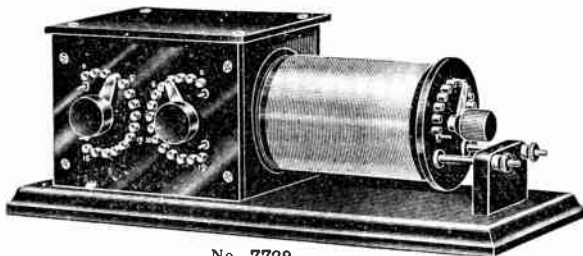
To those who can appreciate an instrument which is perfect from a mechanical and electrical standpoint, we offer the Amco Receiving Transformer. It is one of the handsomest and most efficient loose coupled tuners on the market today. We guarantee a perfectly satisfactory performance and will sell it to you with the understanding that your money will be refunded if the instrument and the result is such that it has more than satisfied the demands of the most discriminating. Louder and clear signals are easily obtained by using this

the secondary variation is secured in ten steps, this making it possible to secure a much finer adjustment than is possible with many other receiving transformers. The secondary is arranged so that it slides completely inside of the primary, a feature which will be readily appreciated by those familiar with the requirements of long distance work and close tuning. Instead of employing two springs inside of the secondary to make contact with the two guide rods, we employ a silk-covered double conductor which is soldered to the rods at the primary end. There are no loose or sliding contacts about the secondary of this instrument. The woodwork is all finished in dark mahogany and is highly polished. All metal fittings are brass, nickel plated and polished. The primary slider is hard rubber and brass. The secondary knobs are hard rubber composition. The instrument measures 15 x 6 x 6 inches over all and weighs four pounds. *Shipping weight, 8 lbs.*

No. 7727 Amco Radio Receiving Transformer, as described. . . . . \$9.00

## Amco Navy Type Receiving Transformer

HARD RUBBER



No. 7729

unsolicited testimonials from commercial operators and experienced amateurs who have purchased one of these transformers and been so pleased with the results obtained that they have not hesitated to write and advise us. The windings have only been designed after very careful experiments and tests, and we are certain that they cannot be improved. The illustration shown herewith cannot possibly do justice to the instrument itself. The primary winding is enclosed in a cabinet, the sides and top of which are polished hard rubber. Two 15-point switches are mounted on the front. One switch controls the primary in groups of several turns and the other controls one turn at a time. The entire variation of the primary is thus secured by the rotary motion of two knurled knobs rather than the movement of a slider, and may be varied from 1 to 225 turns in steps of one turn at a time. The windings are especially adapted to long wave lengths. The secondary is wound with green silk covered wire. The ends are HARD RUBBER, turned and polished. Secondary variation is secured by a 12-point switch which makes it possible to secure a very fine adjustment. The coupling is varied by moving the secondary in and out of the primary. Great pains have been taken in the design and construction of this instrument in order to make it the unquestionable superior of any other similar device on the market, and the results have exceeded our expectations. It is certainly a beautiful piece of apparatus, both from the standpoint of appearance and efficiency. We do not hesitate to say that it cannot be duplicated for the price. The base is finished in dark mahogany and carefully polished. Measures 15 x 6 x 6 inches overall.

No. 7729 Amco Navy Type Receiving Transformer, weight 4½ lbs. \$15.00  
*Shipping weight, 10 lbs.*

Brooklyn, N. Y.

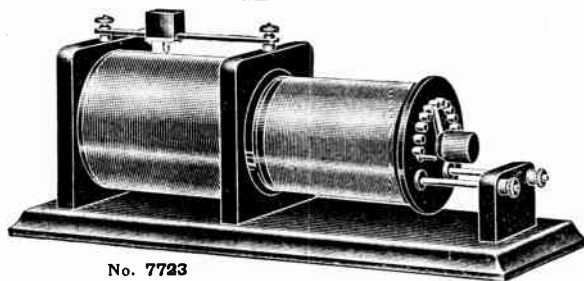
Dear Sirs:—I received your "Amateur Wireless Handbook" today and am very much pleased with it. I have found listed in the call letters a number of boats not mentioned in other call letter books.

Yours very truly,

E. VICTOR COLLINS.

## The Celebrated Amco Peerless Loose Coupler

GENUINE HARD RUBBER



No. 7723

This justly famed receiving transformer has met with such a tremendous sale that we have been enabled, by manufacturing large quantities, to reduce the selling price and to offer an instrument, far superior to any others of its kind, at a price which other manufacturers cannot hope to duplicate.

The primary heads, secondary heads, slider and support for the guide rods are GENUINE HARD RUBBER and are not moulded composition. Moulded composition is far cheaper and far inferior to real hard rubber. The primary is of large diameter and contains 160 turns of wire. It is especially adapted to receiving long wave lengths. The slider moves smoothly and evenly and is arranged to make contact with one turn at a time. It is the type of slider which will be found on most high grade commercial apparatus. The secondary winding is green silk covered copper wire connected to a 12-POINT SWITCH on the coil head. This is a larger number of contacts than will be found on most other instruments and permits therefore of closer tuning. The coupling is varied by the movement of the secondary in and out of the primary. We wish to emphasize that this instrument represents far greater value in efficiency, workmanship and materials than any other similar instrument. It has a record of performances to be proud of. The base is finished in dark mahogany and is carefully polished. Size 15 x 6 x 5 1/2 inches.

No. 7723 Amco Peerless Receiving Transformer..... **\$12.00**  
Shipping weight, 10 lbs.

## Amco Adjustable Fixed Condenser.

This widely imitated little instrument has met with popular favor ever since its first appearance. Experienced operators realize the desirability and necessity of having a fixed condenser of proper capacity. The ordinary fixed condenser has a capacity which might be termed a "happy medium" since it is a size which has been found to give the best average results. Different makes of telephone receivers require fixed condensers of different capacity. Close tuning and clear signals require that the fixed condenser be adjustable. The type of adjustable fixed condenser shown in the accompanying illustration was originated by Adams-Morgan Co. It consists of four fixed condensers contained in a hard rubber composition base and provided with four contacts connected so that it is possible to secure six changes in capacity by moving the sliding switch back and forth. The changes in capacity are equal and progressive so that this instrument MAY ALSO BE USED AS A SUBSTITUTE FOR AN ORDINARY ROTARY VARIABLE CONDENSER. All metal parts are brass, nickel plated and polished. This instrument will add considerably to the range and selectivity of any station. It provides a practical method of varying the heretofore fixed capacity of the detector circuit and is strongly recommended to the experimenter.



No. 7737

No. 7737 Amco Adjustable Fixed Condenser..... **\$2.50**  
Shipping weight, 1 lb.

## Amco Loading Inductance.



No. 7729

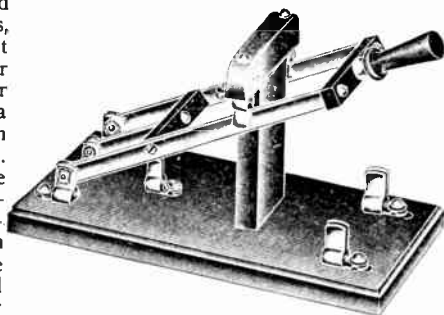
Since the average antenna and primary of a loose coupler do not possess sufficient inductance for properly tuning wave lengths of over 1,200 meters, it is necessary to have additional inductance in the primary of a receiving circuit in order to tune to waves of greater length. Our Loading Inductance shown in the accompanying illustration is a very neat and compact instrument for this purpose. It is very easily operated. It is provided with eight contact points, one point being non-active. Each step of the other seven active points will add approximately 400 meters wave length to the circuit. With an antenna 150 feet long or more and in connection with any of our receiving transformers, this instrument will permit the correct tuning of waves up to 4,000 meters in length. It is contained within a hard rubber composition base, plated and polished. This makes a very neat instrument and will add considerable to the efficiency and appearance of any set. *Shipping weight, 1 lb.*

No. 7729 Amco Loading Inductance, size  $4\frac{1}{2} \times 2\frac{1}{4}$ ..... \$2.50

## Amco Aerial Switch

Price \$2.50

This instrument is a decided innovation in aerial switches, and possesses superior merit for the rapid and sure transfer from receiving to sending or vice versa. It is mounted on a well seasoned base, finished in dark mahogany and polished. The contact clips and the blades are flexible rolled copper, insuring a perfect connection and making sticking an impossibility. The blades are very long, over 8 inches, and the separation between very large. The throw from either position of the switch is made by a  $4\frac{1}{2}$  inch up or down motion. A third auxiliary blade and contacts are provided, operated by the same throw and arranged to either automatically short-circuit the detector while sending, or cut off the transmitting power while receiving. The switch is thoroughly well built in every respect, and will prove a handsome and extremely useful part of any station. The change from receiving to transmitting can be made in a shorter space of time and more conveniently than with any other switch. It is without rival in appearance or efficiency.

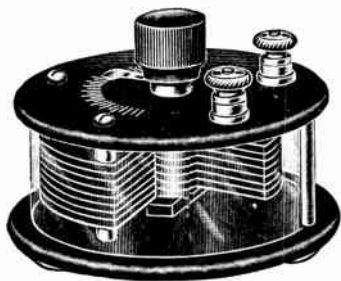


DON'T BE MISLEAD BY INFERIOR IMITATIONS OF THIS SWITCH  
 No. 7692 Amco Aerial Switch, made in one size up to  $\frac{1}{2}$  K.W..... \$2.50  
*Shipping weight, 5 lbs.*

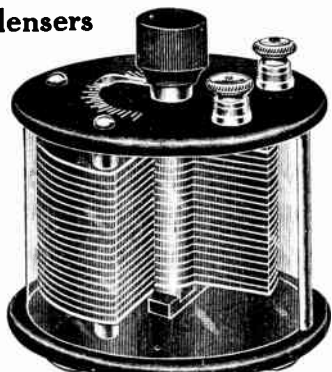
**ALWAYS MAKE SURE YOUR POSTAGE IS CORRECT.**



## Amco Variable Condensers



No. 7733  
Price, \$3.00



No. 7735  
Price, \$4.00

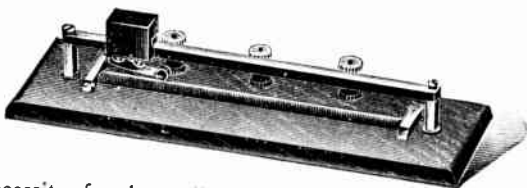
The two instruments illustrated above are without doubt the best variable receiving condensers on the market today. The main objects in view in developing and producing these instruments were to combine first-class materials so as to insure perfect mechanical and electrical action at all times and to give the greatest value in looks, materials and service of any condenser ever offered to amateur experimenters. That we have succeeded in producing two instruments which are far superior in value and more popular than any others on the market at the present time is readily conceded upon examining the condensers themselves. They outrival every other amateur receiving condenser manufactured from the standpoint of efficiency, and are particularly striking and handsome in appearance. They embrace the most value in appearance, materials, efficiency and service at the lowest price which ever has or will be offered. It may be positively asserted that these instruments are positively the cheapest and at the same time the best amateur variable condensers ever made. The following specifications give an excellent idea of the exceptional value offered, and the superiority of these instruments.

The condenser units proper are built up of semi-circular metal vanes. They are made in two sizes, one having 43 plates and the other 17. The total capacity of the 43-plate condenser is over .001 micro-farads. The total capacity of the 17-plate condenser is over .0004 micro-farads. Each condenser unit is attached to a circular black polished GENUINE HARD RUBBER top. Please note that when you buy these condensers you are securing real hard rubber and not composition. Real rubber is far superior. The top is provided with a 180 degree engraved scale, knurled knob handle, indicating pointer and suitable binding posts. The base is also genuine hard rubber and not composition. The method of mounting the plates, etc., is ingenious and very substantial. The case proper is transparent, giving a view of the operation of the plates. Unlike other manufacturers it is not necessary for us to hide the interior construction of our instruments and we have provided the transparent cases so that every detail may be seen. The condensers are similar in every respect save number of plates and height. The No. 7735 Condenser is 3 3/8 inches in diameter and 3 3/8 inches high. The No. 7733 Condenser is 3 1/8 inches in diameter and 2 3/8 inches high.

- No. 7735 Amco Rotary Variable Condenser, 43 Plates, 22 fixed and 21 movable, capacity .001 micro-farads, as described..... **\$4.00**  
*Shipping weight, 2 lbs.*
- No. 7733 Amco Rotary Variable Condenser, 17 Plates, 9 fixed and 8 movable, capacity .0004 micro-farads. Recommended for secondary receiving circuits, as described..... **\$3.00**  
*Shipping weight, 2 lbs.*

## Amco Potentiometer

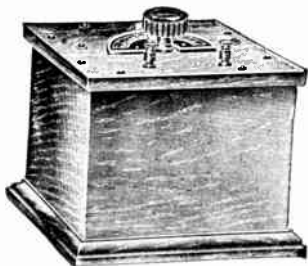
Provided with an indestructible resistance rod (not graphite), which always maintains perfect contact with the slider. Regulates either the current or the voltage, very gradually. A necessity for long distance work with the electrolytic or carborundum detectors. Brass parts gold lacquered, base polished quartered oak.



No. 7740 Amco Potentiometer,  $1\frac{1}{2}$  x 3 x 10 inches..... \$1.25

Shipping weight, 1 lb.

## Amco Rotary Variable Condenser



The greatest selectivity and longest range of a station are only possible when a variable condenser is used in the receiving circuit.

Our instrument consists of thirty-one semi-circular plates, sixteen stationary and fifteen movable, mounted in a beautifully finished hardwood case. A composition rubber handle fitted to a lacquered pointer moving over an engraved brass scale, controls the rotation of the plates and the capacity of the condenser. Careful attention has been given to all details of construction and finish, making this instrument the peer of all its imitations.

Furnished in either quartered oak or real mahogany.

No. 7730 Amco Rotary Variable Condenser..... \$7.00

Shipping weight, 5 lbs.

## UNSOLICITED TESTIMONIAL

Adams-Morgan Company, Upper Montclair, N. J.

Dayton, Ohio.

Dear Sirs:—I have received your letter of the 20th inst., giving instructions how to run your Pony Dynamo. I have taken the brushes out and found that they were coated with varnish. After sandpapering the brushes, I found that the dynamo run perfectly. I thank you for the information and wish to say that the dynamo was more than what I expected it to be.

Wishing you a Merry Christmas and a Happy New Year, I remain,

Very truly yours,

E. E. ZEILER.

## Brandes Superior Phones

These receivers are without doubt among the best that can be bought on the market today for very little money. The case is made of aluminum, insuring rigid construction and lightness. All the interior parts are nickel plated and polished giving them a handsome appearance. The bobbins are wound with No. 40 pure copper enameled wire to the proper number of turns which register a resistance of one thousand ohms per receiver. The diaphragms are .006 thick, tin plated, and the receivers are fitted with hard rubber caps. None of the material is substituted by a cheaper grade such as, for instance, in the cap and diaphragm which could be easily made of much less suitable materials and considerable money saved in the manufacture of these receivers. There is no question that these receivers are very substantially built and will do wonderful work for receivers sold at this price. In fact, we have reports from people who claim that they are better than receivers which cost as much as eight dollars per set.



No. 7770

		PRICE	SHIPPING WEIGHT
No. 7770	Brandes Superior Head Set, consisting of two 1000 ohm receivers, head band and cord, as illustrated.....	\$5.00	3 lbs.
No. 7771	Brandes Superior Head Set, consisting of two 1000 ohm receivers, leather covered head band and cord.....	4.50	3 lbs.
No. 7772	Brandes single 1000 ohm Superior Receiver, leather covered head band and six-foot cord.....	2.65	2 lbs.
No. 7773	Brandes Superior 1000 ohm Receiver only.....	1.65	1 lb.

## Amateur Wireless Phones

We are presenting these phones for the benefit of the experimenter who wishes a pair of high grade receivers embodying the *greatest sensitivity* at a lower price than our No. 7750 head-set. It is possible to offer these phones at a lower price by not giving them an elaborate finish. They are carefully and substantially built and are just the thing for the beginner. A test will convince you that they are superior to anything on the market at an equal price. Wound with *copper wire* (No. 50). We furnish a six-foot green silk cord with each pair of phones. Double pole magnets.



		PRICE	WEIGHT
No. 7760	Two thousand ohm Phones with cord and adjustable headband	\$4.25	3 lbs.
No. 7762	Receiver only (double pole, 1000 ohms).....	1.45	1 lb.
No. 7764	Leather covered Headband (single).....	.60	1 lb.
No. 7766	Nickel Clips to hold two 7764 together.....each	.15	.02
No. 7768	Six-foot double cord.....	.45	.02

## Wireless Telephone Receivers

**In Use in the U. S. Navy, Marconi Wireless Telegraph Co., and others**

These receivers are the best and most sensitive on the market, being made by skilled mechanics and carefully tested before leaving the factory. They have been adopted by the largest commercial wireless telegraph companies and are used by more amateur wireless operators than any two other makes considered together.

The headband is adjustable to fit any wearer and provided with a swivel, so that the phones are held firmly to the ear and all external noises excluded. The bands and receivers are finely nickel plated and polished. The caps are hard rubber highly polished. The diaphragms are coated with a special preparation to prevent rusting. The permanent magnets are made of the finest steel obtainable. Each headband and pair of phones is provided with a six-foot green silk cord. Wound to 1000 ohms per phone, but can be furnished any resistance.



No. 7750	Complete Head Set, two phones, headband and cord, 2000 ohms .....	\$6.35
No. 7751	One Head Receiver with headband.....	4.35
No. 7752	Receiver with three-foot cord.....	2.50
No. 7753	Head Band .....	2.00
No. 7754	Three-foot cord .....	.30

*No extra charge for mailing*

## Leader Wireless Head Phones

These are special receivers designed and constructed to satisfy the legitimate demand of those who want a sensitive article at a moderate price.

The cases are hard rubber composition with all the parts cast solid so that there is no possibility of disarrangement. The bobbins are wound with enameled copper wire to a resistance of 1000 ohms per receiver. The magnets are double pole and made from high grade steel which will retain its magnetism. The diaphragms are of the special thin wireless type and the adjustment is secured by accurate measurement at the factory so that the maximum sensitiveness is insured. Headbands are leather covered and cords are of generous length.

No. 7756	Single Set, 1000 ohm receiver, head band and cord.....	\$2.50
	<i>Shipping weight, 2 lbs.</i>	
No. 7757	Double Set, two 1000 ohm receivers, double adjustable headband and 5 foot cord .....	\$5.00
	<i>Shipping weight, 3 lbs.</i>	



No. 7757

## Holtzer-Cabot Receivers for Wireless Operators

### LIGHT WEIGHT MODEL



No. 7755

In purchasing wireless telephone receivers the important points to be considered are: first, their sensitiveness; second, the degree of comfort with which they can be worn; third, their permanence of adjustment and construction.

Our operator's head receivers have been designed with the above points in view. The windings are all made with silk covered copper wire. The magnets are from a special quality of steel and are of the proper strength to give best results with the diaphragms used. The spools and magnets are mounted in an aluminum cup which supports the diaphragms. The cores are ground to a proper height so that the adjustment is permanent. The ear pieces are of hard rubber and the binding posts are placed external to the case so that the cores can be replaced without opening the receiver.

In designing the present type of receiver special attention has been paid to the "pitch" as well as the sensitiveness. It has been determined that the human ear is more responsive to higher pitched notes than to lower ones; on this account our receivers have a high natural period which makes them more efficient on weak signals.

Our receivers are neat in appearance. The headbands are covered with hard rubber and are adjustable by two large knurled thumb nuts. The screws which clamp the bands are non-turning, and the liability of catching the hair is reduced to a minimum. The weight of the set complete is ONLY 10½ OUNCES. The receivers are fastened to the band by means of ball and socket joints, allowing them to move in any direction, and the design is such that they may be worn comfortably for hours at a time. Comfort, lightweight and sensitiveness are found in this set to a greater extent than any others, and we feel sure that the efficiency of wireless stations will be increased by the use of our receivers.

No. 7755 Holtzer-Cabot Operator's Head Set, 3000 ohms \$10.00 Shipping weight, 2 lbs.

## Murdoch Receivers, No. 1912

The bi-polar type of receiver is generally conceded to be the more sensitive and efficient. But we have succeeded in developing a single pole receiver which compares very favorably in wireless results with the bi-polar type of equal resistance. By special constructional design, we can produce these receivers at a price which is low enough to permit everybody to enjoy the added advantage of high resistance phones. The receivers are made of hard rubber composition of patented solid construction; have a single pole with a spool winding on each receiver to a resistance of 750 ohms. They are fitted with a metal rubber coated adjustable headband; have a five foot, green mercerized cotton cord and a diaphragm of our regulation wireless type. We cannot claim for these receivers any marvellous results, but we guarantee that they will show full value for the money. They are true high resistance phones, made especially for wireless, and are backed by our reputation, a certain guarantee that they possess desirable qualities. While we advise our higher priced receivers as the better investment, we believe that these receivers will prove sufficiently valuable in wireless service to make an efficient substitute at the lowest possible price for a complete double set.



No. 7758

		PRICE	SHIPPING WEIGHT
No. 7758	Complete Double Set, 1500 ohms.....	\$4.00	3 lbs.
No. 7759	Complete Single Set, 750 ohms.....	2.00	2 lbs.

## Murdoch Receivers, No. 50

For these receivers we are able to claim a record of satisfactory service which we think cannot be duplicated by any competitive makes. In nine years, we have never been forced to refund on these phones, although our guarantee is "money back if they don't make good." They are in service in thousands of stations, both commercial and experimental, working with sensitive precision over both long and short distances. They are remarkable for their ready response to weak signals, and still more so for their continuing sensitiveness, which makes their use for years a profit and a pleasure. We cannot recommend too highly the purchase of these receivers, as we honestly believe that in sensitiveness and in capacity for lasting service they are superior to any in their price class, and the equal of many selling at \$10.00 to \$15.00. Receiver cases are hard rubber composition. Magnet steel highest grade. Diaphragm thin and flexible. Headband nickeled German silver, split and adjustable. Cord is six foot, six tipped, green silk covered. Windings are enamelled copper wire.



Rubber covered band as on our No. 62 may be substituted for the all metal band at an additional cost of fifty cents.

RESISTANCE OHMS	RECEIVER ONLY	RECEIVER, HEAD- BAND AND CORD	RESISTANCE OHMS	TWO RECEIVERS, HEADBAND AND CORD
500	\$2.00	\$3.20	1000	\$5.50
750	2.50	3.70	1500	6.50
1000	3.00	4.20	2000	7.50
1500	3.50	4.70	3000	8.50
Shipping weight	1 lb.	2 lbs.		3 lbs.

## RECEIVING OUTFITS

The Amco Receiving Sets have been brought forward to meet the demand of those who wish their instruments in compact, portable form instead of scattered about the operating table. Considerable advantage is derived by purchasing a receiving set complete, for the instruments are then carefully tested and permanently connected at the factory and there is no possibility of a faulty circuit which might lower the efficiency.

Amco receiving outfits stand pre-eminently in a class by themselves among high grade popular outfits. They are the very finest it is possible to make and are far superior to anything of the kind offered in imitation. Comparative test has proven them absolutely unexcelled in reliability, efficiency, appearance and construction.

The instruments comprising the sets have been chosen so as to give considerable range of price and selection.

It is of course impossible to accurately estimate the range of any station because so many indeterminable factors such as the height and length of aerials, location, atmospheric conditions, etc., exert considerable influence, but in order to guide intending purchasers who have not had any great amount of experience in wireless, we have given the approximate distance that each outfit may be expected to receive from high power stations. All the sets are entirely self contained and provided with a unique Amco feature, namely, a small etched brass nameplate attached alongside of each binding post to indicate just where the GROUND, AERIAL, 'PHONES, etc., should be connected.

## 'PHONES

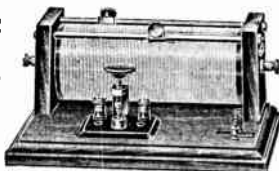
We have not included 'phones in the receiving outfits because many persons wish to exercise their own choice or already possess their own head sets. We would advise the use of our No. 7760 head set. If this set or any other 'phones listed in the catalog are ordered together with a set, a discount of ten per cent. will be allowed from the price of the phones.

*NOTICE*—The receiving ranges given in connection with the various sets described below presuppose the use of a suitable aerial and a sensitive pair of telephone receivers when receiving from a high power station.

## Amco Receiving Outfits, Type RA

### THE IDEAL SET FOR THE BEGINNER

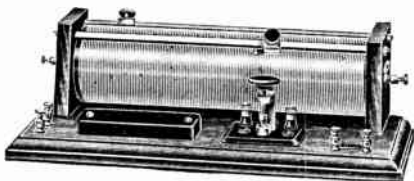
This outfit is a general favorite in amateur stations where a low priced, efficient receiving set, having a range of from 200—400 miles and of high class construction, is desired. The set consists of a double slide tuning coil, vertical detector and a fixed condenser is placed out of view inside of the tuning coil cylinder. The wiring is all entirely concealed being inlaid in grooves in the bottom of the base. The set is provided with binding posts for the AERIAL, GROUND and PHONES, each being plainly marked. Size,  $8\frac{1}{2} \times 10 \times 4\frac{1}{2}$ .



No. RA10 Receiving Outfit as described.... \$4.45 Shipping weight, 6 lbs.

## Amco Receiving Outfit, Type RB

### A VERY COMPACT AND EFFICIENT OUTFIT



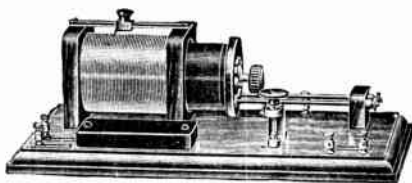
This is a larger set than the Type RA outfit, it being comprised of an extra large tuning coil for receiving long wave lengths, a vertical detector and a fixed condenser, all mounted on a mahogany finished base. The set is provided with two sets of extra binding posts to which a variable condenser may be attached in case it is desirable to increase the selectivity of the outfit. Range is from 266 to 600 miles. Size,  $8\frac{1}{2} \times 15 \times 4\frac{1}{2}$ .

No. RB10 Receiving Outfit..... \$6.60 Shipping weight, 8 lbs.

## Amco Receiving Outfit, Type RC

### AN IDEAL SET AT AN EXCEPTIONALLY LOW PRICE

This set is similar to the Type RB with the exception that it is provided with a loose coupled receiving transformer which permits very close tuning. Too much importance cannot be attached to this because if you wish to receive long distance messages it is absolutely essential to do some very close tuning. The loose coupler makes it possible. This outfit is also provided with two extra sets of binding posts to which a variable condenser may be attached. Range, 1000—1200 miles. Size,  $8\frac{1}{2} \times 15 \times 4\frac{1}{2}$ .



No. RC10 Receiving Outfit..... \$8.80 Shipping weight, 8 lbs.

Adams-Morgan Company, Upper Montclair, N. J.

Mount Pocono, Penna.

Dear Sirs:—Enclosed please find 86 cents in stamps for which please send me by parcel post one No. 7736 "Amco Fixed Condenser." The No. 7730 Rotary Condenser recently purchased is one of the finest instruments brought to my attention. Both in workmanship and in actual working value it is above reproach.

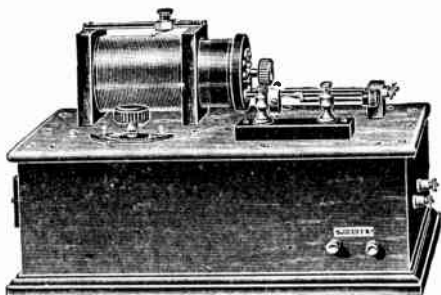
Thanking you for your prompt attention to my former orders, I am,

WM. A. LEECH, JR.

## Amco Receiving Set, Type RD

**AN EXCEPTIONALLY FINE OUTFIT OF EXTREME SENSITIVENESS AND SELECTIVITY**

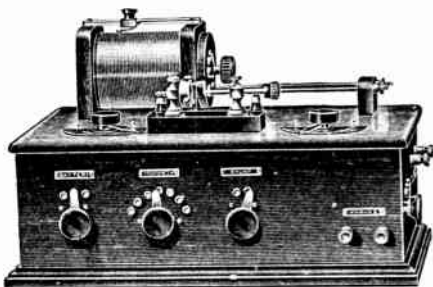
This is a set that the purchaser will be proud to own, and consists of a loose coupled tuning coil, a thirty-one plate rotary variable condenser, an extra sensitive detector, and a fixed condenser mounted on a mahogany finished cabinet. The condenser is enclosed in the cabinet with only the knob and pointer showing. No more desirable set, with the exception perhaps of our Type RE, can be purchased. The variable condenser in combination with the loose coupler renders the sharpest tuning possible and giving the outfit a range of from 1000—1600 miles when receiving from a high power station.



No. RD10 Receiving Outfit..... \$20.00 Shipping weight, 20 lbs.

## Amco Receiving Outfit, Type RE

**PRE-EMINENTLY THE PEER OF ANY OTHER RECEIVING SET**



This is the most complete and efficient of all our regular stock receiving equipments. It consists of a loose coupled receiving transformer, an extra sensitive detector, two 31-plate rotary variable condensers, and embodies in addition a loading coil, test buzzer, shunt switch and potentiometer. The two variable condensers and the loading coil enable the loose coupler to be used to the best advantage and make possible the highest degree of selectivity and range. The test buzzer is for the purpose of adjusting the detector and placing it in the most sensitive condition to receive the electric waves. The shunt switch is thrown when the detector is not in use or when sending so that the detector will not lose its adjustment.

The normal range of this set is from 1200—2000 miles when receiving from a high power station. From a standpoint of workmanship, reliability and efficiency it stands pre-eminently the peer of any other outfit.

No. RE10 Receiving Outfit ..... \$45.00 Shipping weight, 25 lbs.

Adams-Morgan Company, Upper Montclair, N. J.

Pacific Grove, Cal.

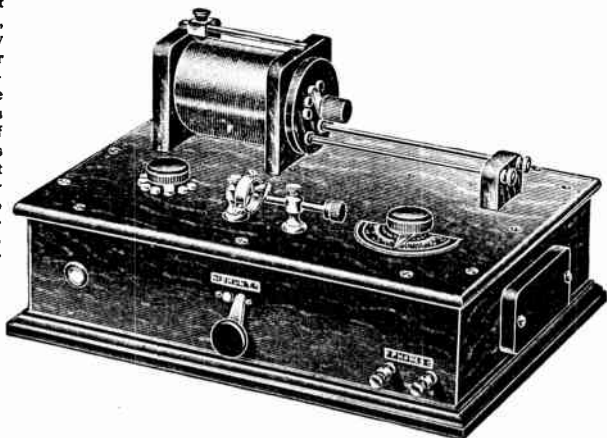
Gentlemen:—Received goods on last Tuesday in fine condition. I am well pleased. I have them set up and working. Can hear Frisco easily.

Yours truly,  
WALDO BARBER.



## Amco Special Wireless Receiving Outfit

In this outfit we present the newest and best apparatus, arranged especially for the particular purpose of obtaining correct time from the various wireless stations of the United States Navy. The correct time is sent out by all navy yards, so that any jeweler within 400 or 500 miles of one of these stations can set his clocks every day. The time signals are sent out at 12 M. every day in the same manner as along the telegraph lines, that is, in a series of dots.



Such an outfit has a considerable advertising value besides giving correct time without expense.

All the instruments are contained in and on the mahogany finish cabinet shown in the illustration, with the exception of the Head Set, which is connected to the pair of binding posts marked "Phones." There are only four binding posts—two pairs—and these are plainly lettered with name plates. The binding post marked "Aerial" is connected to the wire leading into the building from the aerial, and that marked "Ground" is connected to a gas or water pipe by means of a ground clamp, after scraping the surface of the pipe to insure a good electrical contact. The above are the only connections necessary, and consequently there is no chance of incorrect connection.

This outfit is especially designed for receiving time signals, and will give excellent results in this work, although it will also receive regular wireless signals. It is thoroughly reliable, and can always be depended upon to work. It is suitable for service up to 400 or 500 miles from a navy station, depending upon the character of the land between the navy station and the receiving station. A cheaper outfit cannot be depended upon, and we will guarantee this outfit to be at least equal to any other, for this work, irrespective of price. The instruments comprise a large loading coil making the outfit especially adapted to receive long wave lengths a loose coupled receiving transformer, rotary variable condenser, shunt switch, sensitive detector, fixed condenser and test buzzer with battery.

No. RF10 Special Receiving Outfit.....	\$26.00
No. RF11 Special Receiving Outfit complete with one pair of 1000 ohm phones and headband.....	32.00

*Shipping weight, 20 lbs.*

Adams-Morgan Company, Upper Montclair, N. J.

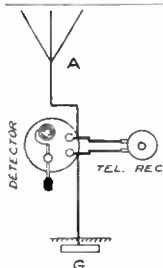
Gentlemen:—I have received my order of October 21st. It arrived O. K. and am pleased with same. Yours respectfully,

Jacksonville, Fla.

E. L. RICE.

## Complete Transmitting and Receiving Outfits

We have chosen what we believe to be the best instruments for the money, and arranged them in outfits which are complete, ready for operation with the exception of the aerial insulators and the wire required to connect the instruments together. These outfits, as listed, will serve as a useful guide to those wishing to select an efficient outfit. A wiring diagram accompanies each outfit. Different types of any of the instruments in the outfits may be substituted if desired, the difference in price being added or subtracted from the cost of the complete outfit accordingly, as the article substituted may cost more or less than the one listed. For instance, a 1000 ohm telephone receiver may be substituted for a 75 ohm by adding the difference in price to the cost of the complete outfit.



### COMPLETE RECEIVING SETS.

#### Receiving Set R10

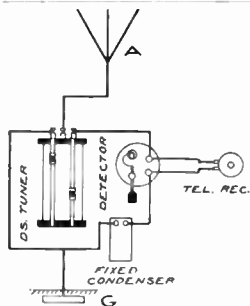
Range, 15 to 20 miles with a four-wire aerial 25 to 30 ft. above earth

One No. 500 Junior Detector Stand.....	\$ .75
One No. 7763 75-ohm S. P. Receiver.....	.50
½ lb. Aluminum Aerial Wire.....	.30

Regular Price..... \$1.55

**Special Price on Complete Outfit.....\$1.45**

Shipping weight, 2 lbs.



#### Receiving Set R20

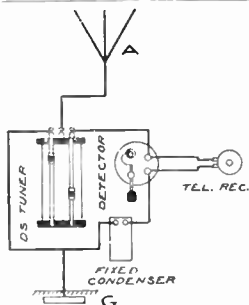
Range, 50 to 100 miles, receiving from commercial stations, with a four-wire aerial 25 to 30 feet above earth.

One No. 500 Junior Detector Stand.....	\$ .75
One No. 7763 75-ohm S. P. Receiver.....	.75
One No. 510 Tuning Coil.....	1.75
One No. 7736 Fixed Condenser.....	.80
One lb. No. 14 Aluminum Wire.....	.60

Regular Price..... \$4.65

**Special Price on Complete Outfit.....\$4.25**

Shipping weight, 5 lbs.



#### Receiving Set R30

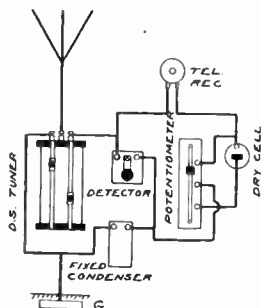
Range 100 to 300 miles, receiving from commercial stations, with a four-wire aerial 60 feet long and 30 to 40 feet high.

One No. 500 Junior Detector Stand.....	\$ .75
One No. 510 Junior Tuning Coil.....	1.75
One No. 7736 Fixed Condenser.....	.80
One 1000-ohm Receiver.....	1.75
1½ lbs. No. 14 Aluminum Wire.....	.90

Regular Price..... \$5.95

**Special Price on Complete Outfit.....\$5.80**

Shipping weight, 6 lbs.



## Receiving Set R40

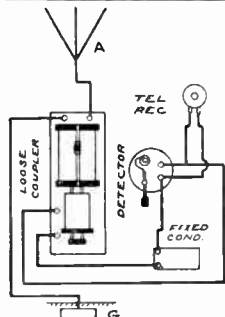
Range 100 to 300 miles, receiving from commercial stations, with a four-wire aerial 60 feet long and 30 to 40 feet high.

One No. 7718 Electrolytic Detector .....	\$1.25
One No. 510 Junior Tuning Coil .....	1.75
One 1000-ohm Receiver .....	1.75
One No. 7740 Potentiometer .....	1.25
One No. 7736 Fixed Condenser .....	.80
One Red Seal Dry Cell .....	.25
1½ lbs. No. 14 Aluminum Wire .....	.90

Regular Price..... \$7.95

**Special Price on Complete Outfit.....\$7.40**

Shipping weight, 11 lbs.



## Receiving Set R50

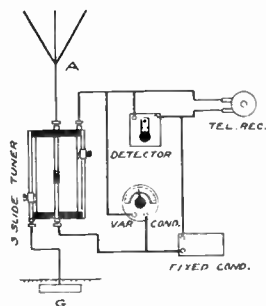
Range 100 to 400 miles, receiving from commercial stations, with a four-wire aerial 60 feet long and 30 to 40 feet high.

One No. 500 Junior Detector Stand .....	\$ .75
One No. 520 Junior Loose Coupler .....	4.00
One No. 7736 Fixed Condenser .....	.80
One 1000-ohm Receiver .....	1.75
1½ lbs. No. 14 Aluminum Wire .....	.90

Regular Price..... \$8.20

**Special Price on Complete Outfit.....\$7.95**

Shipping weight, 7 lbs.



## Receiving Set R60

Range 100 to 450 miles, receiving from commercial stations, with a four-wire aerial 60 feet long and 30 to 40 feet high.

One No. 7710 Detector .....	\$1.25
One No. 7726 three-slide Tuner .....	3.50
One No. 7733 Rotary Variable Condenser .....	3.00
One No. 7736 Fixed Condenser .....	.80
One 1000-ohm Receiver .....	2.50
1½ lbs. No. 14 Aluminum Wire .....	.90

Regular Price..... \$11.95

**Special Price on Complete Outfit.....\$11.40**

Shipping weight, 9 lbs.

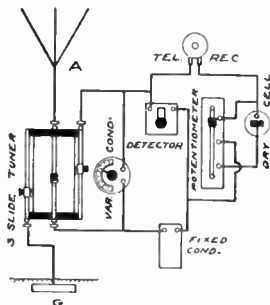
Adams-Morgan Co., Upper Montclair, N. J.

Cleveland, Ohio.

Gentlemen:—Received coupler to-day, and say—it's a dandy. Please send me a new catalog. Rest assured I shall place my future orders with the "Amco" people. You will find an order enclosed. Please rush this one as you did the previous one and you will oblige.

Yours respectfully,

KARL C. EISENHART.



## Receiving Set R70

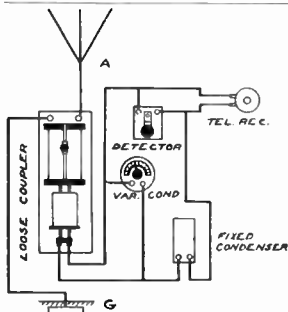
Range 100 to 500 miles, receiving from commercial stations, with a four-wire aerial 60 feet long and 30 to 40 feet high.

One No. 7718 Electrolytic Detector.....	\$1.25
One No. 7726 three-slide Tuner.....	3.50
One 1000-ohm Receiver .....	1.75
One No. 7740 Potentiometer .....	1.25
One No. 7733 Rotary Variable Condenser...	3.00
One No. 7736 Fixed Condenser.....	.80
One Red Seal Dry Cell.....	.25
1½ lbs. No. 14 Aluminum Wire.....	.90

Regular Price..... \$12.70

**Special Price on Complete Outfit.....\$12.00**

Shipping weight, 13 lbs.



## Receiving Set R80

Range 200 to 1,000 miles, receiving from commercial stations, with a four-wire aerial 60 feet long and 30 to 40 feet high.

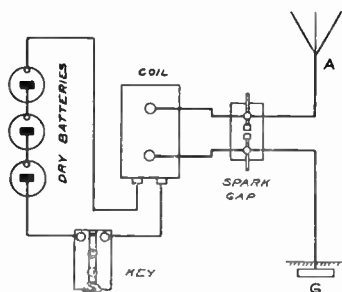
One No. 7710 Detector .....	\$1.25
One No. 7720 Loose Coupler.....	6.00
One 1000-ohm Head Set.....	2.50
One No. 7733 Rotary Variable Condenser...	3.00
One No. 7736 Fixed Condenser.....	.80
Two lbs. No. 14 Aluminum Wire.....	1.20

Regular Price..... \$14.75

**Special Price on Complete Outfit.....\$13.90**

Shipping weight, 10 lbs.

## COMPLETE TRANSMITTING SETS



## Transmitting Outfit, No. 10

Range, ½ to 1 mile with a four-wire aerial 25 feet above ground. Greater distances may be obtained with a higher aerial.

One No. 7411 ¼-inch Spark Coil.....	\$2.20
One No. 2050 Simplex Wireless Key....	.55
One No. 555 Junior Spark Gap.....	.55
One lb. No. 14 Aluminum Aerial Wire...	.60
Three Red Seal Dry Cells.....	.75

Regular Price..... \$4.65

**Special Price on Complete Outfit..\$4.25**

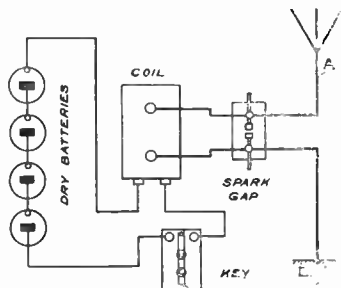
Shipping weight, 16 lbs.

Washington, D. C.

Gentlemen:—I received the storage cell which you sent me today in good condition. It certainly is a strong one for its size. Thanking you for your information, I am,

Very respectfully,

D. L. DAVIS.



### Transmitting Outfit, No. 20

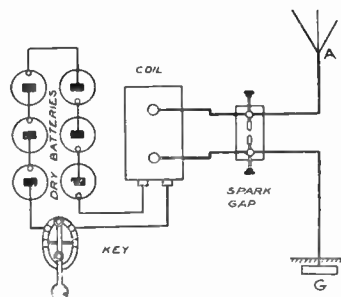
Range,  $\frac{1}{4}$  to  $1\frac{1}{2}$  miles using a four-wire aerial 25 feet above ground. Greater distances may be obtained with a higher aerial.

One No. 7413 $\frac{1}{2}$ -inch Spark Coil.....	\$3.20
One No. 2050 Simplex Wireless Key....	.55
One No. 555 Junior Spark Gap.....	.55
One lb. No. 14 Aluminum Aerial Wire...	.60
Four Red Seal Dry Cells.....	1.00

Regular Price..... \$5.90

**Special Price on Complete Outfit..\$5.70**

Shipping weight, 20 lbs.



### Transmitting Outfit, No. 30

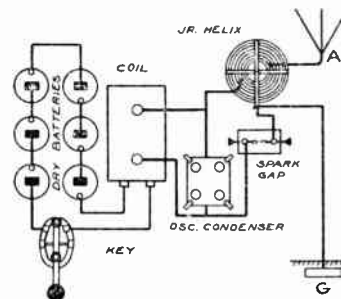
Range, 2 to 5 miles with a four-wire aerial 30 feet above ground. Greater distances may be obtained with a higher aerial.

One No. 7415 1-inch Spark Coil.....	\$4.50
One No. 7630 Spark Gap.....	.75
One No. 562 Junior Key.....	.75
One lb. No. 14 Aluminum Aerial Wire...	.60
Six Red Seal Dry Cells.....	1.08

Regular Price..... \$7.68

**Special Price on Complete Outfit..\$7.45**

Shipping weight, 25 lbs.



### Transmitting Outfit, No. 40

Range, 5 to 8 miles with a four-wire aerial 35 to 40 feet above ground. Greater distances may be obtained with a higher aerial.

One No. 7415 one-inch Spark Coil.....	\$4.50
One No. 7630 Spark Gap.....	.75
One No. 562 Junior Key.....	.75
One No. 7640 Oscillation Condenser....	2.00
One No. 560 Junior Helix.....	1.75
One lb. No. 14 Aluminum Aerial Wire...	.60
Six Red Seal Dry Cells.....	1.08

Regular Price..... \$11.43

**Special Price on Complete Outfit..\$11.00**

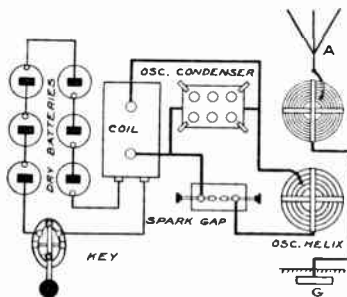
Shipping weight, 35 lbs.

Grimsby, Ont., Canada.

Adams-Morgan Company, Upper Montclair, N. J.

Dear Sirs:—A little while ago I got a water motor from you and it works fine. I run the sewing machine, washing machine, etc., and it is all right.

GEORGE T. WALKER.



### Transmitting Outfit, No. 50

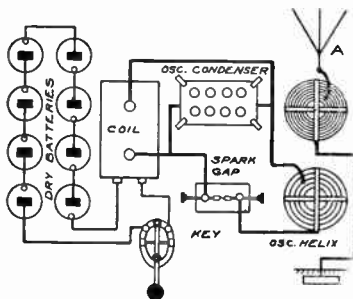
Range, 8 to 10 miles with a four-wire aerial 50 feet above ground. Greater distances may be obtained with a higher aerial.

One No. 7419 1½-inch Spark Coil.....	\$6.50
One No. 7630 Spark Gap.....	.75
One No. 562 Junior Key.....	.75
One No. 7644 Oscillation Condenser...	4.00
One No. 555 Junior Oscillation Helix...	4.00
1½ lbs. No. 14 Aluminum Aerial Wire...	.90
Eight Red Seal Dry Cells.....	1.44

Regular Price..... \$18.34

**Special Price on Complete Outfit..\$17.75**

Shipping weight, 40 lbs.



### Transmitting Outfit, No. 60

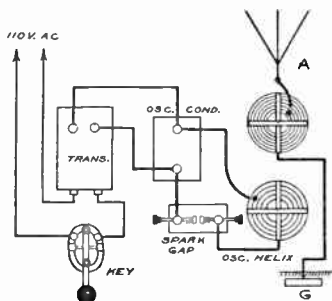
Range, 8 to 15 miles with a four-wire aerial 50 to 75 feet above ground. Greater distances may be obtained with a higher aerial.

One No. 7419 2-inch Spark Coil.....	\$9.00
One No. 7630 Spark Gap.....	.75
One No. 562 Junior Key.....	.75
One No. 7644 Oscillation Condenser...	4.00
One No. 555 Oscillation Transformer...	4.00
1½ lbs. No. 14 Aluminum Aerial Wire...	.90
Eight Red Seal Dry Cells.....	1.44

Regular Price..... \$20.84

**Special Price on Complete Outfit.\$19.25**

Shipping weight, 40 lbs.



### Transmitting Outfit, No. 70

Range, 25 to 50 miles with a four-wire aerial 50 to 75 feet above ground. Greater distances may be obtained with a higher aerial.

One No. 7659 Transformer .....	\$12.00
One No. 7645 Condenser .....	6.00
One No. 555 Junior Oscillation Helix...	4.00
One No. 7636 Spark Gap.....	2.25
One No. 562 Junior Key.....	.75

Regular Price..... \$25.00

**Special Price on Complete Outfit.\$24.00**

Shipping weight, 45 lbs.

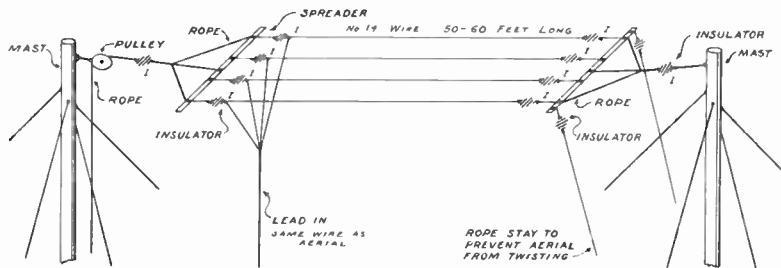
Adams-Morgan Company, Upper Montclair, N. J.

Dear Sirs:—I have received the Junior Loose Coupler in fine condition. Its appearance adds a great deal to my set.

DONALD TIFFANY.

Ashley, Penna.

## How to Put Up an Aerial



The success of a wireless station will depend largely upon three things: first, the selection of well made, efficient apparatus; second, the careful observance of certain fundamental principles in installing the apparatus, and third, the intelligent operation of the properly installed apparatus. Starting with "Amco" apparatus means that an important step has been made in the right direction, for its well-known efficiency and reliability insure that as far as the instruments are concerned, the owner of Amco apparatus has all that could be desired. The purpose of the following few pages is to briefly set forth some of the fundamental principles to be observed in the arrangement of the station and its operation. They are intended to be of benefit or assistance to those having a limited acquaintance with wireless telegraph phenomena.

The antenna or aerial consists of several wires elevated in the air and insulated from surrounding objects. It is used to radiate the electric waves which are sent out when the station is transmitting and to intercept those coming from a far distant station when it is desirable to receive. The illustration shows the favorite form of aerial used by amateurs, together with its details. It is comparatively easy to erect, and since it is very efficient, is recommended wherever its construction is practical. It may be generally said that the best results will be secured from an aerial which is elevated the highest and whose wires are the longest. An aerial should be at least 35 feet high and from 50 to 60 feet long. It is desirable, whenever possible, to make it from 50 to 100 feet high and 75 to 250 feet long. An aerial having four wires in the stretches will be found to be very efficient when the wires are not over 150 feet long. A six-wire aerial will give the best results with larger aeriels. The total efficiency will depend as much upon the constructional details as upon size. The wire should not be smaller than No. 14 B. & S. gauge. Aluminum wire will be found to be very satisfactory for small aeriels. No. 14 B. & S. gauge, hard drawn copper wire is recommended for medium-sized aeriels. Stranded wire has a slight additional advantage because high frequency currents travel on the surfaces of conductors and stranded wire presents more surface than a single wire. It is advisable to solder all joints in an aerial. The aerial should be very carefully insulated from all ropes, spreaders, guys, etc., so that no currents can leak into the ground.

Our insulators are adapted for all transmitting powers within the range of the average experimenter. The ball types of insulators will serve effectively for small induction coil transmitting sets and for receiving apparatus. The larger insulators are recommended for transformer sets. It is advisable to place the wires as far apart as possible. They are held apart by a wooden "spreader." The spreader should be long enough so that the wires are at least one foot apart for each fifty feet in their length. The diagram shows the points in the aerial at which insulators should be placed. They are indicated by the letter "I." The aerial is supported by ropes. It is best to have the ropes pass through pulleys so that the aerial may be conveniently raised or lowered at will. If two rope "stays" are fastened to one of the spreaders and insulated therefrom they will be found to be of much assistance in preventing the aerial from twisting or turning over in the wind.

The "lead-in" or "rat-tail" as it is often called, is the wire leading from the aerial to the instruments. A wire should be connected to each one of the aerial wires near one of the spreaders and then all joined at a common point. A single wire is then brought down to a convenient place and passed through an insulating tube placed in a hole in the wall or window sash. The "lead-in" is then led to the "aerial switch." The aerial switch is a "double-pole, double-throw switch" arranged so that the aerial may be quickly connected to either the transmitting or receiving apparatus at will. One side of the apparatus is always connected to the ground. The ground should always be near the apparatus and should be as perfect as possible. A ground connection formed by soldering a wire to a water pipe or connecting it by means of a ground clamp, will be satisfactory in most cases. Where a water pipe is not available, a good ground may be made by burying a large metal plate in permanently moist earth, or by spreading several hundred feet of wire over the ground, radiating from the station in different directions.

#### CONNECTING THE APPARATUS

The diagrams on pp. 64-68 show how the various Amco instruments should be wired to secure the most efficiency. Over one hundred such diagrams showing how various loose couplers, tuners, loading coils, condensers, detectors, transformers, spark gaps, helices, etc., may be connected, are to be found in the "Amateur's Wireless Handybook."

## A Treatise on Wireless Telegraphy

Perhaps no branch of electrical science appeals more to the young experimenter than wireless telegraphy. At first glance, the subject seems to be a mysterious one, capable of little explanation, but contrary to this general opinion, the whole theory and practice of wireless telegraphy is capable of the simplest explanation and can be easily understood by anyone. There are probably from 200,000 to 300,000 amateur wireless stations in

#### An Intensely Interesting Subject

where in the country. Any boy can learn to receive and send messages slowly in two or three hours. If he puts his mind on it, he can not only master the code and be able to read all of the commercial and government messages in a short time but will soon become a proficient telegraph operator. The time signals sent out by the government wireless stations throughout the country are readable for hundreds of miles and a small wireless set will enable one to set their watches or clocks daily by Washington Observatory time. Amateur wireless telegraphy is one of the most fascinating, wholesome and educational sports of modern times.

#### Amateur Wireless Telegraphy

It is considered of such educational value that schools and colleges throughout the country are equipped with outfits and include wireless telegraphy in their courses. It should be part of every boys' education, for it will teach some of the most valuable fundamental principles of electricity, and it must be realized that electricity

#### Receiving Wireless Messages

is the greatest force in the world today. The question most beginners ask first is: WHAT INSTRUMENTS ARE NECESSARY AND WHAT OUTFIT DO YOU ADVISE ME TO USE? The answer is: We advise you to use any of our outfits. They are all of a very high grade and efficiency—the result of many years of manufacturing experience in this line. The lower priced outfits naturally have the shortest range. You can receive messages with any one of our detectors and a telephone receiver. Many of our customers who now possess very elaborate sets started with a very simple outfit. A DETECTOR and a TELEPHONE RECEIVER are necessary in order to receive wireless messages. A TUNING COIL, and a FIXED CONDENSER will add greatly to the range of a detector and telephone receiver. By substituting a LOOSE COUPLER for the tuning coil the range may be further greatly increased. A VARIABLE CONDENSER will add still more to the range of the outfit. The second question usually asked is: "I DON'T KNOW THE CODE SO HOW CAN I RECEIVE MESSAGES?" The answer is: A wireless message, no matter what language it is in, is made up of dots and dashes. If you put the telephone receiver to your ear when a message is coming in you will hear a series of distinct buzzes. A short buzz is a dot and a long buzz is a dash. Any person with a little practice can master the code and read the messages with ease. Different combinations of dots and dashes represent the different letters of the alphabet. The code is shown on p. 72 of this catalog. There are thousands of wireless stations in this country. They are sending messages almost every minute of the day and night and are waiting for you to listen to them. HOW ABOUT THE WIRELESS LAW? Well, the Wireless Law does not apply to stations used for receiving only. The law permits you to receive all the messages



that you wish. The only requirement is that you preserve the secrecy of the message if it is not intended for you. Here is the text of the law. You can read it for yourself.

#### SECRECY OF MESSAGES

"Nineteenth. No person or persons engaged in or having knowledge of the operation of any station or stations, shall divulge or publish the contents of any messages transmitted or received by such station, except to the person or persons to whom the same may be directed, or their authorized agent, or to another station employed to forward such message to its destination, unless legally required to do so by the court of competent jurisdiction or other competent authority. Any person guilty of divulging or publishing any message, except as herein provided, shall, on conviction thereof, be punishable by a fine of not more than two hundred and fifty dollars or imprisonment for a period of not exceeding three months, or both fine and imprisonment in the discretion of the court."

**The Radio Law** The Radio Law does not hinder amateur wireless telegraphy but has placed it upon a definite recognized basis. The regulations of this law which govern amateur stations are enumerated in brief below. NO LICENSE IS REQUIRED when a receiving set only is used. A LICENSE IS ONLY REQUIRED for a transmitting station and the operator, when the signals radiated by the station cross a boundary of the state wherein the station is located or when they may interfere with the reception by another station of signals coming from without the state. AMATEUR TRANSMITTING STATIONS are limited to a wave length of 200 metres and a transformer input of 1 K.W. Amateur transmitting stations located within five nautical miles of any naval or military naval station are restricted to a transformer input of  $\frac{1}{2}$  K.W.

**Distance** One of the questions most frequently asked by the wireless experimenter is, "HOW FAR CAN I RECEIVE AND SEND WITH SUCH AND SUCH AN OUTFIT?" It is hardly possible to answer such a question. If you are surrounded by tall trees, buildings or mountains you cannot send and receive wireless messages as well as if you were on a high elevation above all surrounding objects. Wireless waves travel twice as far over water as over land and you can receive and send easily twice as far after sundown than during the day time. As a general rule, the higher and longer your aerial is, the further you can receive and send. The distance that you can send and receive will also depend upon the station that you wish to communicate with. Although you might have the best of apparatus, it would do you no good if the other station was too poorly equipped to hear your signals or answer you.

All Amco detector stands are very efficient and make it possible for the experimenter to secure a very sensitive detector. A 1000-ohm telephone receiver is much more efficient than a 75-ohm receiver. A loose coupler is a more efficient instrument than a tuning coil and will give louder signals. A station equipped with a rotary variable condenser in the receiving set will have a greater range than an outfit not so provided. Experience has proven that Amco Spark Coils are far more efficient than all others, and that their average transmitting range is about as shown in the table below.

$\frac{1}{4}$ inch Spark Coil.....	$\frac{1}{2}$ —2 miles	2 inch Spark Coil.....	8—15 miles
$\frac{1}{2}$ inch Spark Coil.....	1—4 miles	3 inch Spark Coil.....	12—24 miles
1 inch Spark Coil.....	3—8 miles	4 inch Spark Coil.....	15—30 miles
$1\frac{1}{2}$ inch Spark Coil.....	5—12 miles		

The first figures in the table are those which it is easily possible for any amateur to obtain. The last figures are those secured where the location or arrangement of the station is especially favorable.

**No Knowledge Required** You do not have to be an expert to set up and operate a wireless station. No fears of failure need dismay. Complicated and intricate mechanisms are not a part of wireless telegraphy. Failure is impossible with AMCO apparatus. An investment in AMCO apparatus is wisdom because the purchase secures the perfect product of an established manufacturing firm, backed by the best of reputations for honesty of dealing and quality of output. The novice wishing to read a complete exposition of wireless telegraphy, written in simple form so that it may be easily understood by the veriest tyro, is referred to our 25 cent book, "Lessons in Wireless Telegraphy," which will be sent upon receipt of price. Those wishing to become proficient in the handling and operation of wireless telegraph stations are referred to "The Operation of Wireless Telegraph Apparatus." This is another 25 cent book which will be sent postpaid upon receipt of price. Each commercial, naval and military station is distinguished by a set of CALL LETTERS. A complete list of all the call letters, together with the code, abbreviations, speed chart and over 100 diagrams for connecting instruments, will be found in "The Amateur's Wireless Handbook," price 25 cents. Those who wish to build their own instruments and to learn some of the principles of

design will find the book "Wireless Telegraph Construction for Amateurs," just the thing. Price, postpaid, \$1.50.




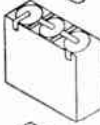
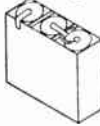

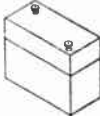
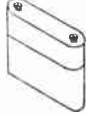
**The Wireless License** Wireless Licenses are issued by the United States Government FREE OF CHARGE and do not cost a penny. All that is required of you in order to obtain a license is to become familiar with the law and learn to receive and transmit messages at a fair speed. It is not even necessary for you to appear in person for an examination if you live far away from the nearest radio inspector. All that you have to do in such a case is take an oath before a Notary Public that you are conversant with the law and that you can transmit and receive a wireless message. If you wish to obtain a licence, and we urge you to do so, write to the nearest Radio Inspector and ask him for the necessary papers. Radio Inspectors are located in the following cities. Address your letter to the Customs House. Boston, Mass.; New York, N. Y.; Baltimore, Md.; Savannah, Ga.; New Orleans, La.; San Francisco, Cal.; Seattle, Wash.; Cleveland, Ohio; Chicago, Ill.

<b>A</b> ● ■■■■	<b>B</b> ■■■■ ●●●	<b>C</b> ■■■■ ● ■■■■	<b>D</b> ■■■■ ●●●	<b>E</b> ●	<b>F</b> ●● ■■■■
<b>G</b> ■■■■ ●	<b>H</b> ●●●●	<b>I</b> ●●	<b>J</b> ● ■■■■ ■■■■ ■■■■	<b>K</b> ■■■■ ■■■■	
<b>L</b> ● ■■■■ ●●	<b>M</b> ■■■■ ■■■■	<b>N</b> ■■■■ ●	<b>O</b> ■■■■ ■■■■ ■■■■	<b>P</b> ● ■■■■ ■■■■ ●	
<b>Q</b> ■■■■ ■■■■ ● ■■■■	<b>R</b> ● ■■■■ ●	<b>S</b> ●●●	<b>T</b> ■■■■	<b>U</b> ●● ■■■■	
<b>V</b> ●●● ■■■■	<b>W</b> ● ■■■■ ■■■■	<b>X</b> ■■■■ ●● ■■■■	<b>Y</b> ■■■■ ● ■■■■ ■■■■		
<b>Z</b> ■■■■ ■■■■ ●●	<b>Wait</b> ●●●●●●	<b>Understand</b> ●●● ■■■■ ●	<b>Don't Understand</b> ■■■■ ●●●● ●■■■ ●		
<b>Period</b> ●●●●●●	<b>Interrogation</b> ●● ■■■■ ■■■■ ●●	<b>Exclamation</b> ■■■■ ■■■■ ●● ■■■■ ■■■■			
<b>1</b> ● ■■■■ ■■■■ ■■■■ ■■■■	<b>2</b> ●● ■■■■ ■■■■ ■■■■	<b>3</b> ●●● ■■■■ ■■■■ ■■■■			
<b>4</b> ●●●● ■■■■	<b>5</b> ●●●●●	<b>6</b> ■■■■ ●●●●●	<b>7</b> ■■■■ ■■■■ ●●●●		
<b>8</b> ■■■■ ■■■■ ■■■■ ●●	<b>9</b> ■■■■ ■■■■ ■■■■ ■■■■ ●	<b>0</b> ■■■■ ■■■■ ■■■■ ■■■■ ■■■■			
<b>Call</b> ■■■■ ● ■■■■ ● ■■■■	<b>Finish</b> ● ■■■■ ● ■■■■ ●	<b>or</b> ■■■■			

### WIRELESS CONTINENTAL TELEGRAPH ALPHABET

## Renewal Batteries for Flashlights

We carry the following sizes of batteries in stock and make immediate shipment. All batteries are carefully tested before shipping. The Radio Stock is the finest battery made. The Semi-dry is an ordinary grade of battery. *Shipping weight of any of these batteries, 1 lb.*

Radio Stock No.	Semi-Dry Stock No.	No. of Cells	SIZE OVER ALL			LIST PRICE		Radio Stock No.	Semi-Dry Stock No.	No. of Cells	SIZE OVER ALL			LIST PRICE			
			H'ght	Width	Depth	R.	S. D.				H'ght	Width	Depth	R.	S. D.		
	1042	2	1 7/8	1 1/8	2 1/8	\$.30	\$		1023	923	3	3 1/8	2 1/2	7/8	\$.40	\$.30	
	1040	940	2	2 1/4	1 1/4	5/8	.30	.25	1024		3	4 3/8	3 1/8	1 1/8	.45		
	1021	921	2	2 1/2	1 5/8	1 1/8	.30	.20		1030	930	3	3	4	1 1/2	.45	.35
	1025	925	2	2 1/2	1 5/8	1 1/8	.30	.20		1031	931	3	3	4	1 1/2	.45	.35
	1026	926	2	3 1/2	2 1/8	1 1/8	.35	.25	1029	929	2		1	3 3/4	.30	.20	
	1041	941	3	2 1/4	2	5/8	.40	.30	1028	928	2		1 3/8	4 3/4	.30	.20	
	1020	920	3	2 5/8	2 1/2	7/8	.40	.25	1027	927	3		1 3/8	7	.40	.30	
	1022		3	3 1/2	3 1/8	1 1/8	.45		1011	911	3		1 3/8	9 3/8	.45	.34	
	1032	932	3	3 3/8	4	1 1/2	.45	.40	1015	915	5		1 3/8	11 3/4	.70	.50	
	1039	939	3	2 1/2	3 1/8	1 1/8	.40	.30	1007		3		1	7 1/4	.40		
	1033	933	3	3 3/8	4	1 3/8	.45	.40	1006		2		1	4 3/4	.35		
									1005		3		1	4 3/4	.45		
									1003		2		1 3/8	9 1/2	.40		

THE ADAMS-MORGAN COMPANY

## Electric Flashlights and Novelties

### Electric Flashlights

CARBON BULBS



No. 3012



No. 3015



No. 3016

- No. 3012—The case of this flashlight is very strong and durable. It is covered with imitation leather paper. Fitted with lamp with lens blown in bulb. Size  $2\frac{3}{8} \times 3\frac{3}{4} \times 1$ . Complete with battery..... \$ .40
- No. 3015—This is a first class flashlight provided with a large bullseye lens fitted on top of case. This is a very brilliant light. Covered with imitation leather paper. Same size as above. Complete with battery.... \$ .49
- No. 3016—A very finely made flashlight. Nickered trimmings and black cloth cover. The lens is carefully ground and is removable. Throws a strong light. Complete with battery..... \$ .60

Weight of any above flashlights, 10 ounces.

### Vest and Coat Pocket Tungsten Flashlights



No. 3025



No. 3026



No. 3027



No. 3043

	PRICE
No. 3025 Vest Pocket Flashlight, metal case, paper covered, tungsten bulb, push button contact, two cell battery, size 1 x 1½ x 3½ inches...	80 cents
No. 3026 Coat Pocket Flashlight, metal case, covered with alligator cloth, powerful bullseye lens, tungsten bulb, sliding contact for giving permanent light when desired, size 1 x 2½ x 4¼.....	\$1.25
No. 3027 Vest Pocket Light, vulcanized fibre base with highly finished nickel parts. A beautiful and powerful slide. Sliding contact for permanent light when desired. Size 1 x 2½ x 3¼ inches.....	\$1.50
No. 3043 Vest Pocket Flashlight. Same size and shape as a cigarette case. A novel and useful light. Nickel plated and highly polished. Size ¾ x 2¾ x 3¼ inches .....	\$1.45

*Shipping weight of any of above flashlights, 1 lb.*

## Nickel Vest Pocket Flashlights



No. 3040

**THE  
SMALLEST  
AND  
NEATEST  
FLASHLIGHT  
MADE**

**Slip Into Purse  
or Vest Pocket**



No. 3041



No. 3042

Nickel plated flashlights are made in three sizes, the largest of which is so small, and weighs so little, as to cause no inconvenience when carried in the pocket. The smallest one is truly a marvel, and is only made practicable by the high development reached in the manufacture of the battery with which the lights are fitted. These flashlights are designed with a contact which eliminates the necessity of the pressure of the finger to control the light. The light is controlled by a slide on the case, which, when once adjusted for light, leaves both hands free. The light is flashed on by pressing the slide down, and when light is no more desired, the slide is brought to its original position. The flash-contact is of no more necessity in these flashlights when used with our batteries, as they will give splendid service at little cost to the consumer when burned at intervals.

No. 3040 Nickel Vest Pocket Flashlight, size 2½ x 1¼ x 11-16 inches.....	\$ .75
No. 3041 Nickel Vest Pocket Flashlight, size 2½ x 1½ x ¾ inches.....	.80
No. 3042 Nickel Vest Pocket Flashlight, size 2½ x 2 x ¾ inches.....	\$1.10

*Shipping weight of any of above Vest Pocket Flashlights, 1 lb.*

## Electric Searchlights

### TUNGSTEN BULBS

No. 3030 A very substantial, well made searchlight. Case is metal covered with imitation alligator hide. Nickel trimmings. Fitted with a powerful Tungsten lamp, 3-cell dry battery, and a special reflector and lens which greatly intensifies the light. Size 1½x6½ in. Complete with battery, 90 cents. *Shipping weight, 2 lbs.*



No. 3030

## Fountain Pen Light

THE FLASHLIGHT WITH THE CLIP-CONTACT



GRIPS THE CLOTH PREVENTS SHORT CIRCUIT

An exact imitation of a fountain pen with barrel cap and clip. It is to be carried in the pocket next to the fountain pen and pencil, ready for instant use. For light, simply press the clip and it will throw a dazzling beam. Will give one and one-half hours continuous service or three hours intermittent service before the battery needs to be renewed. The latest electrical novelty. *Shipping weight, 10 oz.*

- No. 3043 Fountain Pen Light, either nickel plate or black finish as desired. . . . . 98 cents  
 No. 310 Renewal Battery . . . . . 25 cents *Shipping weight, 4 oz.*

## Electric Flashlights with Tungsten Bulbs



No. 3022



No. 3020



No. 3024

- No. 3020—This is one of our finest flashlights. The bulb is genuine OSRAM and will give more light with less battery consumption than any lamp made. The case is very carefully made, with nickeled trimmings and fine black cloth cover. Provided with an accurately ground lens. Throws a powerful beam of light. Size 1 x 1 1/8 x 3 1/2 inches. Complete with battery . . . . . \$ .90
- No. 3022—This flashlight embodies several new features of construction. Fitted with a three-cell battery, OSRAM bulb, powerful lens and a contact button which may be locked either "on" or "off." Throws a dazzling beam of white light. Complete with battery. . . . . \$1.10
- No. 3024 This flashlight is made specially for boy scouts. It is a very strong case, carefully made. All metal parts are nickel plated. It is provided with THREE accurately ground lenses, one WHITE, one BLUE and the other RED, so that different colored flashes may be sent for signal purposes. The contact is made so that it may be locked "on" or "off" Complete with battery. . . . . \$1.25

*Shipping weight of any of above flashlights, 10 ozs.*

## Fibre Searchlights

No. 3035 The case of this light is black fibre. It is stronger and more durable than metal or leather. Fitted with a Tungsten or Osram bulb. Throws a very powerful light. Size  $1\frac{1}{4}$  x 5 inches. Two-cell dry battery.



Complete..... \$ .95

Nos. 3035—3037

No. 3036—A larger and more powerful light than that above. Two-cell dry battery. Size  $1\frac{1}{2}$  x  $6\frac{1}{2}$  inches. Complete..... \$1.18

No. 3037—Same as above but larger and more powerful. Throws a piercing beam of white light. Size  $1\frac{1}{2}$  x  $8\frac{1}{2}$  inches. Three-cell battery. Complete..... \$1.35

Shipping weights—No. 3030, 12 oz.; No. 3035, 12 oz.; No. 3036, 1 lb.; No. 3037,  $1\frac{1}{2}$  lb.

## Miners' Searchlights



Nos. 3038—3040

The cases of these lights are black fibre. They are fitted with very powerful lenses and reflectors which throw a strong light, making it possible to see objects quite a distance away. Will be found very handy by sportsmen, farmers, etc. Metal fittings are nicked.

No. 3038 Size  $1\frac{1}{2}$  x  $6\frac{1}{2}$  inches. Two-cell dry battery. Complete..... \$1.55

Shipping weight, 2 lbs.

No. 3039—Same style but larger and more powerful. Fitted with 3-cell battery. Size  $1\frac{1}{2}$  x  $8\frac{1}{2}$  inches. Complete..... \$1.80

Shipping weight,  $2\frac{1}{2}$  lbs.

No. 3040 Same style but larger and more powerful. Fitted with three-cell battery. Size  $1\frac{1}{2}$  x 13 inches. Complete..... \$2.75

Shipping weight, 3 lbs.

## Revolver Flashlight

A clever, full-sized imitation of a modern automatic revolver fitted with a battery and a tungsten bulb. By pulling the trigger a powerful beam of dazzling white light shoots from the muzzle.

This flashlight will be found invaluable by anyone who does not wish to possess or carry a firearm but may require just such an article as this to scare away undesirable individuals.

Made entirely of pressed steel, gun-metal finish. A handsome piece of work. Thousands now in use.

No. 3050 Revolver Flashlight, complete..... \$1.45

Shipping weight, 8 ounces



No. 3050

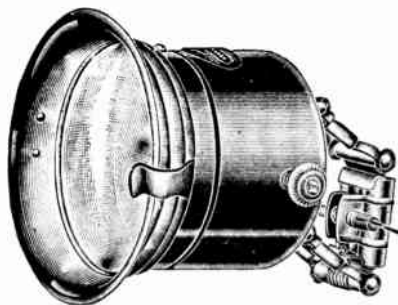
Woodland, Cal.

Adams-Morgan Company, Upper Montclair, N. J.

Dear Sirs:—Received the key O. K. and I am very much pleased with same.

GEORGE W. BENDER.

## Motor-cycle Headlight



No. 3063

A powerful Headlight with a large silver plated parabolic reflector. Finished in black enamel. Fitted with spring shock absorber. Complete with Tungsten bulb, battery and Leather Battery Bag.

No. 3063 Motor Cycle Headlight complete as described ..... \$3.95



No. 3064

No. 3064 Extra Leather Battery Bags for motor cycle and bicycle lamps 48 cents



No. 3065

## Electric Hand Lantern

An electric lantern is one of the handiest and most convenient articles it is possible to own. Being electric, all danger from fire or explosion is eliminated, and they may be handled with entire safety. No wick to trim, no oil to spill or matches to light. Simply snap the switch and you have a dazzling white light. Wind and storm have no effect.

The case of the lantern is oxidized metal. The lantern has an extra large lens and throws a dazzling circle of light. Very handy about the house or barn.

No. 3065 Hand Lantern, finished in blue steel with permanent contact. Weight, 10½ ounces..... **\$1.98**  
Shipping weight, 1½ lbs.

PRICE

Adams-Morgan Company, Upper Montclair, N. J.

Gentlemen:—Received goods by to-day's mail and am well pleased with them. They are absolutely satisfactory. Am well pleased with your prompt shipments, and am enclosing eight cents postage due you on shipment. It was a mistake of mine.

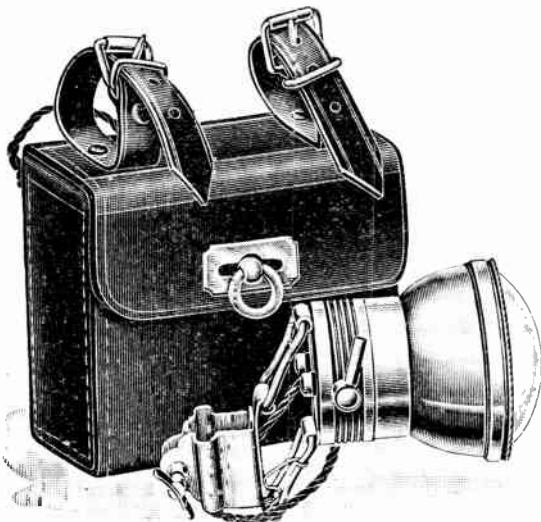
Thanking you for your favor, I remain, your customer,

WM. T. DEETER.

Danville, Penna.



## The "Bulldog" Electric Bicycle Lamp



No. 3062

This is a substantial electric light outfit intended for bicycles but equally useful on carriages, canoes, boats, etc. It throws a dazzling beam of pure white light. Fitted with a deep parabolic reflector and large bullseye lens. Has a switch at the side so that the light may be easily turned on or off at will. All metal parts are heavily nickel plated. Fitted with a 4-v. Tungsten lamp. Complete with a heavy leather carrying case for 3-cell dry battery.

**No. 3062 — Bulldog Bicycle Lamp with leather battery case, battery and cord**  
**Price, \$3.25**

**No. 3062A—Headlight, complete without case or battery. Price, \$2.20**

## The Viking Electric Cycle Lamp

This is a first class Electric Cycle Lamp for use for short periods up to half an hour at a time. It is specially to be recommended for short runs about town. It takes an ordinary three-cell flashlight battery.

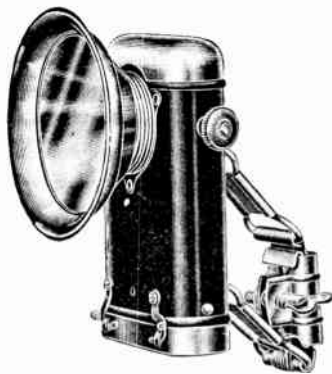
### JUST A TURN OF THE SCREW TO LIGHT OR EXTINGUISH

The body of the lamp is finished in black with nickel plated cap and bottom. All other metal parts are nickel plated and polished. The lamp is mounted on a spring bracket which absorbs all vibration and jolts or jars due to a rough road.

THE LIGHT THROWS A POWERFUL BEAM which is far more powerful than that of an oil lamp and a rival to acetylene. It has the further advantage of no matches, no oil, no wick, no smell and no acids.

No. 3060 Viking Electric Cycle Lamp.. PRICE **\$1.49**

*Shipping weight, 1 lb.*



No. 3060



### Electric Scarf Pins

Carved out of solid ivory and fitted with tiny electric light inside. Provided with a silk cord and plug to fit any of our flashlights. By pressing the button streams of light are shot out from the eyes of the figures. A handsome scarfpin aside from the electrical novelty.

No. 6020	Ivory Scarfpin, elk's head, wolf's head, horse's head, hyena's head, dog's head or cat's head, with cord and plug.....	\$ .98
No. 6021	Ivory Skull.....	.90
	By mail, extra.....	.04



No. 6024

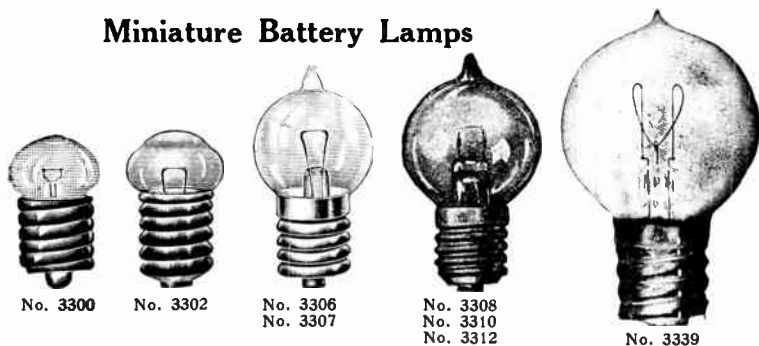
### Jeweled Scarf Pins

Horseshoe, Owl's Head, Crescent, Hearts, etc.

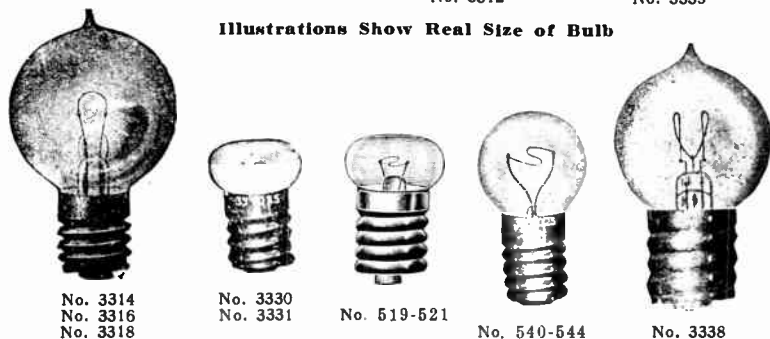
Very handsome jeweled scarfpins with concealed electric light, causing them to scintillate and flash when button is pressed. Complete with cord and plug.

No. 6024	Jeweled Scarf Pin.....	\$ .45
	By mail, .....	.04

## Miniature Battery Lamps



Illustrations Show Real Size of Bulb



CARBON LAMPS		PRICE
No. 3300—3.5 volts.....		10 cents
No. 3302—3.5 volts, lens in top..		12 "
No. 3306—3.5 volts.....		15 "
No. 3307—5.5 volts.....		16 "
	VOLTS C.P.	
No. 3308—4.....	2.....	19 "
No. 3310—6.....	2.....	19 "
No. 3312—8.....	4.....	19 "
No. 3314—4.....	2.....	19 "
No. 3316—6.....	2.....	19 "
No. 3318—6.....	4.....	19 "
No. 3320—8.....	4.....	19 "
No. 3322—10.....	6.....	19 "

BY MAIL, EXTRA

3300—3307.....	1 cent each
3308—3339.....	3 cents each

TUNGSTEN LAMPS		PRICE
No. 519—1.5 volts, clear plain..		20 cents
No. 520—2.7 volts, clear plain..		13 "
No. 521—3.8 volts, clear plain..		13 "
No. 540—2.7 volts, clear plain..		13 "
No. 543—3.8 volts, clear plain..		13 "
No. 544—6 volts, clear plain..		13 "
No. 535—2.5 or 2.7 v., opal back		13 "
No. 536—3.8 volts, opal back...		13 "
No. 551—1.5 volts, opal back...		26 "
	VOLTS C.P.	
No. 3338—4.....	4.....	24 cents
	6.....	21 "
	6.....	24 "
	6.....	21 "
	6.....	24 "
	8.....	24 "

**NOTICE**—These lamps are of the highest quality. The voltages and candle power given are correct. If you buy cheaper lamps you are getting a **THIRD RATE** article which will **BURN OUT QUICKLY**.

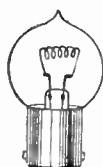
Nos. 3308—3322 and 3338 can be supplied with either miniature or candleabra base.

## Automobile Tungsten Lamps

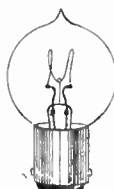
(Cuts one-half actual size)



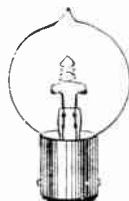
G-6  
Rearlight and  
Speedometer



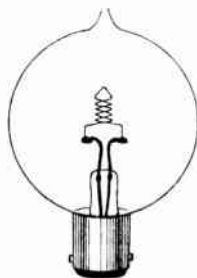
G-8  
Sidelight



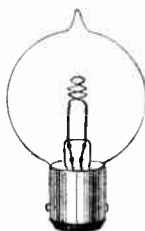
G-10  
Sidelight



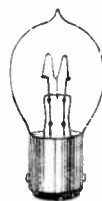
G-10  
Sidelight  
(Focusing)



G-16½  
Headlight (Focusing)



G-12  
(Focusing)  
Headlight



P-8  
Sidelight



R-8  
Dome Lamp

Lamps are fitted with either candelabra, single Ediswan or double Ediswan base. When ordering be sure to give full particulars as to voltage, candle-power, type and base.

G-6 and G-8 lamps only can also be furnished with miniature screw base which is slightly smaller than candelabra base.

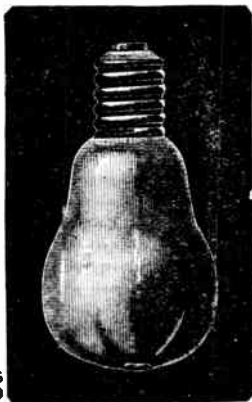
TYPE	Volts	Candle Power	Price	TYPE	Volts	Candle Power	Price
G-6 .....	3½, 6, 7	2	21c	G-12 Focusing.....	6, 7	12, 15, 21	27c
G-6 .....	6, 7	4	24c	G-16 Focusing.....	6, 7	15	27c
G-8 .....	3½, 6, 7	4	21c	G-16 Focusing.....	6, 7	12, 18, 24	30c
G-8 .....	6, 7	6, 8	24c	P-6 .....	6, 7	2	21c
G-10 Sidelight.....	6, 7	6	24c	P-8 Sidelight.....	6, 7	4, 6	24c
G-10 Sidelight.....	6, 7	8, 10	27c	P-8 Focusing.....	6, 7	6	32c
G-10 Focusing.....	6, 7	6, 8, 12	30c	R-8 Dome Lamp.....	6, 7	2, 4, 6	32c
G-12 Focusing.....	6, 7	9	30c				

EACH LAMP IS TESTED BEFORE PACKING AND IS VERY CAREFULLY PACKED  
Postage on each lamp, 5 cents extra

## Decorative Lamps



The bulbs are clever imitations of different fruits, flowers and figures in their natural colors. They form the most pleasing display imaginable. They come in great variety: Apples, pears, peaches, oranges, tulips, strawberries, lemons, robins, bluebirds, Santa Claus, snowmen, etc.



- |          |   |        |
|----------|---|--------|
| No. 3340 | Fruit Lamps, assorted, 3½ volts.....                                | \$ .25 |
| No. 3342 | Fruit Lamps, assorted, 14 volts.....                                | .30    |
| No. 3344 | Flower Lamps, assorted, 14 volts.....                               | .35    |
| No. 3346 | Fruit Lamps, asstd., 14 volts, very large                           | .35    |
| No. 3350 | Fancy Lamps, owls, robins, flowers, snowmen, dogs, etc., 14 volts.. | .75    |
- By mail, three cents extra*

### PLEASE NOTICE

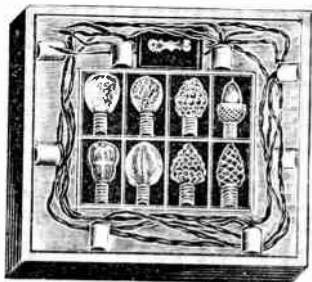
The various incandescent lamps listed in this catalog are American manufacture of the highest grade obtainable.

Each lamp that we sell is carefully tested upon a current of proper voltage just prior to shipment, and is known to be in perfect condition.

Lamps are frequently purchased from us and used on voltages other than that for which they were intended. They will then quickly burn out. If our lamps are used on the proper voltage they will prove to be exceptionally durable and long-lived.

Each lamp is carefully tested and packed, and for that reason we assume no risk and cannot replace any broken or burnt-out lamps free of charge.

**ADAMS-MORGAN CO.**  
UPPER MONTCLAIR, N. J.



## Decorative Battery Outfits

For the decoration of dinner tables, Xmas trees and other lighting effects, We offer these outfits in such varied assortment and arrangement that a suitable color scheme can be selected without difficulty. When requested, we shall be pleased to offer suggestions for special lighting effects.

No. 3360 Battery Decorative Outfit, consisting of eight  $4\frac{1}{2}$  volt fruit lamps, with sockets and silk covered wire, all ready to connect to batteries. Packed in neat box **\$2.75**

## Amco Wonder Light Outfit



The Wonder Light Outfit can be put into practical use in any household. Just the thing for the experimenter. The outfit consists of a  $3\frac{1}{2}$  volt miniature lamp, a porcelain receptacle, switch, large coil of wire (20 feet), and three cells of dry battery. The wires are long enough so that the light may be located in a dark hall or closet and the switch placed in a handy spot. The lamp may be placed alongside of a clock and the time of night easily told without arising. Lamp may be used on any dry cells. This set would cost 25--50% more if the parts were purchased singly.

No. 2880 Amco Wonder Light Outfit as described..... **\$ .60**  
Shipping weight, 2 lbs.

Adams-Morgan Company, Upper Montclair, N. J.

Brooklyn, N. Y.

Gentlemen:—I received your book "Wireless Construction for Amateurs." I find it simple, plain and very interesting.

B. HAMPE.



## Series Christmas Tree Outfits

For interior decoration where lighting effects are desired. Perfectly safe and reliable. Outfits are already connected for use. Consists of one or more festoons of silk covered wire, each festoon with eight pendant porcelain sockets and attachment plug. Supplied for all voltages from 46 to 250. Be sure and state voltage.

NOTE.—For Fruit Lamps add \$1.25 per festoon and for Flower Lamps add \$1.50.

- No. 3370 One Festoon, 8 sockets, 9 lamps.. \$2.75  
 No. 3372 Two Festoons, 16 sockets, 18 lamps 4.75  
 No. 3374 3 Festoons, 24 sockets, 27 lamps. 7.00  
 No. 3376 4 Festoons, 32 sockets, 36 lamps 8.50

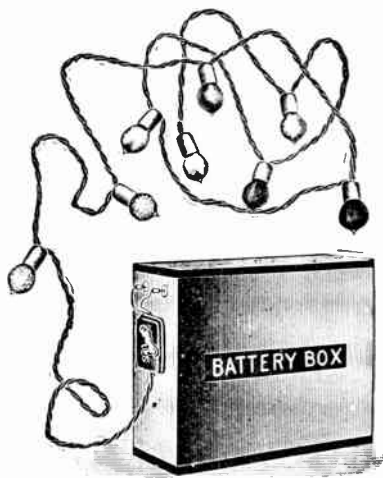
Most novelties lose their attraction after having been in use for some time and are carelessly cast aside. Not so with the Christmas Tree Decorative Outfits. Their unique charms in illuminating the tree with the radiance produced by electric current only add to their popularity and bring new cheer to old and young as does the tree which they adorn. The interesting variety of shapes and colors in which the lamps used in these outfits are offered give the most critical and fastidious hostess an opportunity to harmoniously blend them in any color scheme appropriate for any occasion, not only to decorate the Christmas Tree, but also for decoration on other festive occasions. Indeed, nothing is more essential to the proper observance of holidays and other festivities than appropriate illumination.

## Battery Christmas Tree Outfit

WITH TUNGSTEN LAMPS

This is a fine Xmas tree or decorative outfit, operated by dry batteries so that it can be used where lighting current is not available. The outfit consists of three batteries enclosed in a strong case with switch; eight lamps, clear, frosted, red and green, together with sockets and connecting cords ready for operation. Decorative when not lit and very effective when illuminated. Portable, neat and absolutely safe.

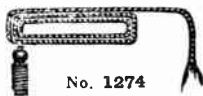
- No. 3365 Complete outfit as described ..... \$3.25  
 No. 3366 String of eight colored tungsten lamps with wire and sockets.... 2.50



## Renewal Lamps for Scarf Pins

- No. 1273 Consists of a small lamp about the size of a pea with silk covered wires and plug attached..... 30 cents  
*Shipping weight, 2 ozs.*

## Miniature Attachment Plug and Cord



- No. 1274 This attachment plug fits any miniature base socket, receptacle or flashlight in place of the lamp. Consists of miniature attachment plug and 2 feet of double silk twisted and stranded conductor ..... 15 cents  
*Shipping weight, 2 oz.*

## Small Brass Sockets with Key

This decided novelty on the American market will be welcomed by all our friends. The uses of this article are apparent. It does away with an extra switch to turn the light off or on. Made in brass and porcelain entirely. As pretty and useful an article as we have come across in a long while. Base fits any tube  $\frac{3}{8}$  inch pipe ( $\frac{1}{8}$  inch pipe measure). Our reflectors fit both styles.



- No. 419 Miniature Socket, with Key..... 28 cents  
 No. 421 Candelabra Socket, with Key..... 32 cents  
*Shipping weight, 4 oz.*

## Miniature and Candelabra Sockets



- No. 2860 Flat base miniature receptacle..... \$ .05  
 No. 2861 Flat base candelabra receptacle..... .06  
 No. 2862 Weatherproof miniature socket for decorative purposes..... .08  
 No. 2863 Weatherproof candelabra socket..... .09  
 No. 2864 Candelabra brass socket..... .15  
 No. 2865 Pin socket, miniature, with wire leads, for Xmas trees..... .06  
 Any of above sockets by mail, extra..... .02

## Adapters



- By means of an adapter a candelabra lamp may be made to fit an Edison socket or a miniature lamp to fit a candelabra base.
- No. 2870 Edison-Candelabra Adapter ..... \$ .12  
 No. 2872 Miniature-Candelabra Adapter ..... .04  
 By mail, extra ..... .02



## Miniature Wall Brackets



No. 2830



No. 2835

These brackets will be found useful in many ways. They offer the neatest and most convenient method of mounting battery lamps. Will be found especially adapted for motor boat lighting, etc. May be used in dark hallways, over desks or as table lamps by standing up vertically.

Each bracket is wired and ready for use. Fitted with two binding posts for connections and a highly polished reflector which doubles the light. The reflectors are removable and may be taken off and replaced with a bead shade. Supplied with either candelabra or miniature socket as listed below. These brackets may be ordered without reflectors if desired. Deduct five cents from price when doing so.

		PRICE	WEIGHT
No. 2830	Wall Bracket, miniature socket, total length 4 in. . . .	\$.35	4 oz.
No. 2832	Wall Bracket, candelabra socket, total length 6 1/4 in. . . .	.45	8 oz.
No. 2834	Wall Bracket, miniature socket, total length 3 1/2 in. . . .	.35	4 oz.
No. 2836	Wall Bracket, candelabra socket, total length 5 1/2 in. . . .	.45	8 oz.



No. 2838

## Flush Wall or Ceiling Bracket.

This bracket may be used in places cramped for room or to hang from a low ceiling. Has metal base, binding posts for connections and a polished reflector. Made only for candelabra base. Miniature base lamps may be fitted by using our No. 2872 adapter.

No. 2838	Flush Wall or Ceiling Bracket. . . .	\$.30
	Weight, 6 oz.	

## Nickel-plated Reflectors

These reflectors are made of spun brass, heavily nickel-plated and polished. The edges are turned over so as to give them a rounded shape. These reflectors will double the light of a lamp when placed behind it. In ordering, be sure to state whether for miniature or candelabra base, as the holes in the centre are different.

No. 2840	Nickel Reflector, 1 1/2 in. diameter. . . . .	\$.05
No. 2841	Nickel Reflector, 2 in. diameter. . . . .	.07
No. 2842	Nickel Reflector, 2 1/2 in. diameter. . . . .	.09
No. 2843	Nickel Reflector, 3 in. diameter. . . . .	.10
No. 2844	Nickel Reflector, 4 in. diameter. . . . .	.12
No. 2845	Nickel Reflector, 5 in. diameter. . . . .	.15

Weight of any above packed, 2 oz.



Nos. 2840-45

Brooklyn, N. Y.

Adams-Morgan Company, Upper Montclair, N. J.

Gentlemen:—Kindly accept my thanks for your prompt attention to my order sent. Potentiometer received in good condition, well packed and all you represent same to be.

Sincerely,

J. MILLER.



No. 2846

## Fancy Bead Shades

These shades give a very pretty effect to either our No. 2834 or No. 2836 wall brackets. The bodies are made of brass, carefully lacquered. The No. 2846 shade has beads in different colors. No. 2847 comes in green only. In ordering, be sure to state if for candelabra or miniature sockets.

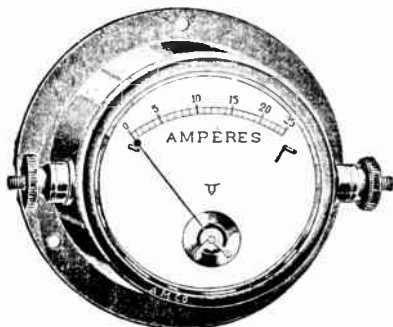


No. 2847

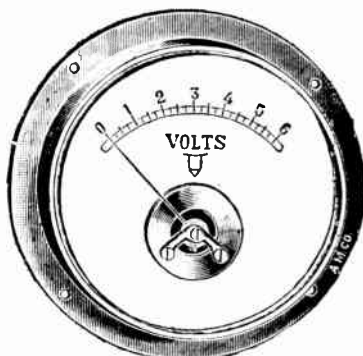
No. 2846	Fancy Bead Shade.....	PRICE
		\$ .40
No. 2847	Green Bead Shade.....	.30

Weight of either, wrapped for shipping, 4 oz.

## Volt and Ammeters



Nos. 1400-01



Nos. 1402-04

These ammeters and voltmeters are made for use on switchboards, automobiles, motor boats, etc. The experimenter will find them invaluable for many purposes. Each is enclosed in a heavy nickel-plated case, provided with a thick crystal which will stand rough usage. The inside windings are of the finest silk covered wire. The springs are Swiss watch spirals of the finest grade.

The Nos. 1400-01 instruments are provided with binding posts at the sides as shown in the illustration so that connection may be made from the front.

The Nos. 1402-04 meters are intended for use where not much space is available or where back connections are desirable. The working parts of these meters are on a slightly smaller scale than those of the Nos. 1400-01 but are identical in other respects. They have no binding posts but there are two flexible silk wires leading out from the back of the meter and connections are thereby very easily effected.

		PRICE
No. 1400	Ammeter, reading 0-25 amperes, 2¾ inch face.....	\$3.00
No. 1401	Voltmeter, reading 0-25 volts, 2¾ inch face.....	3.00
No. 1402	Ammeter, reading 1-15 amperes, 2½ inch face.....	2.15
No. 1403	Voltmeter, reading 1-12 volts, 2½ inch face.....	2.15
No. 1404	Combination Volt-Ammeter, reading 1-12 volts and 1-25 amperes, 2½ inch face.....	3.00

## Copper Magnet Wire

SINGLE COTTON					DOUBLE COTTON			
SIZE B. & S. GAUGE	FEET PER LB.	PRICE PER LB.	PRICE ½ LB.	PRICE ¼ LB.	FEET PER LB.	PRICE PER LB.	PRICE ½ LB.	PRICE ¼ LB.
12	....	\$.37	\$.21	....	....	\$.40	.24	....
14	....	.37	.21	....	....	.42	.26	....
16	125	.37	.21	....	122	.43	.27	....
18	200	.40	.23	....	189	.45	.30	....
20	311	.45	.26	....	298	.49	.32	....
21	389	.46	.30	....	370	.53	.34	....
22	491	.47	.30	....	461	.55	.35	....
23	624	.50	.34	....	584	.58	.38	....
24	778	.51	.35	.18	745	.61	.39	.21
25	958	.54	.35	.20	903	.66	.41	.24
26	1188	.57	.36	.21	1118	.70	.42	.26
27	1533	.62	.38	.22	1422	.77	.47	.28
28	1903	.68	.42	.24	1759	.83	.51	.30
29	2461	.69	.43	.26	2207	.89	.55	.31
30	2893	.73	.46	.28	2534	.96	.58	.32
31	3482	.82	.54	.30	2768	1.05	.62	.33
32	4234	.92	.57	.32	3737	1.10	.66	.34
33	5141	1.00	.62	.36	4697	1.25	.71	.40
34	6317	1.19	.73	.43	6168	1.42	.84	.46
35	7755	1.25	.77	.48	6737	1.70	.99	.56
36	9511	1.45	.85	.52	7877	2.00	1.15	.63
38	....	2.15	1.50	.88	....	3.75	2.00	1.20
40	....	3.50	2.00	1.52	....	5.75	3.00	1.88

SINGLE SILK					ENAMEL			
SIZE B. & S. GAUGE	FEET PER LB.	PRICE PER LB.	PRICE ½ LB.	PRICE ¼ LB.	FEET PER LB.	PRICE PER LB.	PRICE ½ LB.	PRICE ¼ LB.
16	....	\$.64	\$.40	....	....	\$.44	.30	....
18	....	.67	.42	....	....	.44	.30	....
20	317	.70	.44	....	....	.46	.31	....
21	....	.72	.45	....	....	.48	.32	....
22	501	.74	.46	....	....	.50	.32	....
23	632	.77	.48	....	....	.52	.33	....
24	799	.82	.51	.27	810	.54	.34	.18
26	1263	.96	.60	.32	1286	.64	.40	.20
28	1988	1.12	.70	.36	2042	.73	.46	.24
30	3148	1.36	.85	.44	3240	.86	.54	.26
31	3933	....	....	....	4032	.95	.59	....
32	4913	1.73	1.08	.58	5132	1.02	.62	.32
33	6129	....	....	....	6445	1.15	.70	....
34	7646	2.32	1.45	.75	8093	1.38	.80	.36
35	9536	....	....	....	10197	1.48	.90	....
36	11889	3.14	1.97	1.00	12813	1.65	.98	.50
38	....	4.46	2.79	1.45	....	2.62	1.45	.88
40	....	6.51	4.07	2.30	....	3.70	2.00	1.40

1 lb. of wire wrapped, weighs 20 ounces. ½ lb. of wire wrapped, weighs 12 ounces  
¼ lb. of wire wrapped, weighs 7 ounces

## Flexible Conductor



	PER YARD
No. 1540 Composed of 16 No. 33 B & S copper wires, green silk braid covering..	\$ .07
No. 1541 Composed of 16 No. 31 B & S copper wires, double green silk covering.	.07
No. 1542 Composed of two conductors each having five No. 30 copper wires, with cotton braid, laid together flat and covered with green silk.....	.07
<i>By mail, 2 cents extra per yard</i>	

## Flexible Telephone Cords for Single Receiver



No. 1200 Cotton, red and black, 2 ft., each .....	\$ .12
No. 1202 Cotton, red and black, 3 ft., each .....	.15
No. 1204 Green Cotton, 5 ft., each .....	.22
No. 1206 Green Silk, 3 ft., each .....	.25
No. 1208 Green Silk, 5 ft., each .....	.36
<i>By mail extra, 3 cents</i>	

## Telephone Cords for Two Receivers

No. 1210 Green Cotton, 5 feet long .40	No. 1214 Green Cotton, 6 feet long .45
No. 1212 Green Silk, 5 feet long.. .50	No. 1216 Green Silk, 6 feet long.. .55
<i>By mail extra, 3 cents</i>	

## Annunciator Wire

The standard wire for general bell work. It is double cotton wrapped, waxed and paraffined. Can be furnished red, red-white, blue, blue-white and brown.

No. 1528 No. 16 B & S, 105 ft. to the lb.....	\$ .33
No. 1529 No. 18 B & S, 155 ft. to the lb.....	.35
No. 1530 No. 20 B & S, 239 ft. to the lb.....	.38

*Shipping weight, 2 lbs.*



## High Tension Cable



For all high tension Wireless, X-Ray and high frequency work. Flexible and strong. Made with three layers of rubber and three layers of fabric insulation.

No. 7710 High Tension Cable, per foot.....	\$ .18
<i>Weight per foot, 1/2 lb.</i>	

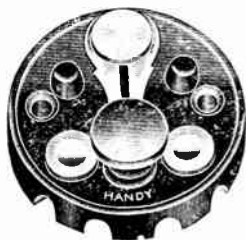


## Wood Base Switches

These switches are used for opening and closing bell circuits, starting small motors, miniature lamps, etc. Polished hardwood base, hollow for inside connections. Made in ash, oak, cherry and walnut.

		PRICE	POSTAGE
No. 1312	Wood Switch, 1 point.....	\$.07	\$.03
No. 1313	Wood Switch, 2 point.....	.08	.03
No. 1314	Wood Switch, 3 point.....	.09	.03
No. 1315	Wood Switch, 4 point.....	.10	.03
No. 1316	Wood Switch, 5 point.....	.12	.03
No. 1317	Wood Switch, 6 point.....	.13	.03

## Battery Switches



No. 1320

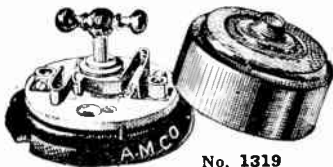


No. 1318

No. 1318 CROWN SNAP SWITCH. Made of metal, nickel-plated. Has quick double break. The ends of the arms are concaved and fit over the points, insuring a very firm contact and a quick break. Each..... \$ .16

No. 1320 TWO-POINT HARD RUBBER SWITCH with detachable handle. Each \$ .35

No. 1319 MINIATURE SNAP SWITCH. The smallest made. It is an exact duplicate of those used for regular lighting. Carries 5 amperes. Cover is nickel-plated. Base is porcelain. Each .....\$ .15



No. 1319

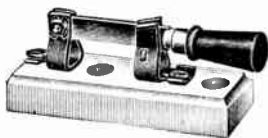
Shipping weight of above switches, 4 ounces

Newark, N. J.

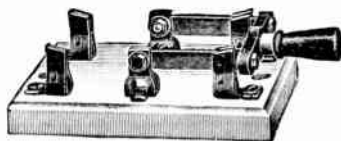
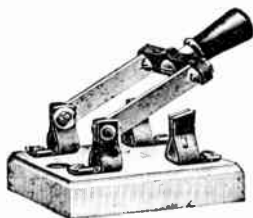
Adams-Morgan Company, Upper Montclair, N. J.

Gentlemen:—Your new catalog received and thank you for same. Your storage cells which I use on my bicycle are giving excellent service. I shall send you an order soon.

FRANK X. KEILING, JR.



## Porcelain Base Switches



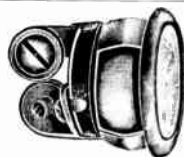
Correctly designed to fulfil the requirements of the National Electrical Code in every way. Several unique features are embodied in the switches, which strengthen them and make them very desirable. The No. 1612 may be used as an aerial switch.

	PRICE	WEIGHT
No. 1609 Single pole, single throw.....	\$ .17	6 oz.
No. 1610 Single pole, double throw.....	.30	8 oz.
No. 1611 Double pole, single throw.....	.21	10 oz.
No. 1612 Double pole, double throw.....	.36	20 oz.

## Midget Push Button

Fits into a  $\frac{3}{8}$ -inch hole. Held by strong side springs. It holds firmly. Has mother-of-pearl center and binding posts to grip any size of wire.

No. 1255 Midget Push Button.....	PRICE \$ .14
<i>Shipping weight, 3 oz.</i>	



No. 1255



## Hardwood Push Buttons—Polished

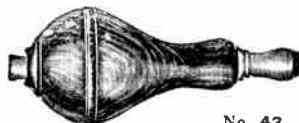
No. 1240 Polished Hardwood Push Button. Has an excellent finish. Elastic springs, insuring good contacts. The cap unscrews 6 cents

*Shipping weight, 4 oz.*

## Hardwood Pear Push—Polished

No. 43 Polished Hardwood Pear Push to be attached to a flexible cord. May be hung over the head of a bed, under a table or in any other place where a convenient push to operate a light or bell may be desired ..... 12 cents

*Shipping weight, 4 oz.*



No. 43

## Polarity Indicator

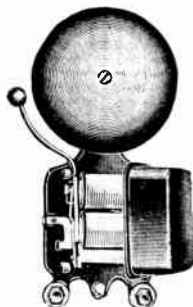


Consists of a special liquid in a glass tube and protected by a nickel plated shell. When connected to a source of current, the negative pole turns red. Very durable and simple.

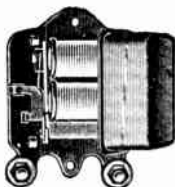
- No. 1644 Polarity Indicator, for battery..... \$ .90  
 No. 1645 Polarity Indicator, for 500 volts or less..... .90

*By mail, extra 4 cents*

## Bells and Wiring Supplies



1210



1220



1230



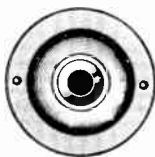
1235



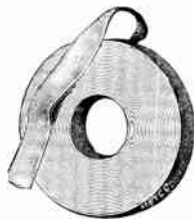
1240



1260



1250



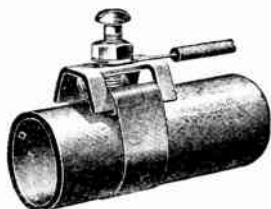
1550

		PRICE	POSTAGE
No. 1210	Utility Bell, 2½-in. gong, each.....	.25	.12
No. 1220	Utility Buzzer.....	.24	.09
No. 1230	Carbon Cylinder Battery, complete with sal-ammoniac and zinc.....	.30	6 lbs.
No. 1231	Carbon Cylinder only.....	.15	3 lbs.
No. 1232	Sal-ammoniac for battery.....	.05	.05
No. 1233	Jar only.....	.10	3 lbs.
No. 1235	Battery Zinc.....	.04	.04
No. 1240	Wooden Push Button.....	.06	.02
No. 1250	Bronze Push Button.....	.12	.04
No. 1260	Bronze Push Button.....	.25	.04
No. 1550	Best Black Tape, ¼-lb. roll.....	.12	.05

Dear Sirs:—I received my wireless receiving set and I thank you very much for your kindness and service.

New York City, N. Y.

ALBERT LAZZARI.



## Ground Clamp

For connecting wires to water pipes or cables. An efficient ground for wireless work.

No. 1045 Ground Clamp ..... <sup>PRICE</sup> \$ .10  
By mail, 2 cents extra

## Pony Telephone Receiver

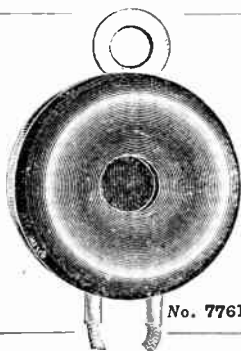
This is the best Single Pole Telephone Receiver made. Size  $2\frac{1}{4}$  inches diameter, weight only 6 ounces. The spool is wound with silk covered wire to the standard resistance of 75 ohms. Binding posts will not get loose. Shell of the receiver is of cast steel and is strongly magnetized. The adjustment is rigid and will not become changed even by the greatest carelessness.



No. 1448 Pony Telephone Receiver..... <sup>PRICE</sup> 55 cents

## Telephone Receiver

This is without doubt one of the best telephone receivers on the market. Has a powerful permanent steel magnet inside, soft iron bobbin cores and other points of superiority. This receiver has double poles and bobbins and is very carefully adjusted to the maximum degree of sensitiveness.

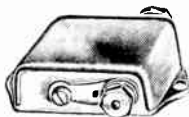


No. 7761 Double Pole Watchcase Telephone Receiver, 75 ohms..... <sup>PRICE</sup> \$ .60  
Shipping weight, 10 ounces

## The Midget Buzzer

This is the smallest buzzer made. The cover and base are formed of sheet steel. The contact adjustment is secured by a spring nut. The buzzer may be closely adjusted to emit a wide range of tones. This is the best buzzer to use for testing the minerals of a wireless set or adjusting the detector.

No. 1225 Midget Buzzer ..... \$ .50  
Shipping weight, 4 ounces



No. 1225

Adams-Morgan Company, Upper Montclair, N. J.

Gentlemen:—I received the books on Wireless O. K., and am very much pleased with them. Find enclosed order for two more.

Marietta, Penna.  
EDW. GRAVES, JR.



## Pocket Ammeters and Voltmeters

For Battery Testing. Accurate, Reliable and Dead Beat

Will register regardless of polarity. Diameter, 2 in. x 1/4 in. thick. Nickel-plated case with beveled glass front. The correct reading is shown almost the instant contact is made, which makes them practically a dead beat instrument, which means saving of time and reduction to a very minimum of battery consumption while testing.

Each instrument is guaranteed against mechanical defects and to register correct battery readings. Flexible conducting cords with tips furnished with each instrument. The combination Volt-Ammeter will register both volts and amperes. The left-hand bottom contact and top connection for volts and the right-hand bottom contact and top connection for amperes.

No. 12982	Ammeter, scale 0 to 35 amperes.....	PRICE <b>\$1.00</b>
No. 12987	Voltmeter, scale 0 to 10 volts.....	<b>1.20</b>
No. 12983	Combination Volt-Ammeter, 0-10 v., 0-35 amp.	<b>1.50</b>

Shipping weight, 1 lb.



No. 12982



No. 4801

## Self-Registering Wire Gauge

An accurate, quick reading wire gauge. Will register instantly the B. & S. standard size of any wire from Nos. 0000 to 18, inclusive. Made of hardened finished steel. Size 2 1/4 inches long by 1 1/4 inches wide. Weighs less than one ounce. Can be carried on the key ring or small safety chain, or in the vest pocket. We guarantee the gauge to register sufficiently accurate to determine the sizes of any wire within the limit specified. Electricians and every person handling wire should have a wire gauge for protection against errors.

No. 4801 Self-Registering Wire Gauge..... 25 cents

By mail extra, three cents

Illustration half size

## Red Seal Dry Battery

QUALITY ABSOLUTELY GUARANTEED

This battery is designed for automobile, motor boat, or any system of gas or gasoline engine ignition, for operating telephone transmitters, railway and other signal devices, cautery and electro-medical apparatus, or any work for which a dry cell is qualified. A comparative test is a fair method of determining the service value of several makes of battery of the same size. Connect one or more Red Seals in circuit with other makes of battery, and test occasionally for amperage and voltage while the contest is on. These readings and the final results will decide the serviceable quality of each cell. We are prepared to furnish all sizes of batteries in either round or square cartons as desired. For convenience and to prevent short circuits we strongly recommend the SQUARE cases.

No. 2445	Red Seal Dry Battery, each.....	\$ .25
	Per Dozen .....	2.16
	Per Barrell (125 in barrel).....	18.12

Shipping weight, 3 lbs. per cell



Always Make Sure Your Postage is Correct

It Will Save Delays

## Battery Connectors



No. 21



No. 23

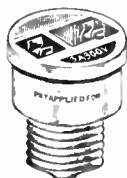
No. 21 Battery Connector .....	1½ cents
No. 23 Battery Connector .....	3 cents

Shipping weight of 12, 4 oz.

## SEPARABLE ATTACHMENT PLUGS

The Simplest and Most Reliable Attachment Plug Manufactured

### Porcelain Body Separable Plug



No. 16410

In the Manhattan Separable Attachment Plug we have succeeded in producing a plug which is at once strong, simple, reliable and in every respect admirably adapted to meet the most exacting requirements. Both plug and cap are generously proportioned and made from the best grade of porcelain. Ample and positive contact area is secured. Spring contact clips are of phosphor bronze and hold the brass terminals securely. It is the only separable plug which will separate at any angle. A pull on the cord in any direction will cause plug and cap to separate instantly, without damage to the socket or cord. The value of our separable feature is best demonstrated when plug is inserted in a wall socket where cord is liable to get a hard strain.

### Composition Body Separable Plug

The body and cap of this attachment plug is made of black moulded composition with smooth finished surface similar to polished hard rubber. Otherwise the plug is identical with No. 16410 described above. This type of plug is desirable for installation in any office or residence because of its neat appearance and finish, and is especially adapted for use in stores, factories and mills on account of the composition being less liable to breakage than porcelain.

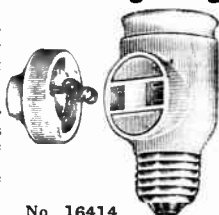
**N. E. C. Standard. 3 Amperes, 250 Volts. 6 Amperes, 125 Volts**

No. 16410 Separable Attachment Porcelain Cap and Base.....	15 cents
No. 16409 Separable Attachment, Black Composition.....	18 cents

Shipping weight, 8 oz.

## Current Tap—Combined Socket and Attaching Plug

A simple and safe device for tapping and carrying the current from any electric light fixture to motor, drop lights or other electrical devices without the loss of light from lamp already in fixture. A pleasing feature of the Mesco Current Tap is that the body may be left in socket while connections may be made or broken at will on the extension without disturbing the light. Made to take shade holder and supplied in either series or multiple type. The multiple type is for general use. The series type is for special apparatus where it is necessary to reduce the voltage of the current by connecting a lamp or other resistance in series with the apparatus. The body is made of one piece of glazed porcelain, with phosphor bronze contact clips. Designed for 250 volts. **N. E. C. Standard**



No. 16414

No. 16414 Mesco Current Tap, Multiple.....	30 cents
No. 16415 Mesco Current Tap, Series.....	30 cents

Shipping weight, 1 lb.

## Edison Brass Shell Sockets

- No. 9386 Edison Brass Key Socket,  $\frac{1}{8}$  inch pipe..... 22 cents  
 No. 35000 Edison Brass Pull Socket,  $\frac{1}{8}$  inch pipe..... 40 cents  
*Shipping weight each, 6 oz.*



9386



## Standard Porcelain Insulators

These insulators will be found entirely satisfactory for insulating receiving aerials in wireless telegraphy. By using a number of these in series an aerial for sending may be insulated and can be used on spark coils up to four inches. Not less than half dozen sold.

Price each..... 2 cents

*Shipping weight of six, 1 lb.*

## Porcelain Cleats

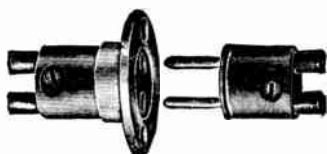
These cleats may be used for various purposes aside from their regular uses. Many experimenters use them for insulating aerials and as such prove very satisfactory. We do not sell less than half a dozen pairs.

Price, per pair..... 2 cents

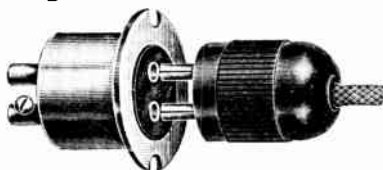
*Shipping weight of six pairs, 2 lbs.*



## Hard Rubber Plug Connectors



No. 82



No. 34

These handy little devices can be used to advantage in many electrical circuits for making and breaking connection. They are used extensively on automobiles, launches, in laboratories and thousands of other places where a quick connection is desired. Can be furnished for either a single or a double conductor.

- No. 180 Single Conductor Plug Connector, soldered connections, same as No. 182 but has no flange..... 15 cents  
*Shipping weight, 4 oz.*

- No. 80 Double Conductor Plug Connector, same as No. 180 but for 2 wires 18 cents

- No. 181 Single Conductor Plug Connector, same as No. 181 but has set screw connections ..... 18 cents

- No. 81 Double Conductor Plug Connector, same as No. 80 but has set screw connections ..... 20 cents

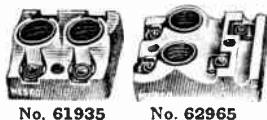
- No. 182 Single Conductor Plug Connector with flange and set screw connections 22 cents

- No. 82 Double Conductor Plug Connector with flange and set screw connections 24 cents

- No. 33 Connector with two caps..... 25 cents

- No. 34 Connector with one flange and one cap..... 35 cents

*Shipping weight of any above, 2 oz.*



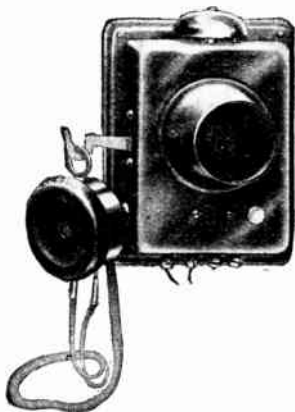
## Edison Plug Cut-Outs

No. 62965	Standard Edison Plug Fuse Block, Main .....	15 cents
No. 61935	Standard Edison Plug Fuse Block, Branch .....	18 cents
<i>Shipping weight, 2 lbs.</i>		

## Amco Rectifier Materials



No. 5590	Rectifier Jar, best flint glass, very tough and will not easily break. Measures 5 x 7 inches	Shipping weight, 4 lbs. each.....	.40
No. 5592	Rectifier Electrodes, pure cast aluminum, with heavy threaded brass lug. Measures 5½ x 2 x 3-16.....		.40
No. 5594	Iron Electrode, cast, same size.....		.20
No. 5596	Chemicals for rectifier. Merely requires to be dissolved in water. Each package is sufficient for one cell, per package.....		.25
<i>Shipping weight, 1 lb.</i>			



## Wall Telephone

SAVE YOUR STEPS  
DON'T WALK—TALK

We have solved the problem of a short line 'phone which can be easily and quickly installed by anyone. Will operate on a two-party line up to 4,000 feet in length. Only requires two dry cells at each end. The case is made of pressed steel beautifully oxidized. Impossible to get out of order.

There are hundreds of places where a set of these 'phones will be found a great time and trouble saver, by making it possible to telephone to different parts of the house, between house and barn or with your chum down the street.

Each set of 'phones is accompanied by a complete wiring diagram.

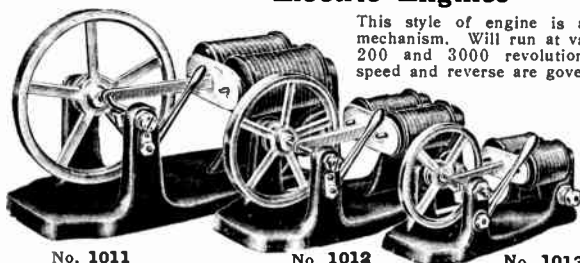
No. 920	Wall Telephones, per pair.....	\$3.75
	Wall Telephone, one station.....	2.00
<i>Shipping weight per pair, 9 lbs.</i>		

Winterport, Maine.

Dear Sirs:—Received your package today. The Geissler Tube works great. Enclosed please find 90 cents for which please send me 1½ lbs. of No. 14 aluminum wire.

C. A. PETERSON.

## Electric Engines



This style of engine is a remarkable piece of mechanism. Will run at variable speeds, between 200 and 3000 revolutions per minute. Both speed and reverse are governed by the controlling

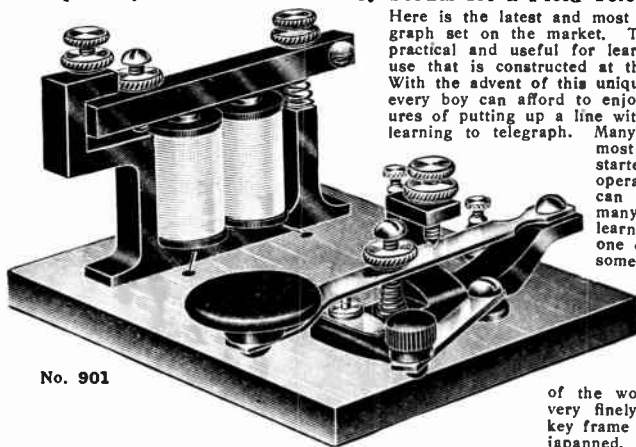
lever. Can be run on one, two or three cells of dry battery. A dry battery equal to the Red Seal will operate one of these engines for days, as they are very economical in the use of current. Interesting, instructive and efficient. Can be belted

No. 1011                      No. 1012                      No. 1013  
with strings extending across a room and a number of toys can thus be operated.

	LENGTH	WIDTH	WEIGHT	FLY WHEEL	PRICE
No. 1011	7 in.	3 1/4 in.	45 oz.	3 1/2 in.	<b>\$1.25</b>
No. 1012	5 3/4 in.	2 1/4 in.	22 oz.	2 3/4 in.	<b>.98</b>
No. 1013	4 in.	1 3/4 in.	10 oz.	2 in.	<b>.60</b>

## Amco Simplex Telegraph Set

**Especially Recommended to Boy Scouts for a Field Telegraph Set**



No. 901

Here is the latest and most up-to-date telegraph set on the market. This is the most practical and useful for learners and actual use that is constructed at the present time. With the advent of this unique telegraph set, every boy can afford to enjoy all the pleasures of putting up a line with his chum and learning to telegraph.

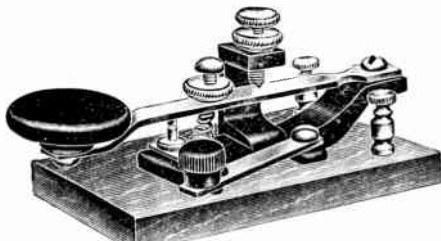
Many of the world's most famous men started as telegraph operators and who can tell but what many a boy who learns to telegraph on one of our sets may some day be numbered among the world's geniuses. Our Simplex set is a first class standard size telegraph set. All

of the working parts are very finely finished. The key frame and sounder are japanned. The key lever, switch, thumbnuts, adjust-

ing screws and binding posts are brass, carefully polished and laquered. The spring tension of both the key and the sounder is adjustable by means of a screw and locknut. The low price of such a fine outfit is only made possible by the fact that we manufacture in large quantities and have succeeded in simplifying much of the detail. The outfit is especially adapted to Boy Scouts for field service because of its compactness. One cell of dry or other battery will operate this instrument nicely but we recommend it only for use on a short line or a single instrument. The outfit can be placed on a table or bench and by running a wire to a neighboring room or a house, even though it may be miles away, perfect telegraphic communication is established. The set is mounted on a polished hardwood base. Size overall 4 1/2 x 4 x 3 1/4 inches. Weight, 1 lb. *Shipping weight, 2 lbs.*

No. 901 Amco Simplex Telegraph Set as described..... **\$1.20**

## Amco Simplex Telegraph Key

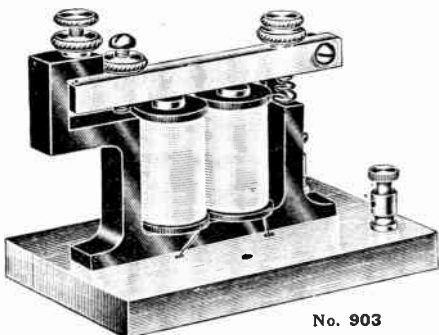


Here is just the thing for the young experimenter desiring a substantial, well-built key. The key is the same as that used on our well-known Simplex Telegraph Set. The frame is cast iron, finished in black enamel. All other parts are brass, polished and lacquered. The key lever is nicely balanced so as to suit the touch of the most critical operator. The key is mounted on a well finished hardwood base and provided with two binding posts. Altogether, this is a practical and serviceable key.

No. 902 Amco Simplex Telegraph Key.... 60 cents      *Shipping weight, 1 lb.*

## Amco Simplex Telegraph Sounder

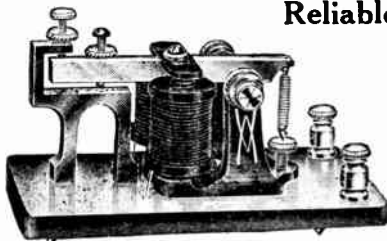
This sounder is designed specially for experimental and private line work but can be used in any telegraph circuit, as all parts are of standard size and arranged to give the best results under all conditions. It is well constructed, nicely finished and guaranteed to give satisfactory service. This is the same sounder supplied on our well-known Simplex Telegraph Set. Under some conditions it is desirable to have the key and sounder mounted on separate bases because of limited space or a desire to place the sounder where it would be inconvenient for operating the key. The frame is iron, carefully japanned. The thumbscrews, locknuts, binding posts, etc., are brass, polished and lacquered. The sounder is mounted upon a polished hardwood base. The clear and distinct sound which it makes is very popular with expert telegraph operators.



No. 903

No. 903 Amco Simplex Telegraph Sounder..... 65 cents  
*Shipping weight, 2 lbs.*

## Reliable Telegraph Sounder



No. 930

This sounder is designed specially for amateur and private line work but can be used in any telegraph circuit, as all parts are of standard size and arranged to give the best results under all conditions.

The lever and anvil are of hardened brass and give a clear sharp sound when operated.

It is well constructed, nicely finished instrument guaranteed to give satisfactory service.

*Shipping weight, 1 lb. 6 oz.*

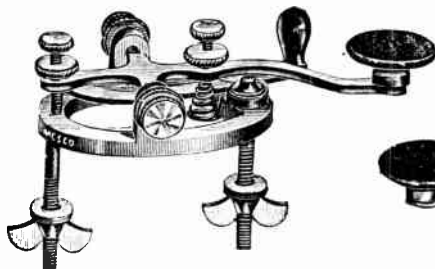
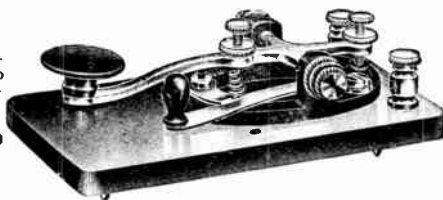
No. 930—Reliable Sounder, 5 ohms..... \$ .85  
No. 931—Reliable Sounder, 20 ohms..... 1.00

## Telegraph Key

Just the thing for the amateur experimenter desiring a key for coils up to 2 inches or any other purpose requiring a substantial, well-built key.

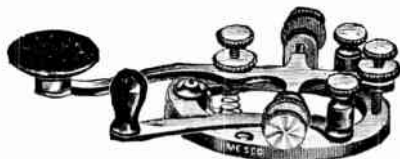
No. 914 Telegraph Key..... \$ .70

Shipping weight, 1 lb.



No. 915

## Telegraph Keys



No. 916  
LEGLESS TYPE

These keys are the Standard of the Postal and Western Union Telegraph Companies. All parts are finely finished, nickel-plated lever, gutta percha knobs and brasswork highly polished and lacquered. Contacts are hardened platinum.

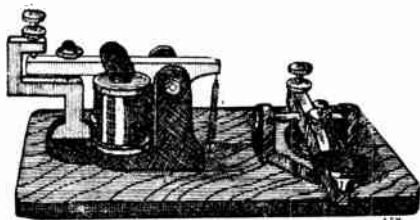
No. 915 Telegraph Key, nickel-plated lever, brass frame..... \$1.10

No. 916 Telegraph Key, legless type, nickel-plated lever, brass frame..... 1.20

Shipping weight, 12 oz.

NOTE—Either key can be supplied in full nickel-plate for thirty cents extra.

## The Amco Combination Telegraph Set



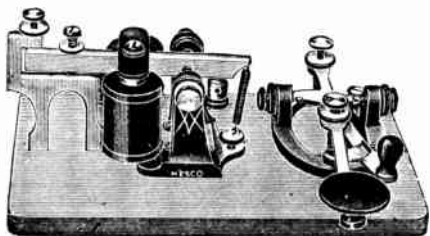
With the advent of this unique telegraph set, every boy can afford to enjoy all the pleasures of putting up a line with his chums and learning to telegraph. This set is a practical, full-sized, working key and sounder. It will work perfectly with one cell of battery. The key is our solid lever-trunnion pattern, fully provided with adjusting screws on both key and sounder. A unique feature of this set is our third contact, wired so that the battery current is automatically cut off when you are through using it. When

connected to a line and you are through talking, the line automatically closes, so that the other person can answer. The metal parts are finished in dark green enamel and brass. The base is finished to match polished mahogany.

No. 900 Amco Telegraph Set, weight two lbs..... \$1.00

Shipping weight, 3 lbs.

## Eureka Combination Telegraph Set



This is a first class telegraph set and includes a handsome sounder and steel lever key of the latest form. Sounder lever, adjustment screws, yoke, etc., are brass. Operates on one cell of dry battery. A perfect learner's instrument.

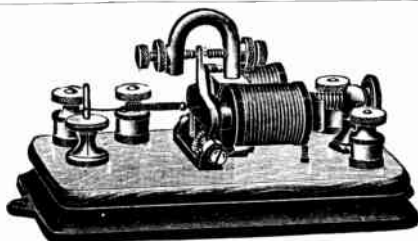
	PRICE
No. 910 Eureka Telegraph Set, 5 Ohms .....	<b>\$1.50</b>
No. 912 Eureka Telegraph Set, 20 Ohms .....	<b>1.70</b>
<i>Shipping weight, 3 lbs.</i>	

## Standard Pony Relay

Mounted on polished mahogany base with metallic surbase.

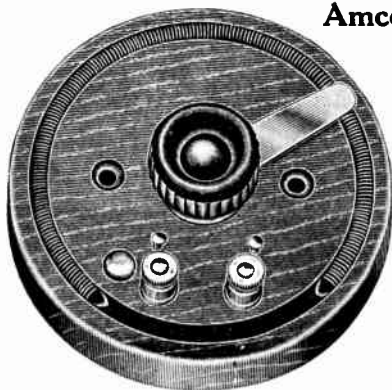
Its use will enable work on lines up to twenty miles, with perfect ease, in cases where main line sounders fail to give satisfaction. Requires less battery to operate it than does any main line sounder of like resistance.

*Shipping weight, 2 1/4 lbs.*



No. 920—5 Ohms for Burglar Alarm Work.....	<b>\$1.80</b>
No. 921—20 Ohms for lines up to 10 miles.....	<b>1.80</b>
No. 922—50 Ohms for lines 10 to 30 miles.....	<b>1.95</b>
No. 923—75 Ohms for lines 30 to 50 miles.....	<b>2.10</b>

## Amco Rheostat Regulator



No. 1265

Current capacity is two amperes continuously. Laboratory workers will find this an efficient and

No. 1265 Amco Rheostat Regulator..... \$ .60 *Shipping weight, 8 ounces*

The Amco Rheostat Regulator makes a valuable addition to any electrical equipment. It may be used with battery lamps to prevent them from burning out on account of too strong current or in connection with a small motor to regulate the speed.

It is useful for many purposes about a telegraph station and is especially recommended in connection with an Audion detector.

The wire used in this rheostat is the finest grade of resistance wire and will not rust or corrode. The construction permits gradual and accurate regulation of current. The resistance is air cooled with no concealed parts; impossible to get out of order.

The resistance is wound over a grooved form and not in the usual form of a spring. It is therefore impossible for the resistance to get out of shape or become short circuited on account of the adjacent turns touching one another.

Physicians, surgeons, experimenters and very useful small rheostat.

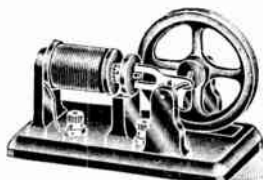


## Amco Electric Engines

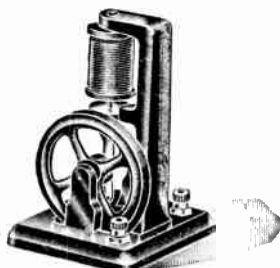
*The Most Practical and Ingenious Engine Made.*



OVER TYPE ENGINE



HORIZONTAL ENGINE



UNDER TYPE ENGINE

### AMUSING AND INSTRUCTIVE

These remarkable pieces of mechanism are the most ingenious little engines on the market. Can be run on one, two or three cells of dry battery. Two dry cells will run one of these engines for several days of continuous running as they are very economical in the use of battery current.

### LOTS OF FUN

The engines run from 1000 to 3000 revolutions per minute. Each flywheel is provided with a grooved pulley so that the engine can be belted with a string and a number of toys operated. A boy can obtain more amusement and instruction from an Amco Electric Engine than almost any other electrical device.

All engines are of the "single cylinder" type. The frame and flywheel are iron castings finished respectively in black and red enamel. The binding posts, brushes and fittings are copper and brass. The engines have been designed and built so that their lines conform as far as possible with those of large steam and gasoline engines. They are very pleasing in appearance as well as of a high mechanical and electrical efficiency.

#### HORIZONTAL ENGINE

Very similar in appearance to a Corliss engine.  $3\frac{3}{4}$  inches long,  $2\frac{1}{4}$  inches high.

#### UNDERTYPE ENGINE

Bears a marked resemblance to a vertical steam or gasoline engine. Height  $3\frac{3}{4}$  inches.

#### OVERTYPE ENGINE

Much resembles a hot-air engine. Height  $3\frac{3}{4}$  inches.

		PRICE EACH
No. 2000	Amco Horizontal Electric Engine as described.....	45 CENTS
No. 2001	Amco Overtypic Electric Engine as described.....	45 CENTS
No. 2002	Amco Undertypic Electric Engine as described.....	45 CENTS

*Weight of each engine packed, 13 ounces*

Goodfield, Ill.

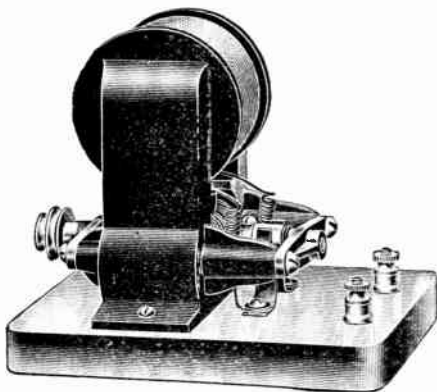
Gentlemen:—I wish to acknowledge receipt of the No. 3339 lamp. It is a dandy and I am well pleased with it. Please send me your new catalog as soon as it comes off the press.

Sincerely yours,

FLOYD BRACKEN.

## The Amco Junior Dynamo-Motor

AN EXCELLENT MACHINE FOR THE YOUNG EXPERIMENTER.



No. 1000

small machine. The windings are varnished and baked so as to be moisture-proof. The machine is mounted on a hardwood base and fitted with a grooved pulley.

### MAY BE USED EITHER AS A DYNAMO OR A MOTOR.

A surprisingly large amount of power is developed by this little machine when used as a motor. When running on a six-volt battery it is almost impossible to hold the shaft between the fingers. As a dynamo it may be driven by our hand gear, from a sewing machine or scroll saw, etc., or by our Nos. 1 and 2 water motors.

**It will light a 6-v. 6-c.p. Tungsten Lamp or three 4-volt Tungstens at about 3500 r. p. m.**

It has an output of 6-10 watts and is wound for 6 volts. It will electro-plate, explode gunpowder, light lamps, run small motors, ring bells, operate medical coils and do numerous other things.

Weight  $3\frac{1}{4}$  lbs., height  $4\frac{1}{2}$  inches, length 5 inches, width 4 inches. Finished in black enamel and brass. *Shipping weight, 4 lbs.*

No. 1000 Amco Junior Dynamo-Motor..... **\$2.95**

## Parts for the Amco Junior Dynamo-Motor

This set of parts gives the young experimenter the opportunity of gaining the knowledge and pleasure involved in the construction of a substantial motor and dynamo. It offers a chance to learn the principles of the large machines which light our homes and drive the street cars, etc.

### IT IS VERY SIMPLE TO BUILD

No tools or technical knowledge is required. All machine work has been performed in our shops. The parts are ready to wind and put together. The set is complete and consists of one field casting, two bronze bearings, armature with commutator and shaft in place, wire, base, binding posts and screws. We supply a large drawing and complete directions with every set so that you cannot possibly go wrong. Any boy can easily finish the machine and thus become the possessor of a fine dynamo-motor.

No. M500 Complete Set of Parts for the Junior Dynamo-Motor... **\$2.00**

*Shipping weight, 4 lbs.*

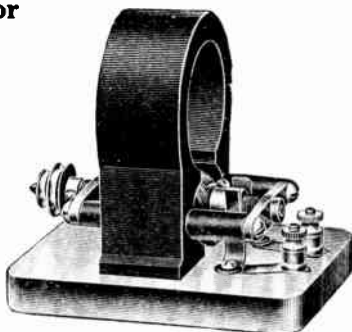
## Amco Midget Dynamo-Motor

May be used either as a dynamo or a motor. A surprising large amount of power is developed when used as a motor. As a dynamo it will ring a bell, light a small lamp and do numerous other interesting things. It may be driven from a sewing machine, by a hand gear or any other convenient means.

The field is a powerful permanent magnet. The bearings are bronze castings and are exceptionally large and durable. The armature is of the two-pole type and is fitted with a large commutator.

This little machine is very substantially constructed. It is mounted on a hardwood base and fitted with a grooved pulley. Weight 2 lbs., height 3¼ inches.

No. 1005 Amco Midget Dynamo-Motor \$1.50  
Shipping weight, 4 lbs.



No. 1005



## The Gem Battery Motor

This is a very substantial, well-built motor, finished in black enamel and mounted on a polished wooden base. Used for operating small mechanical toys and advertising devices; runs on a single cell of dry battery. A neatly designed and serviceable motor.

	PRICE
No. 1020 Gem Battery Motor.....	\$.80
Gem Battery Motor, with 3½ in. fan.....	.95

Shipping weight, 1 lb.

## Horizontal Motor

Wound complete or Unwound for Amateurs, Students, etc.

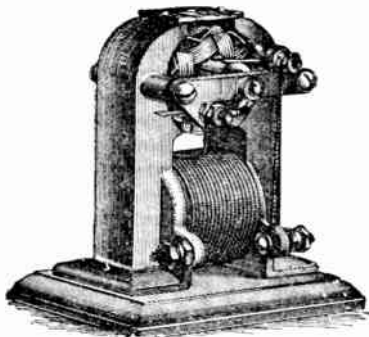
A very substantial motor of unusually rugged construction. The motor can be taken apart any number of times and the shaft will always line up. This is a very desirable feature for those who wish to experiment. A ROCKER ARM carries the brushes and can be moved to any position, allowing proper adjustment of the brushes. The BEARINGS and COMMUTATOR are very large. Small oil cups are provided. Each motor is finished in dead black lacquer and mounted, together with brass binding posts, on a polished cherry base.



Size—3½ x 4¼ x 3¼

No. 1030 Horizontal Motor, finished and assembled, ready for winding, including wire and directions.....	\$2.80
No. 1040 Horizontal Motor, wound ready for use, standard winding for any voltage up to 8 volts, weight 2¼ lbs.....	3.75

Shipping weight, 4 lbs.



## Vertical Motor

The field is a one-piece casting, of soft gray iron. No joints in the Magnetic Circuit. Armature, 3-part pole of same metal, 1 $\frac{3}{4}$  in. diameter, 1 inch face. Commutator, 3-part tubular heavy wall,  $\frac{5}{8}$  x  $\frac{1}{2}$  inch. Bearings of red metal. Shaft, 3-16 inch steel. Pulley,  $\frac{5}{8}$  inch diameter, V-grooved, fastened to shaft by small set screw. Finish is dead black, with lacquered brass parts and polished cherry base.

No. 1050 Vertical Motor, standard winding up to 8 volts.....\$4.00

Size, 3 $\frac{1}{2}$  x 4 $\frac{1}{4}$  x 4 $\frac{1}{2}$  inches high  
Weight, 3 $\frac{1}{4}$  pounds

## Amco Peerless Battery Motor

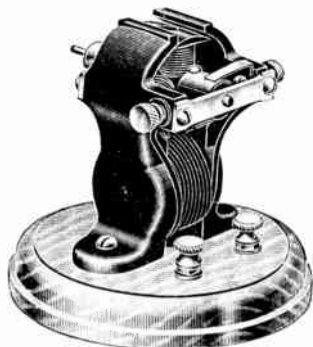
This is a very substantial well-built motor. A great favorite with the boys. An excellent model for the beginner. Runs efficiently on one cell of dry or other battery. It is a very powerful motor for its size and is capable of running six or eight ordinary toys or small models. Fitted with a grooved pulley for small belts.

Finished in black enamel. The screws, bearings, pulley, binding posts, etc., are nickel plated. Has a three-pole armature, causing the motor to start without assistance when the current is applied. The motor is mounted on a polished hardwood base and stands 3 $\frac{1}{4}$  inches high overall.

Weight, 12 ounces

No. 100 Amco Peerless Battery Motor... \$ .90

Shipping weight, 1 lb.



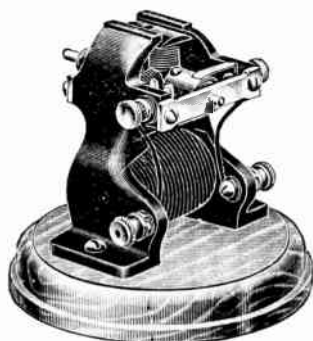
## Amco Hercules Battery Motor

This is a slightly larger and more powerful motor than the No. 100 but is built on the same general plan. The field winding is especially large and powerful making it possible to drive a large number of toys or models on one or two cells of battery. The motor will run at high speed on one dry cell.

The field is cast insuring stronger and more substantial construction than the stampings used in some motors. Finished in black enamel with nickel-plated trimmings. Has a self starting three-pole armature. Mounted on a polished hardwood base. The motor is provided with two binding posts mounted on the field casting so that if desirable it may be removed from the base without disturbing the connections. Stands 3 $\frac{1}{4}$  inches high overall. Weight, 14 ounces.

No. 102 Amco Hercules Battery Motor \$1.20

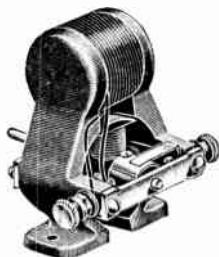
Shipping weight, 1 lb. 2 oz.



No. 102

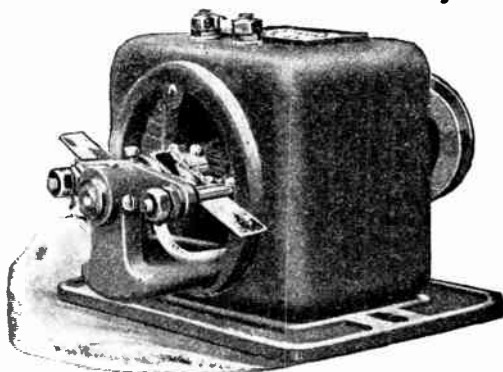
## Amco Boat and Model Motor

For efficiency and power this motor will recommend itself to all interested in a small motor suitable for driving model electric boats, trains, airships, mechanical devices, advertising models, etc. That it commands an exceptionally large sale on account of its compactness and reasonable price goes without question. The field frame is solid and provided with feet for mounting. The bearings are large and heavy. Fitted with copper brushes. Runs at high speed and is self-starting on 2 volts. The binding posts are mounted directly on the motor so that the connections are easily established. The motor is finished in gray enamel with nickel-plated trimmings. The motor stands  $2\frac{1}{2}$  inches high and weighs 10 ounces. It is very economical of battery current and develops a surprising amount of power.



No. 120 Amco Boat and Model Motor ... \$1.00 Shipping weight, 1 lb.

## The Gnome Dynamo



A powerful Dynamo for the experimenter and amateur electrician. This machine will light 15 six-volt 4 c.p. Tungsten lamps or three 16 c.p. lamps at 2000 r.p.m. Will also do electroplating.

The Field—Bi-polar, semi-enclosed, of soft gray iron. Plenty of iron is used and there are no joints in the magnetic circuit. The Bearings are long, about four times the shaft diameter, with removable brass bushings. The Shaft is steel,  $7\frac{1}{4}$  ins. long, turned between centres. The Armature is a laminated modified tunnel drum of six sections, 1 13-16 inch diameter and  $1\frac{1}{4}$  inch long, insulated with fibre, wound with double cotton wire and varnished.

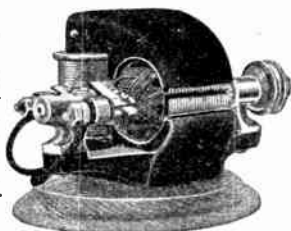
The Commutator is six section, heavy tubular, 1 1-16 inch by 1 inch and of ample carrying capacity. The Brushes are of strip copper, long and springy, held in slotted brush holders supported on an adjustable rocker arm. The Field Coils are form wound of double cotton wire, taped and dipped in insulating varnish. Pulley, 2 inch diameter, V grooved for round belt. Weight, 12 lbs. Shipping weight, 16 lbs.

No. 1060 Gnome Dynamo, 80 watts, at 3,200 r.p.m., 10 volts, 8 amperes.. \$10.00

## Pony Dynamo

The best constructed and most efficient dynamo on the market. Weight,  $4\frac{3}{4}$  lbs. Speed, about 3,500 revolutions per minute. Output, 10-12 watts. Wound for 4, 6, 8 or 10 volts. The Pony Dynamo is a substantial little machine. It will run equally well as a motor or dynamo. It may be run as a motor by the current from a small dynamo, or from two or three cells of battery. As a dynamo it will readily light two of our 6 c. p. lights. Has a grooved pulley. May be driven by one of our No. 2 water motors and used to light lamps, recharge our small storage cells or a hundred other purposes. Shipping weight, 6 lbs.

No. 1070 Pony Dynamo..... \$3.50

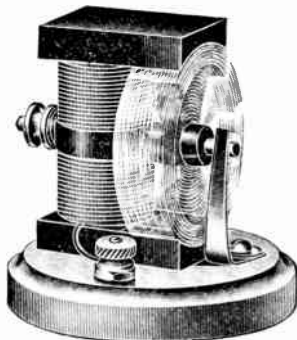


## Amco Little Giant Motor

The simplest and most powerful motor of its size ever placed on the market. It is well made and finished throughout, and we do not believe it can be duplicated for the price. The motor is  $2\frac{1}{2}$  inches high and is finished in black enamel. It will run at a high rate of speed on a single dry cell and is fitted with a pulley for running mechanical toys, such as lathes, drill presses, punch presses, water wheels, trip hammers, etc. The motor is so constructed so that as many as six dry cells may be used, thereby considerably increasing the power without in the least injuring the motor. This is an opportunity for every boy to obtain a powerful, well built motor from which he may obtain no end of practical instruction and entertainment at an extremely low price.

PRICE

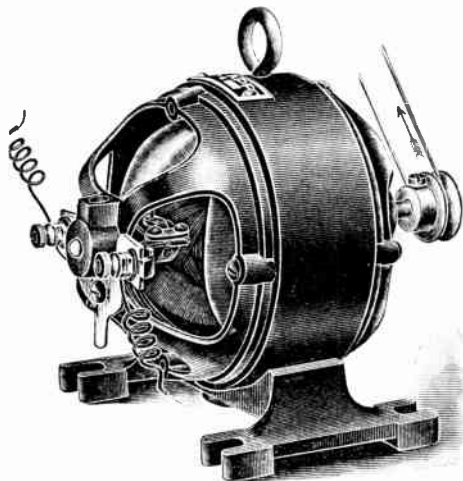
No. 106 Amco Little Giant Motor; size  $2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$  inches.... 50 cents  
Shipping weight, 1 lb.



No. 106

## Type S Dynamo Motor

6 Volts, 4 Amperes at 3000 Revolutions



No. 129

black enamel.  $5\frac{1}{2}$  in. high including base and ring.  $4\frac{1}{4}$  in. diameter less base and ring. Approximate output at 3000 revolutions. Open circuit 9 volts. Safe maximum load 6 volts, 4 amperes. As a power motor Type S shows good results on 4 to 6 volts.

No. 129 Type S Dynamo Motor..... **\$3.70**  
Shipping weight,  $6\frac{1}{2}$  lbs.

PRICE

The dynamo places the boy in possession of current at will. By its use he learns the lesson and method of conversion of mechanical energy, begins to understand the great fundamental laws of mechanics, and all in a delightful way, which constantly spurs him on to renewed experiment and endeavor. With current at hand he can electroplate, charge storage batteries, run lamps, motors, trains of cars, induction coils, etc., in fact, the number of his experiments is only limited by his knowledge and desire.

As with our other electrical novelties, this dynamo is a miniaturized duplicate of machines in actual commercial operation.

### POINTS OF CONSTRUCTION

Field—Cast solid, with coils form wound and connected in multiple; Oil Cups; Armature— $1\frac{3}{4}$  inch diameter, drum type, six slots, laminated. Shaft,  $\frac{1}{4}$  in. Brushes—adjustable with set screw. Rocker Arm—for turning the brushes to the best line of commutation. Pulley—1 in. diameter, grooved for 3-16 in. round belt. Finish—

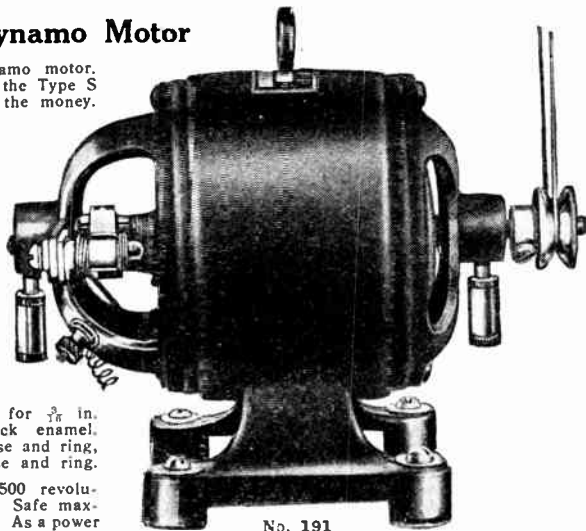
## Type D Dynamo Motor

This is an excellent dynamo motor. While not as powerful as the Type S it is wonderful value for the money. The Type D dynamo motor may be attached to a gas engine, a sewing machine or other driving power.

### POINTS OF CONSTRUCTION

Field—Cast solid, with coils form wound and connected in multiple. Armature—1½ in. diameter, drum type, six slots, laminated. Shaft—188 diameter. Brushes—Spring tension. Rocker arm for turning the brushes to the best lines of commutation. Pulley ¾ in. diameter, grooved for ⅜ in. round belt. Finish—Black enamel. 4½ in. high, including base and ring, 3½ in. diameter, less base and ring.

Approximate output at 3500 revolutions. Open circuit 7 v. Safe maximum load, 4 v., 1½ amp. As a power motor, 6 v. The shunt connected fields increases the power at slow speed. If changed to series, high speed may be obtained.



No. 191

No. 191 Type D Dynamo Motor..... \$3.00

Shipping weight, 4 lbs.

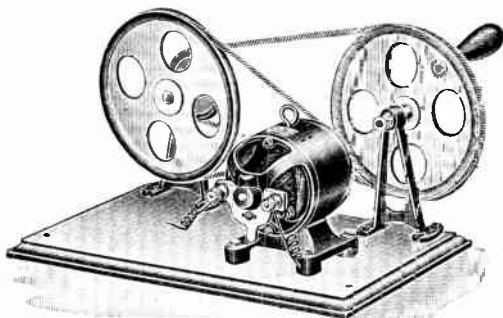
## Hand Drive for Dynamo

### A Miniature Power Plant

Invaluable for experiment and demonstration. A practical and inexpensive double transmission with which the operator can easily obtain the required speed at the dynamo.

The ¼ in. spiral spring belts eliminate all unnecessary friction and are used under a tension of about 1½ times their length. The two large pulleys are 6 in. diameter. The small one is 2 in. diameter. The base is 12 x 7 in.

Our regular stock dynamo Type "S" is interchangeable with the driver.



No. 115

No. 115 Hand Drive (less Dynamo)..... \$2.50

No. 116 Hand Drive and Type S Dynamo ... 6.10

No. 115A Extra Belts, 18 x ¼ in. each..... .25

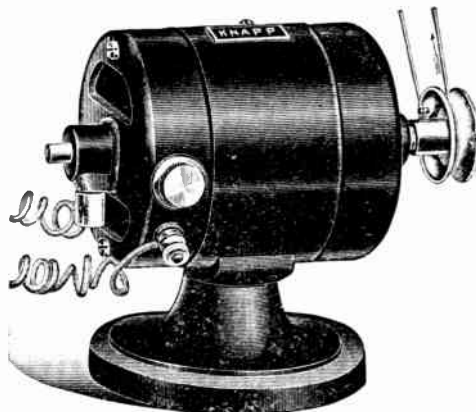
Shipping weight, 4 lbs.

Shipping weight, 12 lbs.

Shipping weight, 4 oz.

## Knapp Power Motors

Wound for A. C. or D. C. or Battery



No. 160 to 162

No. 160	Knapp Power Motor, 110 volts A. C. 60 cycles.....	\$5.65
No. 161	Knapp Power Motor, 110 volts D. C.....	5.65
No. 162	Knapp Power Motor, 6 volts, battery.....	4.75
	<i>Weight approximate, Net 3¾ lbs., Shipping 4¼ lbs.</i>	
No. 166	Ten feet cord with separable plug for 110 volts.....	.60
No. 110	Six feet cord for battery.....	.40

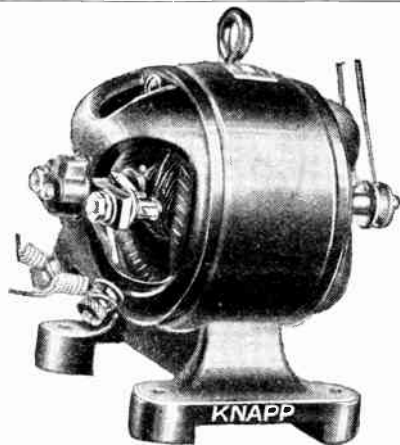
To meet the growing demand for a high grade small motor at a low price, we have designed this series and feel safe in stating they have no equal; being especially adapted to running window displays, flashers and other mechanical devices within their range of power. An ideal motor for operating rotary gaps. Runs almost entirely noiseless and will not heat up when run continuously. They are the finest low-priced motors on the market today.

**POINTS OF CONSTRUCTION**  
 Field, 2 poles, laminated 1¾ in. opening for armature. Armature, laminated, 7 slots. Shaft, ¼ in. diameter, 5¾ in. long. Commutator, copper, mica insulation, 14 segments for 110 volts, 7 segments for battery. Pulley, 1 in. Oil cups, wick feed. Height over all about 5 ins. Length of body including bearing 4½ ins. Diameter of body only, 3 inches. Horse power about 1-40.

## Type XX Motor

This is a motor of exceptional value. Made of the best materials throughout and modeled very closely after the larger types of machines. The two-pole field is cast solid, with form wound coils. The armature is 1¾ in. diameter and of the laminated drum type. The brushes have spring tension. Finished in black enamel with nickel trimmings. The height is 4¼ inches including the base and ring.

No. 184	Type XX Motor....	PRICE \$1.95
	<i>Shipping weight, 3¼ lbs.</i>	



No. 184

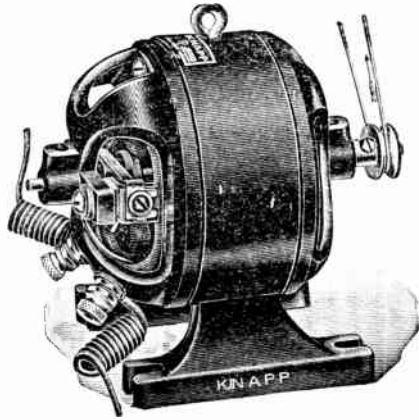
**We make Prompt Delivery of any of the goods listed in this Catalog.**



## Type O. K. Motor

This is a motor of exceptional value. It is thoroughly well constructed and is made of the best materials throughout. It has taken experienced engineers many years of careful study to develop the highly efficient motors of the present day. The O.K. is a very close copy in miniature of a large power motor, and combines all their good features. It must be seen to be appreciated. The illustration cannot possibly do it justice. The armature is laminated, three pole,  $1\frac{1}{4}$  inches in diameter. Shaft  $\frac{1}{8}$  in. diameter. Pulley is 9-16 inches in diameter and grooved. The finish is black enamel, with nickel-plated trimmings. Height  $4\frac{1}{4}$  inches. One dry cell will drive the motor. Height,  $4\frac{1}{2}$  inches.

No. 179 O.K. Motor..... **PRICE \$1.40**  
Shipping weight,  $2\frac{3}{4}$  lbs.



## Leader Motor

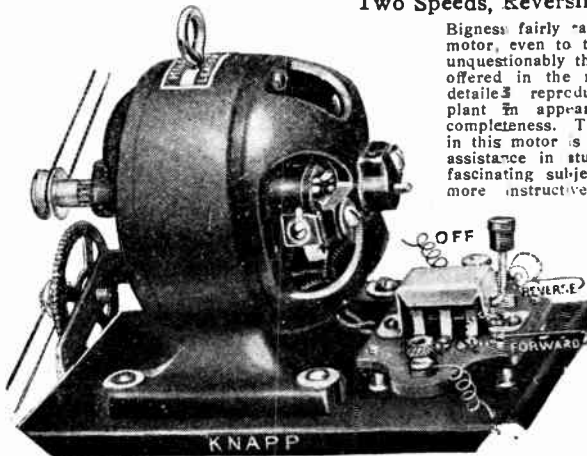
Two Speeds, Reversing Lever, etc.

Bigness fairly radiates from this little motor, even to the illustration. It is unquestionably the greatest value ever offered in the motor line. It is a detailed reproduction of a power plant in appearance, efficiency and completeness. The interest of parents in this motor is a tribute to its great assistance in studying electricity, the fascinating subject of the hour. No more instructive and welcome gift

could be given to a boy. The motor will drive from either pulley. The reducing gear is easily thrown in and out of mesh with the pinion on the shaft. The effect of this gear is to transform the high speed of the shaft to greater power and lower speed at will. The reversing switch is positive in action, and operates either as a starting switch or to reverse the direction of the motor at will.

The finish is black enamel with nickel-plated trimmings. The armature is laminated,  $1\frac{1}{4}$  in. diameter, three poles. Shaft, .125 inches in diameter. Pulley, 9-16 in. high, with metal base  $4\frac{1}{4}$  inches. Operates on 2-4 volts.

No. 181 Leader Motor ..... **\$2.10**  
Shipping weight,  $3\frac{3}{4}$  lbs.



## Type XXX Motor

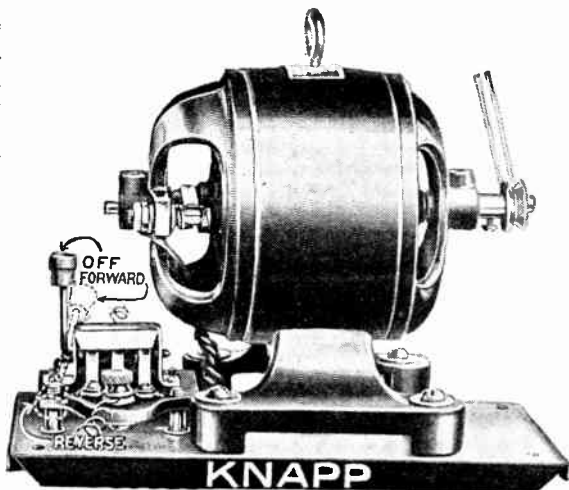
Larger and More Powerful Than Our Leader

The motor is the same as our Type XX with the added features of a formed metal base, on which is mounted a reversing switch, positive in action, to start, stop and rotate the motor in either direction.

The drum type six-pole armature and spring tension brushes, combined with two pole iron-clad field, gives strength and smoothness of running never before obtained from so small a motor.

PRICE  
No. 185 Type XXX  
Motor..... \$2.40

Shipping weight 3 1/4 lbs.

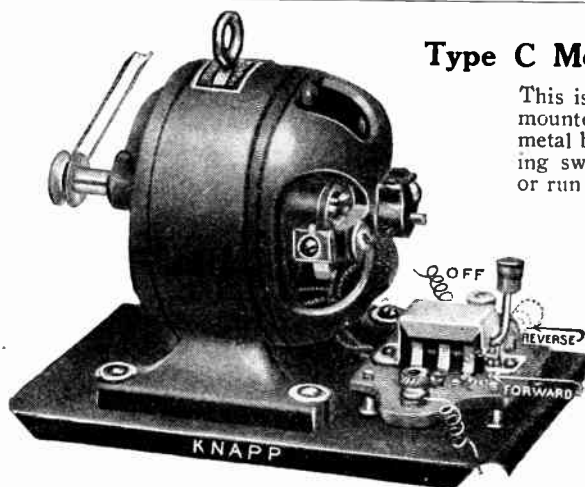


## Type C Motor

This is our O. K. Motor mounted on an enameled metal base with a reversing switch to start, stop or run the motor in either direction. This outfit is one of the most interesting and instructive a boy could possibly have.

PRICE  
No. 180 Type C  
Motor..... \$1.95

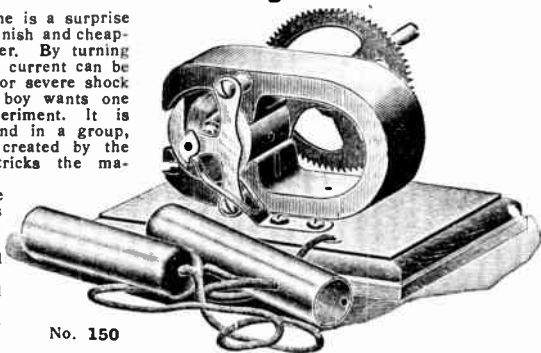
Shipping weight,  
3 1/4 lbs.



No. 180

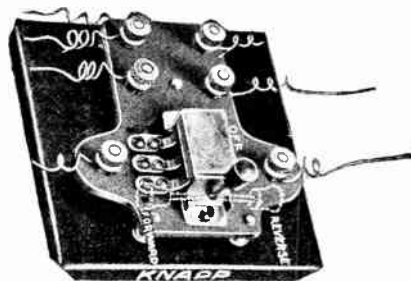
## Electric Thriller Magneto

This little shocking machine is a surprise in mechanical perfection, finish and cheapness, and free from danger. By turning the crank slow or fast the current can be regulated so that a slight or severe shock can be produced. Every boy wants one for instruction and experiment. It is a veritable fun factory, and in a group, side-splitting laughter is created by the many amusements and tricks the machine is capable of producing. It strengthens the nervous system, costs nothing to run, can be applied without aid and supersedes induction coils and medical batteries. Furnished complete with hand electrodes, crank, multiplying gear, etc. Must be seen to be appreciated.



No. 150

No. 150 Electric Thriller..... 80 cents *Shipping weight, 2 lbs.*



## Reversing Switch

There has long been wanted a first-class Reversing Switch for battery circuits, positive in its action, and with such directions and drawings as to enable the average boy to change the connections of any motor. After several attempts we have succeeded beyond expectations. No little device has ever been marketed that will so assist in developing the idea of motor current paths as this, and in a practical way. The accompanying directions show drawings of motors connected in shunt, series and reverse. *Shipping weight, 8 oz.*

No. 195 Reversing Switch.... 65 cents

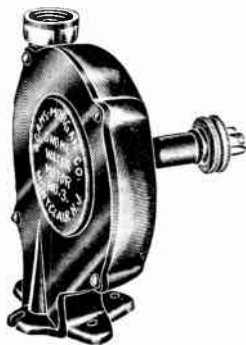
## Amco Power Water Motor

Our No. 3 Power Water Motor meets the demand for a machine which is larger and capable of delivering more power than either of the "Gnome" Motors.

The same general design has been followed but the No. 3 is much larger and heavier. We recommend this motor for driving washing machines, ice cream freezers, etc.

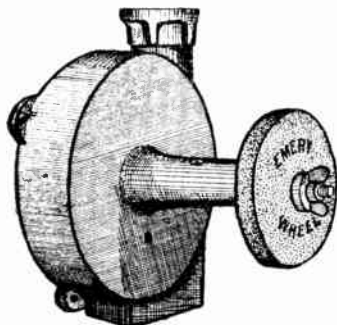
The bearing of the motor is unusually large and will wear indefinitely. Provided with a brass connection to fit a 1/2-inch standard threaded faucet. The motor may be screwed directly on the faucet or screwed to a board or table, it being provided with a base for that purpose. A large emery wheel for grinding and sharpening is provided with each motor, also a grooved pulley so that the motor may be used for driving any device desirable. This is an excellent motor for driving small dynamos. *Shipping weight, 9 lbs.*

No. 3 Amco Power Water Motor, height 8 inches,  
weight 5 lbs..... \$3.50



## Amco Gnome Water Motors

THE ACME OF PERFECTION. COMPLETE WITH PULLEY AND GRINDER



No. 2

The motors are provided with brass connection to fit  $\frac{1}{2}$  in. standard threaded faucet. A large emery wheel for sharpening scissors, knives, tools, etc., is furnished with each motor, also a grooved pulley, so that the motor may be used for driving any device desirable. The pulley may be substituted for the wheel by merely unscrewing a winged thumb nut. The bearings of the motor are unusually large and substantial.

Our motors are ideal for any purpose to which a water motor may be applied. The No. 1 size is surely a hummer. It is the neatest little water motor and grinder made. It gives fifty per cent. more power and uses less water than those that have been brought out by our imitators. See that your motor bears the name GNOME and ADAMS-MORGAN CO., if you want the best.

- No. 1 Amco Gnome Water Motor, weight  $1\frac{1}{2}$  lbs., complete with emery wheel and pulley, 2 in. wheel.....
- No. 2 Amco Gnome Water Motor, weight 3 lbs., complete with  $2\frac{1}{2}$  in. emery wheel and pulley.....

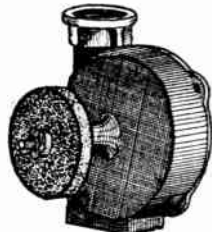
\$1.50

2.25

Where city water pressure of 20 lbs. or over is available, there is no more satisfactory source of light power than an Amco Gnome Water Motor. Where water is supplied by the year the cost of operation is nothing; where a charge is made, it varies from six to eight cents for a ten-hour run.

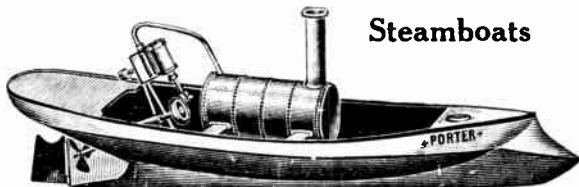
Our motors are the Acme of Perfection—they have no rivals. We carried out some very elaborate and expensive experiments previous to designing these motors and have succeeded in producing a machine that is perfect. The motors run with less water and deliver more power than any other make on the market. They are the best source of power for running sewing machines, washing machines, small dynamos, etc.

We recommend the No. 2 motor for running our No. 1070 Dynamo. It will drive this machine to its full output. This is a very convenient means of obtaining current for lighting small lamps, recharging small storage cells, etc.



No. 1

## Steamboats



These Steamboats have nicely modeled hulls, well put together, and are very attractive in appearance. It has a polished brass boiler firmly secured to the thwarts and connected to a small steam engine mounted on an inclined frame. The engine

is provided with a small flywheel and shaft to which is fixed a small three-bladed propeller. The lamp is securely soldered in the bottom of the boat to prevent it sliding about while the boat is in motion. The rudder is adjustable and may be set so that the boat will travel straight ahead or in a circle.

- No. 1 Steamboat,  $15\frac{1}{2}$  inches long. Weight packed,  $2\frac{1}{4}$  lbs..... \$1.35
- No. 2 Steamboat, 13 inches long. Weight packed, 3 lbs..... 1.75

## Horizontal Steam Engine

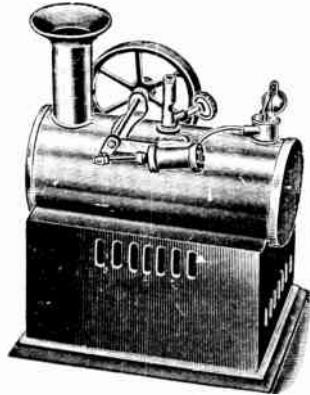
This fine engine has a blued steel boiler, firmly fixed upon a substantial base, finished in colors. The whistle and safety valve are locked to the top of the boiler and are made steam-tight by small rubber washers, and if broken, these parts can be easily removed and new ones put on.

The engine is provided with an extra large fly-wheel and nicked cylinder; running easily and rapidly and presenting a fine appearance.

Every engine is thoroughly tested before packing. Each engine is securely packed in a wooden box, ready for mailing or expressing.

7½ ins. high; base 4¼ x 6 ins.

No. 21 Horizontal Steam Engine, weight packed 2 lbs..... \$1.25



## Upright Steam Engines

These are finely made engines of the best materials and the parts are all adjusted and put together by experienced workmen. They have blued steel boilers with iron fireboxes, handsomely finished in colors. Both engines run at high speed on small steam pressure.

### JUST THE THING FOR ANY BOY

These engines are thoroughly tested at the factory and fully warranted. All parts are interchangeable and we always have on hand duplicate parts.

Each engine is packed securely in a box, suitable for mailing or expressing. Full directions for running the engine will be found in each box.

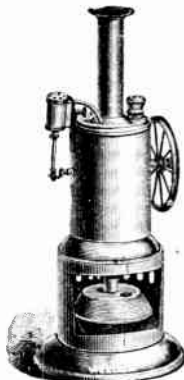
PRICE

No. 40 Upright Steam Engine, 9 in. high. Weight packed 1 lb..... **40c.**

No. 41 Upright Steam Engine, 11 in. high, fitted with whistle and throttle. Weight packed 2 lbs.... **75c.**

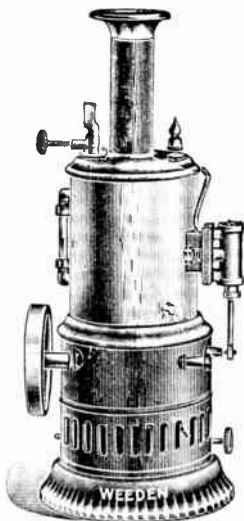


No. 41



No. 40

Always be certain to include postage in full if you wish articles sent by mail. It will facilitate shipment and insure prompt delivery.



No. 20

tempered, polished sheet brass. It is fitted with a water glass, safety valve, steam whistle and throttle. It is the best engine on the market for the money. Each engine is thoroughly tested and carefully packed in a wooden box.

No. 3 Steam Engine, weight 2 lbs..... \$1.25

## Upright Steam Engine

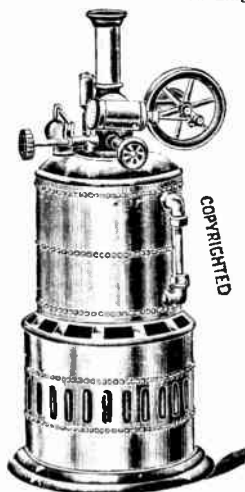
This is a large attractive engine. It has a finely fitted water gauge, made perfectly tight by means of adjustable nuts, which can be tightened or loosened with a little wrench packed in box with each engine.

The boiler is polished brass and the base and running parts are finished in colors.

The lamp and draft arrangement in this engine is especially for the use of petroleum or kerosene oil as a fuel, and can therefore be used in many places where alcohol cannot be easily obtained. The cost for fuel is very small compared with alcohol.

Each engine is packed in a strong wooden box ready for mailing or expressing.

No. 20 Upright Engine, height 11 ins., weight 2 1/4 lbs..... \$1.25

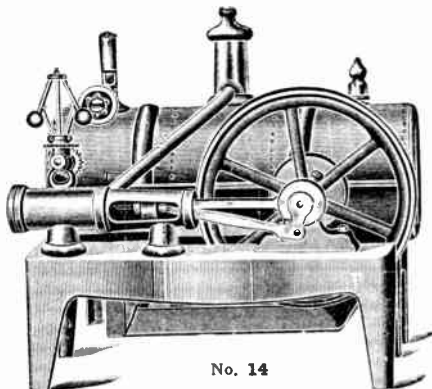


No. 3

## Steam Engine

The boiler of this engine is made entirely of well

## Horizontal Steam Engine



No. 14

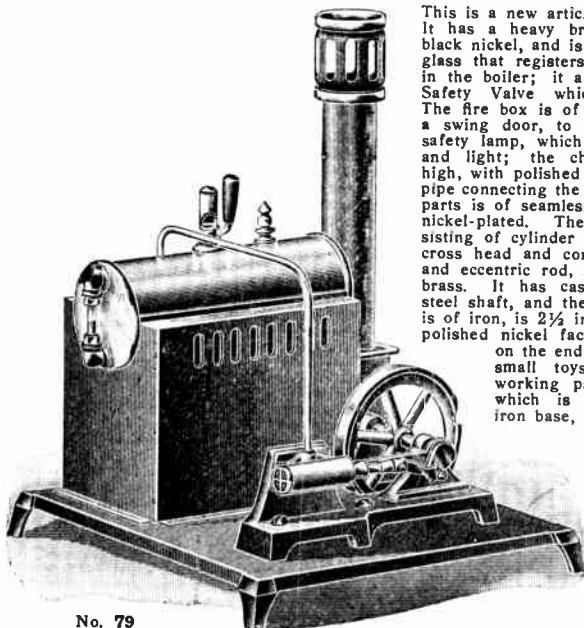
This engine has a large, highly polished brass boiler, trimmed with steam dome, whistle and safety valve, and is connected to steam chest on cylinder by a polished brass pipe.

The frame is iron, to which boiler and engine are firmly attached. The cylinder, steam chest and slide rest are cast in one piece and cannot get out of order. The slide valve, eccentric and connecting rod are all cut from heavy sheet brass and are fastened securely together. The whole engine is in every way strong and durable. Balance wheel has polished nickel face and cylinder has polished brass jacket. Each engine is packed securely in a wooden box, with full directions for running same.

No. 14 Horizontal Steam Engine..... \$2.90

Shipping weight, 3 lbs.

## Horizontal Steam Engine



No. 79

This is a new article with us this season. It has a heavy brass boiler finished in black nickel, and is provided with a water glass that registers the amount of water in the boiler; it also has a Whistle and Safety Valve which are nickel-plated. The fire box is of Russian iron and has a swing door, to which is attached the safety lamp, which makes it easy to fill and light; the chimney is  $6\frac{1}{4}$  inches high, with polished brass top. The steam pipe connecting the boiler and the working parts is of seamless brass tubing, heavily nickel-plated. The working parts, consisting of cylinder with brass slide valve, cross head and connecting rod, eccentric and eccentric rod, are all made of heavy brass. It has cast iron bearings, with steel shaft, and the balance wheel, which is of iron, is  $2\frac{1}{2}$  inches in diameter, with polished nickel face. There is a pulley on the end of the shaft, by which small toys can be run. The working parts are on a frame, which is attached to a heavy iron base, and all are finished in maroon enamel. Every engine is thoroughly tested before packing and fully warranted. All parts are interchangeable. A supply of duplicate parts always on hand. Each engine is packed securely, suitable for expressing.

Full directions for running the engine will be found in each box, with the price of duplicate parts. Size of base,  $7\frac{1}{2} \times 6\frac{1}{2}$  inches. Height, 9 inches.

No. 79 Horizontal Steam Engine as described..... \$3.98  
Shipping weight, 4 lbs.

## Upright Caloric or Hot Air Engine

This engine is run by hot air only. It is mounted on a substantial base and all the parts are firmly put together, making the whole engine in every way strong and durable.

The main cylinder and piston are made of accurately drawn brass shells, and the auxiliary cylinder or air pump is also a drawn brass shell, in which a plunger is fitted so as to work airtight.

A water tank is usually connected with all hot air engines to keep the parts cool, but in our engine this is entirely done away with.

The chief advantage of the Caloric Engine is that NO WATER and in consequence NO STEAM is used, and they run for an indefinite time. A full guarantee is given with each engine.

No. 22 Upright Hot Air Engine..... \$1.25  
Height,  $9\frac{1}{2}$  inches. Diameter of base,  $4\frac{1}{2}$  inches  
Shipping weight, 2 lbs.



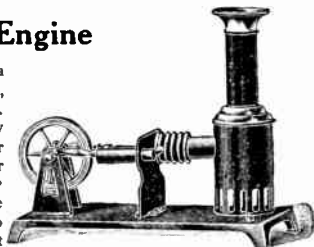
No. 22

## Horizontal Caloric or Hot Air Engine

This engine is run by hot air only. It is mounted on a substantial base and all the parts are firmly put together, making the whole engine in every way strong and durable. The main cylinder and piston are made of accurately drawn brass shells, and the auxiliary cylinder or air pump is also a drawn brass shell, in which a plunger is fitted so as to work airtight. A large chimney with air draft is fitted over the lamp flame so as to conduct the heat away from the parts which otherwise might get too hot. A water tank is usually connected with all hot air engines to keep the parts cool, but in our engines this is entirely done away with. Base 4 ins. by 8 ins.

The chief advantage of the Caloric Engine is that NO WATER and in consequence NO STEAM is used, and they will run for an indefinite time. A full guarantee is given with each engine.

No. 23 Horizontal Hot Air Engine, 7½ ins. high.... \$1.75 Shipping weight, 2 lbs.



No. 23

## Beam Engine

Our Beam Engines have always been popular and successful. It is a style of engine to attract attention anywhere. The cut shows the best one we have ever made, and the price is no more than an ordinary upright engine.

The boiler is polished blued steel, firebox and base of finished sheet steel. The boiler trimmings are filler and whistle. The walking beam and its support are iron. The balance wheel has turned finished face and the shaft carries a small pulley to which a belt can be attached to run small toys. Every engine is thoroughly tested before packing. Each engine is packed securely in a box, suitable for mailing or expressing.

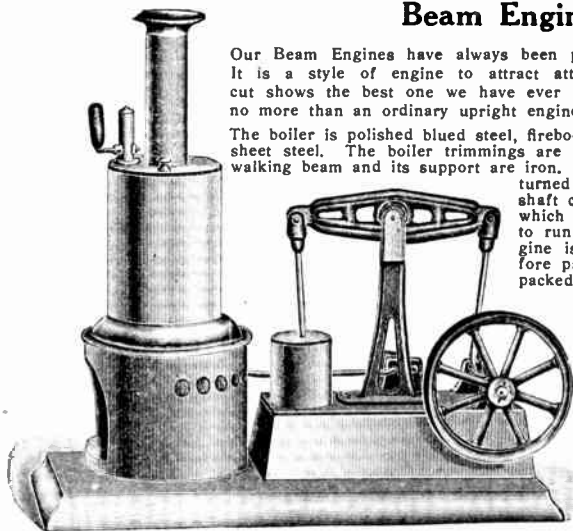
Full directions for running the engine will be found in each box.

No. 38 Steam Beam Engine.. \$1.49

Length, 10¼ ins.

Height, 9¼ ins.

Shipping weight, 3 lbs.



Hartford, Conn.

Adams-Morgan Company, Montclair, N. J.

Gentlemen:—Received my order and am well pleased with everything. I did not have time to write before.

NORMAN C. WEIL.



## Upright Steam Engine

This is a large and attractive engine and is well made in every particular. It has a finely fitted water gauge, made perfectly tight by means of adjustable nuts, which can be easily tightened or loosened with a little wrench, packed in box with each engine.

It has a rotating governor, a large balance wheel, and all the parts necessary to make it a *complete and beautiful model engine*.

The boiler is polished brass, blued, and the base and running parts are finished in colors.

Every engine is thoroughly tested before packing and fully warranted. All the parts of the engine are interchangeable and we have always on hand duplicate parts with which to supply our customers.

Each engine is packed securely in a wooden, locked-corner box, suitable for mailing or expressing. Full directions for running will be found in each box, with price of duplicate parts.

No. 4B Upright Steam Engine..... **\$1.98**

Height, 11½ ins.

Shipping weight, 3 lbs.



## Steam Force Pump

This steam force pump is a steam engine and force pump combined, and in operation gives a good idea of how water is pumped and forced by steam pressure. The boiler, engine and pump are mounted on a strong base. The boiler is made of brass and has a safety valve, whistle and water glass. The double balance wheel serves to regulate the speed, thus insuring a steadier flow of water from the nozzle.

The motion of the engine is transmitted to the pump through the medium of our patent pinion and gear wheel. Suction hose, leading hose and nozzle are provided with each pump.

The pump is finished in polished nickel plate and colors. At ordinary speed it will throw a stream of water about six feet. The higher the speed of the engine, the

farther the stream of water will be thrown. Rival contests with two pumps to see which can throw water farthest will prove an un-failing source of amusement.

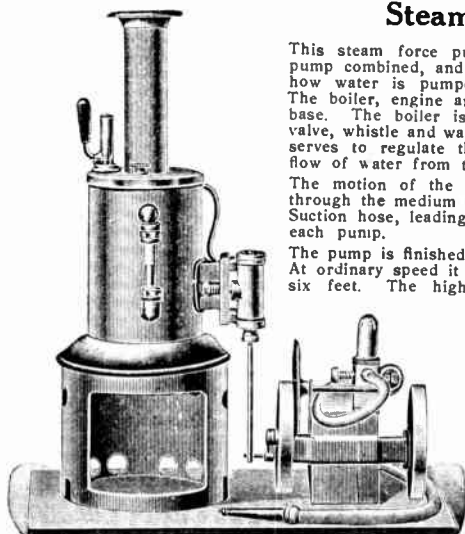
Each pump is packed securely in a wooden box, with full directions for running same.

Height, 8¾ inches.

Base, 6 x 8½ inches.

No. 37 Steam Force Pump complete..... **\$1.75**

Shipping weight, 4 lbs.



## Beam Engine

Has highly polished brass boiler, with water gauge and walking beam engine, firmly fixed upon a substantial base.

The whistle and safety valve are not soldered to the boiler, but securely screwed on and are made steam tight. If broken, these parts put on. The engine has steam chest, cylinder, walking beam, eccentric rod and valves, balance wheel and pulley, all carefully and accurately put together.

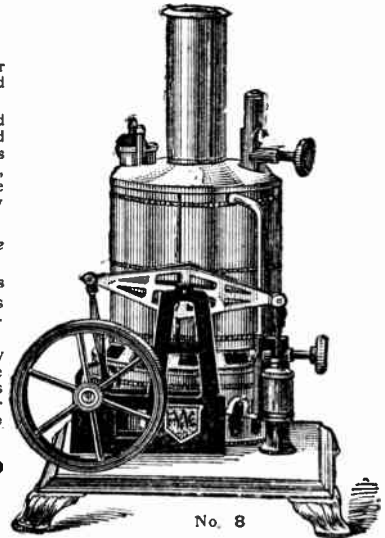
*It is an interesting and instructive engine for illustrating the working of steam.*

It runs easily and rapidly and develops sufficient power to work small toys. It is highly finished and presents an attractive appearance.

Like all our engines, each one is thoroughly tested before being packed. All parts of the engine are interchangeable, and we can always supply duplicate parts. Full instructions for running engine, and price list of duplicate parts packed in each box.

No. 8 Beam Engine as described... **\$2.20**

*Shipping weight, 4 lbs.*



No. 8

## Reversible Steam Engine

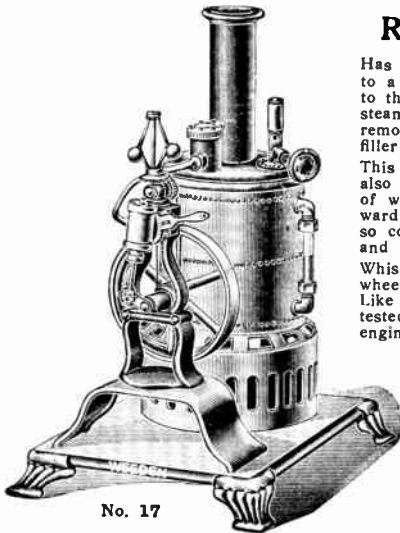
Has highly polished boiler blued, firmly secured to a durable base. The whistle is not soldered to the boiler, but securely screwed on and made steam-tight. If broken, these parts can be easily removed and new ones readily put on. The filler is provided with fusible cap.

This engine is provided with a water glass, and also something new, a Reversing Valve, by means of which it can be run either backward or forward with equal speed. The reversing valve is so constructed that it will always work properly and never get out of order.

Whistle is polished nickel, also face of balance wheel; base under engine is polished nickel. Like all of our engines each one is thoroughly tested before being packed. All parts of the engine are interchangeable, and we can always supply duplicate parts. Full instructions for running engine and price list of duplicate parts packed in each box.

No. 17 Reversible Steam Engine **\$2.20**

*Shipping weight, 3 lbs.*



No. 17

**We ship 98% of all orders  
same day as received.**

## Locomotive and Train

Consisting of a Locomotive, Tender and Car, and Track  $3\frac{1}{2}$  feet in diameter, made of metal rails and wooden sleepers. It is constructed on scientific principles, of the best materials, and all its parts are properly proportioned and fitted with the nicest accuracy.

THE FINEST AND MOST COMPLETE WORKING STEAM TRAIN ever placed upon the market for the extremely low price at which we offer it. The boiler is polished brass and the car and tender finished in bright and attractive colors.

Each locomotive is thoroughly tested and fully warranted by us. They are all packed in wooden, locked-corner boxes, ready for mailing or expressing.

Full directions for running the train will be found in each box.

We are prepared to furnish extra cars, tenders and trucks, also tracks, either straight or curved, in any quantity.

### SPECIAL TRACK

As we find there is a demand from many of our customers for a track already put together and mounted on boards, we are now making a special track composed of nine sections, each fourteen inches long, on which the rails and sleepers are mounted and securely fastened. A hinge is fastened on each end of the sections by means of which they are locked together, the whole forming a solid track with a wooden base, as shown in the above cut.

	PRICE
No. 2 Locomotive and Train with Regular Track .....	<b>\$3.00</b>
No. 2 Locomotive and Train with Special Track .....	<b>3.75</b>
No. 3 Locomotive, Tender and two Passenger Coaches, and sixteen feet of track .....	<b>10.00</b>

*Shipping weight, 5 lbs.*

Cushing, Okla.

Adams-Morgan Company, Upper Montclair, N. J.

Gentlemen:—Coherer No. 7600 O. K. Works over 1.5 mile with great ease.

KENNETH C. FARNSWORTH.

## Upright Steam Engine

This engine is made throughout of brass, gun metal finish and blued steel fire box. It has safety valve, whistle and water gauge, and all the other essential parts to make a perfect steam engine, including a rotating governor and throttle valve.

The balance wheel, governor, filler, weight and valves are finished in polished nickel. Its size, finish and nice proportions, the ease with which it is managed, and smoothness with which it runs, make it just the thing to please.

Every engine is thoroughly tested before packing, and fully warranted.

All the parts of the engine are interchangeable, and we have always on hand duplicate parts with which to supply our customers.

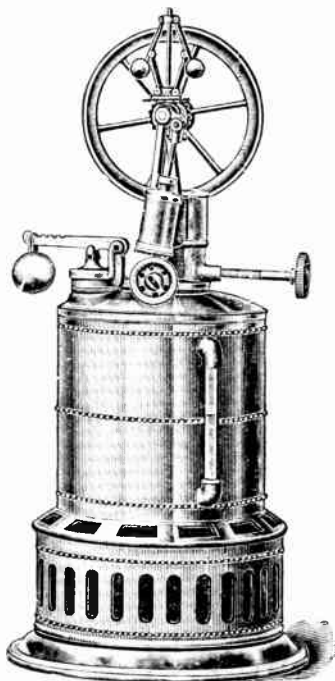
Each engine is packed securely in a wooden, locked-corner box, suitable for mailing or expressing.

Full directions for running will be found in each box, also price of duplicate parts.

No. 54 Upright Steam Engine, 10 inches high ..... \$1.75

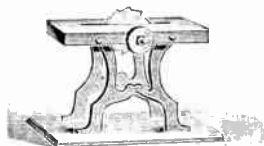
Shipping weight, 3 lbs.

**NOTE.—Always be careful to write your name and address plainly on all orders or other communications sent to us.**

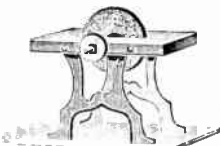


## Attachment Toys

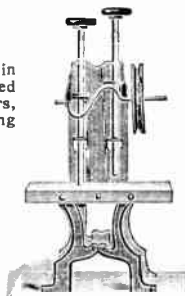
These are miniature working models of the large machines used in everyday life. They are carefully and strongly made and are finished in bright colors. They may be run by any of our electric motors, steam or hot air engines. All three may be run at once by belting to our No. 1 or No. 2 Shafting.



No. 67



No. 68

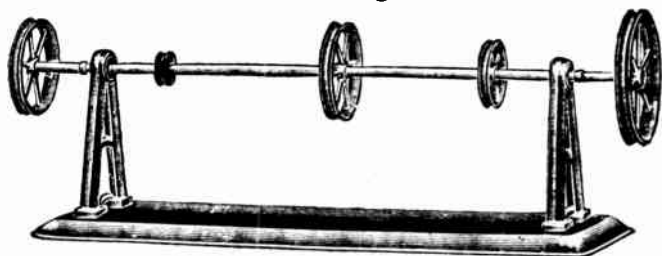


No. 69

- |        |   |          |
|--------|---|----------|
| No. 67 | Slitting or Circular Saw, size $3\frac{1}{4} \times 3\frac{3}{4} \times 3$ in. high.... | 35 cents |
| No. 68 | Emery Wheel, size $3\frac{1}{4} \times 3\frac{3}{4} \times 3$ in. high.....             | 35 cents |
| No. 69 | Stamp Mill, size $3\frac{1}{4} \times 3\frac{3}{4} \times 6$ in. high.....              | 35 cents |

Shipping weight, 2 lbs.

## Shafting



This shafting may be connected to any of our steam, hot air engines or electric motors by means of a string belt and used to run various mechanical devices. The shafting is arranged with different sizes of grooved pulleys so that several changes in speed may be had by shifting the belt. Just the thing for operating our attachment toys.

PRICE

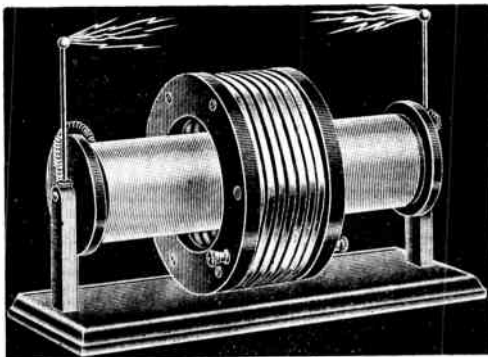
No. 1 Base measures 7 x 4 inches; height 2 $\frac{3}{4}$  inches; adapted to four changes of speed. Finished in enamel and colors..... 25 cents

No. 2 Shafting adapted to five changes of speed; length of base 10 $\frac{1}{4}$  inches; width 3 inches; height of shafting 4 $\frac{1}{4}$  inches. Largest pulley 2 $\frac{1}{2}$  inches in diameter. This is also finished in enamel and colors ..... 50 cents

Shipping weight, 1 lb.

## Amco Tesla Transformer

The Tesla Transformer is one of the most marvelous electrical devices ever invented and makes possible an almost countless number of interesting experiments. The constant requests of many of our customers that we manufacture for them a high grade Tesla Transformer has prompted us to add this interesting piece of apparatus to our large line of experimental goods. The Tesla Transformer is a device which raises the frequency and voltage of a spark coil or transformer to many hundreds of times its original value. Such a current has many interesting properties. In fact, it disobeys almost all the principles of ordinary electricity and opens an entirely new field possessed of considerable opportunity for research to the experimenter. The Amco Tesla Transformer is the result of extensive experimental work and is positively more efficient than any other similar device on the market.



No. 400

This transformer is constructed in a thorough manner throughout and is made of the best materials. The primary is wound with flat brass ribbon. Oscillatory currents such as those in the primary of a Tesla coil flow only on the surface of conductors. Flat

ribbon offers considerably more surface than a solid conductor or stranded wire and consequently less resistance. The secondary is wound with the best silk insulated wire. It is provided with two well-finished ends and is insulated by a solid hard-rubber post at each end. The insulation is absolutely perfect. The primary frame and the base are hardwood, carefully stained and polished.

A Tesla Transformer can only be operated in conjunction with an induction coil or transformer and a condenser and spark gap. One of our one-inch spark coils, a Leyden jar and a spark gap are sufficient to operate the transformer. We recommend a two-inch coil for this purpose, however. Any of our small transformers will give still more wonderful results and with such it is possible to perform most of the wonderful phenomena often demonstrated on the vaudeville stage by some clever electrician. All wooden parts are hardwood and all metal parts are brass, gold lacquered.

No. 400	Amco Tesla Transformer, size 15x7x9½ ins., weight 4½ lbs.	PRICE \$5.50
		<i>Shipping weight, 10 lbs.</i>

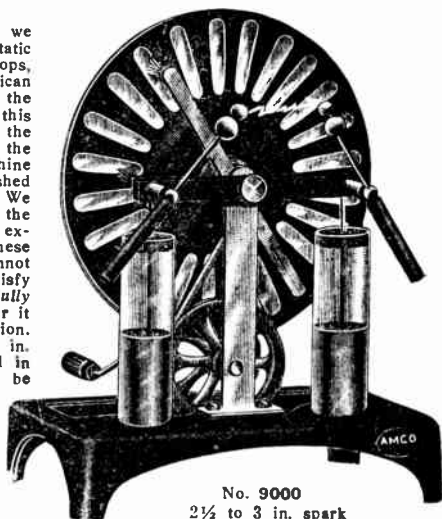
We recommend the following outfit:

No. 400	Amco Tesla Transformer.....	\$5.50
No. 7419	Amco two-inch Spark Coil.....	9.00
No. 7630	Amco Spark Gap .....	.80
No. 7681	Two 1-pint Leyden Jars.....	2.52

Complete Outfit..... **\$17.75**

## Wimshurst Static Machine

To use the most modest expression, we believe that our new Wimshurst Static Machine, manufactured in our own shops, is the best ever placed on the American market and at a popular price within the reach of all. We cannot recommend this machine too highly, and unfortunately the illustration does but poor justice to the neat and trim appearance of the machine and to notice the effect of the polished rubber and nickel-plated fittings. We will cheerfully refund the money if the purchaser fails to find the machine exactly as described and illustrated on these pages. We, nor any other firm, cannot be more sincere in our efforts to satisfy patrons. Our machine is shipped fully assembled, and we guarantee to deliver it in good shape and working condition. The size is 8 in. x 5 in. x 10½ in. over all. The machine is guaranteed in all respects, and there is nothing to be replaced, as nothing can wear out. We will replace any part becoming defective, free of charge, within one year if the machine has been treated with ordinary intelligence. Naturally, all the interesting experiments as found in text books can be performed with our machine, such as: Interesting experiments in charging Ley-



No. 9000  
2½ to 3 in. spark

den jars, experiments in resonance circuits, lighting Geissler tubes, attraction and repulsion of light bodies, firing powder or igniting substances, charging a person standing on an insulated platform, so that on being approached by other persons walking on the floor sparks can be drawn from any part of the face of the insulated person, or raise the person's hair by holding the hand over the head. There are countless experiments which may

be performed, not only possessing value as means of studying, but furnishing plenty of entertainment as well. The seven-inch plates are made of *Electrite*, and are all machine moulded with tin foil sectors pressed right into the plates. A tabulation of the advantages possessed by heavy foil sectors pressed into the plates is hardly necessary in the limited space at hand. The base is of cast iron, as well as the two pulley wheels. The neutralizers are of steel, while the horizontal arm carrying the collector discharges from the brushes, is of hard rubber. The handles on the discharge arms, as well as the handle on the crank, are of the same material. The two Leyden jars are made of the best Bohemian glass, free from lead and other mineral salts, to withstand the mechanical and electrical strains. These jars are smoothly coated with tinfoil, inside and outside, and in accordance with the policy throughout the construction, interchangeable should they become broken through accident. In place of the usual leather belts for driving the plates, we have substituted special designed spring brass belts. These spring belts will not become slack after years of use, whereas leather belts give continual trouble in becoming stretched.

All the metal parts are nickel-plated and highly polished, while the cast iron base is beautifully finished in highly polished black enamel. The nickel finish in all instances is thoroughly and skillfully applied, and guaranteed not to wear off for one year.

If desired, the machine may be worked by our type "S" or other small motors, or if water power is available, by means of a water motor, enabling the experimenter to devote his entire attention to the experiments, instead of being obliged to turn the crank.

No. 9000 Static Machine, new style, as described..... \$4.50      Shipping weight, 5 lbs.  
No. 9010 X-Ray Tube, to work on static machine..... 2.25      Shipping weight, 2 lbs.

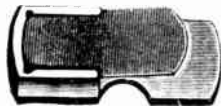
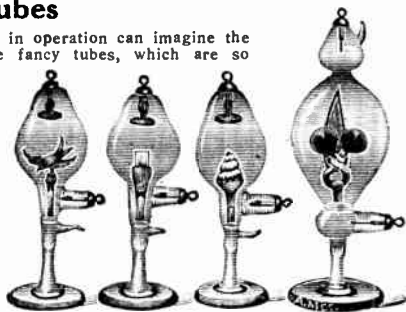
## Fancy Tubes

Only those who have seen a Geissler tube in operation can imagine the wonderful color effects produced by these fancy tubes, which are so striking and fairy-like that they far surpass even the most beautiful Geissler tube.

The tubes contain different fluorescent materials such as butterflies, shells, minerals, etc., which light up in dozens of different colors. They will glow with a weird fluorescent light for several minutes after the current is shut off. The tubes are made entirely of glass and stand upon a glass pedestal.

They are operated in the same manner as a Geissler tube, *i. e.*, by connecting to an induction coil. There is nothing to wear out about the tubes and they will last practically indefinitely.

No. 6527 Fancy tube with butterfly, minerals or porous shells..... \$1.15  
Shipping weight, 2 lbs.



## SNAPPER SOUNDER

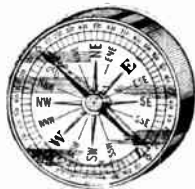
Make a loud noise. The "click" being similar to telegraph sounders. Shipping weight, 3 oz.

No. 196 Snapper Sounder complete, each..... 10 cents

## Pocket Compass

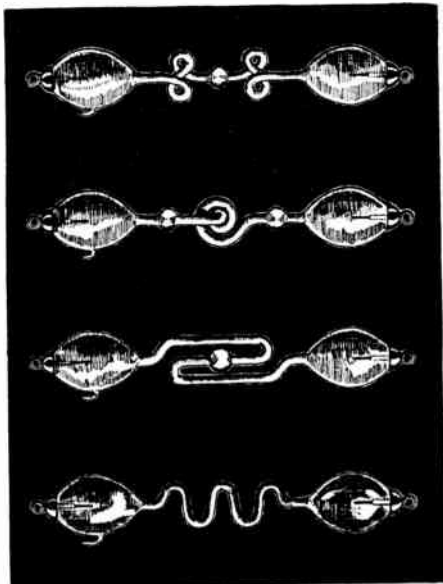
This is an exceedingly accurate little instrument which must not be judged by its price. We import this compass in large quantities for use in some of our electrical outfits and can therefore sell them very cheaply. The metal case is nickel plated and polished, fitted with a glass top. Points North to South. May be used for many purposes. Size  $2\frac{3}{4}$  in. diameter.

No. 350 Pocket Compass..... 15 cents Postpaid



## Geissler Tubes

Geissler Tubes are one of the most beautiful creations of science. The tubes are made in intricate and varied patterns of special glass, containing fluorescent minerals and salts and are filled with different rarefied gases. When connected to a static machine or an induction coil, they light up in the most wonderful way imaginable. The rarefied gases and minerals in the glass throw out beautiful iridescent colors, lighting up a dark room with a weird flickering light. The wonderful colors are beyond description. Every tube is of different pattern and has a combination of different colors. The most beautiful tubes are those containing the fluorescent liquid.



No. 6510	Geissler Tube, 3 in. long.....	\$ .20
No. 6512	" " 6 " " .....	.38
No. 6514	" " 8 " " .....	.45
No. 6516	" " 12 " " .....	.85
No. 6520	" " 3 in. long, with fluorescent liquid.....	.30
No. 6522	" " 6 " " " " " " .....	.55
No. 6524	" " 8 " " " " " " .....	.68
No. 6526	" " 12 " " " " " " .....	.86

Geissler Tubes, by mail, extra 10 cents

## Amco Barium Platinum Cyanide Screen

These screens are the same as those used in our Fluoroscope. Mounted in a polished mahogany frame. Can be used in the dark only. Size 3 x 5 inches.

No. 8050 Barium-Platinum-Cyanide Screen on frame..... \$3.75

By mail, extra 4 cents



## Amco Fluoroscopes

With the aid of one of these Fluoroscopes and one of our X-Ray tubes it is possible to see the bones in the human hand or the contents of a purse, etc. A Fluoroscope makes the X-Rays visible to the naked eye. Can be used in daylight.

No. 8040 Fluoroscope with Barium-Platinum-Cyanide Screen \$4.25  
Shipping weight, 3 lbs.



## Amco Experimental X-Ray Outfit

The Amco X-Ray Outfit opens up a new field for the amateur experimenter. With this outfit it is possible to see the bones in the human hand, the contents of a purse, etc. It is possible to take very sharp photographs of the bones, etc.



The X-Ray Tube itself is built to use with a  $1\frac{1}{2}$  inch spark coil. The fluoroscope is very substantial and will last for years. The vibrator on the coil is very rapid so that there is no flickering of the light. The tube stand is doubly adjustable and will hold the tube in any position. We furnish with the outfit a handsome book, "A B C of the X-Rays," by Edward Trevert, which describes in detail the use of such a set. The outfit is an invaluable acquisition to any laboratory.

No. 8010 X-Ray Outfit, consisting of one X-Ray Tube, one  $1\frac{1}{2}$  inch spark Induction Coil, one Fluoroscope, one X-Ray Tube Stand, one switch and coil of wire, one A B C of X-Rays, and eight high grade dry cells.. **\$18.00**

## Imported X-Ray Tubes

Our X-Ray Tubes are imported from Germany and are first grade in every particular. The anode is very strong and will last a long period if not abused. Every tube is guaranteed to operate on a  $1\frac{1}{2}$  inch spark coil. It is possible to take very sharp photographs of the bones in the human hand, etc., with these tubes.

No. 8020 X-Ray Tube, diameter 4 inches..... **\$4.50**

No. 8022 X-Ray Tube, diameter  $4\frac{1}{2}$  inches..... **7.50**

*Shipping weight, 2 lbs.*

## Amco X-Ray Tube Stands

Made of hardwood to hold the X-Ray tube in any position. Are very light and strong.

No. 8030 Stand for X-Ray Tubes..... **\$2.50**

*Shipping weight, 2 lbs.*

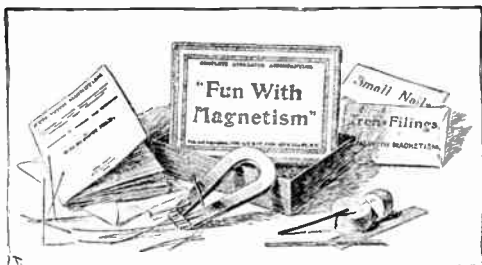


## ST. JOHN'S EXPERIMENTAL OUTFITS AND GAMES FOR BOYS AND GIRLS.

FUN WITH MAGNETISM AND FUN WITH ELECTRICITY have started more young men upon electrical careers than any other scientific outfits ever placed before the public. The thousands upon thousands that have been sold in all parts of the world have furnished fun and science for people of all ages, and the mere fact that they are listed by the New York Board of Education, and recommended to the pupils and teachers of the New York public and private schools is a guarantee of their value. Were it not for the fact that these are made in such large quantities and sold by stores, agents and mail-order houses, the price would be much higher. Don't fail to get these. They have a national reputation.

### Fun with Magnetism

This outfit contains a 32-page book of instructions, with 45 illustrations, together with a complete set of apparatus for performing 61 fascinating experiments. It will give you some new ideas about magnetism and start you at the right place in your study of electricity. Think what that means—to start right! The book contains experiments with the horseshoe magnet, with bar magnets, with floating magnets, etc., etc., thus giving a practical knowledge of the subject; and it is all done in such an interesting way that one can't help remembering it. Every experiment clinches some fact and every fact is important. AMUSING EXPERIMENTS—Something for Nervous People to Try—The Jersey Mosquito—The Stampede—The Runaway—The Dog-fight—The Whirligig—The Naval Battle—A String of Fish—A Magnetic Gun—A Top Upsidedown—A Magnetic Windmill—A Compass Upsidedown—The Magnetic Acrobat—The Busy Ant-hill—The Magnetic Bridge—The Merry-go-Round—The Tight-rope Walker—A Magnetic Motor Using Attractions and Repulsions—And 43 others.



No. R1 Complete Outfit "Fun with Magnetism"..... \$ .25  
 If sent by mail, postage extra..... .05

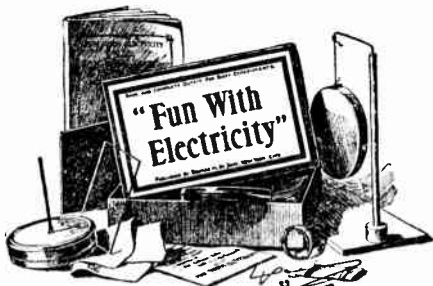
### Fun with Chemistry

Chemistry is universally considered to be an interesting subject, even in school, and it is certainly an important one in these days of scientific progress. This outfit starts you at the right place and presents the elements of the subject in a most interesting fashion. The experiments are so enjoyable that you will take pleasure in doing them over and over again, and you will want to do them for your friends. You can have a lot of fun with this set, and even if you have taken advanced courses in the subject you will find something new in these experiments. The more you know about chemistry the more you will enjoy it, for then you can more easily appreciate what a splendid outfit this is for the money. The Outfit contains over 20 different articles, including chemicals, test-tubes, adjustable ring-stand, litmus paper, filter paper, glass tubing, etc.; in fact, everything needed for the forty-one experiments. The Book of Instructions is fully illustrated, and measures 5x7½ inches. FUN FOUND HERE: From White to Black, or the Phantom Ship—Yellow Tears—Smoke Pearls—An Ocean of Smoke—A Tiny Whirlwind—A Smoke Cascade—An Explosion in a Teacup—A Gas Factory in a Test-Tube—Making Charcoal—Flame goes over a Bridge—A Smoke Toboggan-Slide—Fountains of Flame—Making an Acid—Making an Alkali—A Chemical Fight—Through Walls of Flame—An Artificial Gas Well—A Lampblack Factory—Steam from a Flame—The Flame that Committed Suicide—Chemical Soup—A Baby Skating-Rink—A Magic Milk-Shake—The Wizard's Breath—A Chemical Curtain—Scrambled Chemicals—And many other Experiments.

No. R7 Complete Outfit "Fun with Chemistry"..... \$ .50  
 If sent by mail, postage extra..... .10

## Fun with Electricity

The author of this Fun with Science Series has spent a great deal of time and money in experimenting to devise apparatus that will do the proper work and be, at the same time, simple and cheap, and in no outfit has he succeeded better than in Fun with Electricity. When you think of an outfit retailing for 50 cents and covering the whole subject of "Static Electricity," giving 60 scientific experiments upon its production, conduction and induction, with a 56-page book of instructions with 38 drawings, and a complete set of apparatus of 20 articles for performing these 60 experiments, you will understand why the sales of this outfit have been enormous. As the subject is presented in a fascinating way—and not as mere dry science—every one likes to do the experiments. No wonder these sets are highly praised by parents and educators in every part of the country. THERE IS FUN IN THESE EXPERIMENTS: Chain Lightning—An Electric Whirligig—The Baby Thunderstorm—A Race with Electricity—An Electric Frog Pond—An Electric Ding-Dong—The Magic Finger—Daddy Long-legs—Jumping Sally—An Electric Kite—Very Shocking—Condensed Lightning—An Electric Fly-Trap—The Merry Pendulum—An Electric Ferry-Boat—A Funny Piece of Paper—A Joke on the Family Cat—Electricity Plays Leap-Frog—Lightning goes over a Bridge—Electricity Carries a Lantern—and 40 others. There isn't an outfit anywhere at any price that gives better value for the money. An ideal present for a boy.



No. R2 Complete Outfit "Fun with Electricity" 50 cents *Shipping weight, 2 lbs.*

## Fun with Soap-Bubbles



Fancy Bubbles and Films are not easily blown without special apparatus, and even with the proper outfit one must "know how." That's why we furnish a 16-page book with every set to show just how to do it. With the aid of the 21 illustrations and the directions you can produce remarkable results that will surprise and entertain your friends. A child can do it as well as a grown person. Soap-Bubble Parties using these outfits create real sensations. Why not be the first in your town to give a "Fun with Soap-Bubbles Party?" Just write and ask about the price for any special number of them—say six or a dozen.

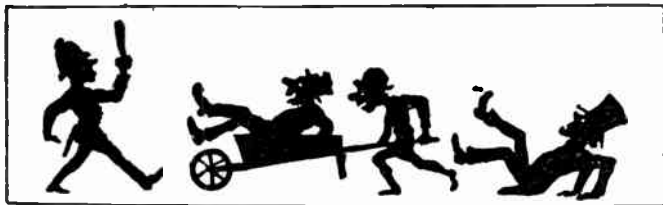
CONTENTS OF BOOK: Twenty-one illustrations—Introduction—The Colors of Soap-Bubbles—The Outfit—Soap Mixture—Useful Hints—Bubbles Blown with Pipes—Bubbles Blown with Straws—Bubbles Blown with the Horn—Floating Bubbles—Baby Bubbles—Smoke Bubbles—Bombshell Bubbles—Dancing Bubbles—Bubble Games—Supported Bubbles—Bubble Cluster—Suspended Bubbles—Bubble Lamp Chimney—Bubble Lenses—Bubble Basket—Bubble Bellows—To Draw a Bubble Through a Ring—Bubble Acorn—Bubble Bottle—A Bubble within a Bubble—Another Way—Bubble Shade—Bubble Hammock—Wrestling Bubbles—A Smoking Bubble—Soap Films—The Tennis Racket Film—Fish-net Film—Pan-shaped Film—Bow and Arrow Film—Bubble Dome—Double Bubble Dome—Pyramid Bubbles—Turtle-back Bubbles—Soap-Bubbles and Frictional Electricity. "There is nothing more beautiful than the airy-fairy soap-bubble with its everchanging colors." This outfit gives the best possible amusement for old and young.

No. R4 Complete Outfit "Fun with Soap-Bubbles"..... \$ .25

*Shipping weight, 1 lb.*

Three extra packages of Prepared Soap, post paid..... .10

## Fun with Shadows



No wonder shadow-making has been popular for several centuries! What could give keener delight than comical shadow-pictures, pantomimes, entertainments, etc.? Professional shadowists use wires, forms, and various devices to aid them, and that is why they get such wonderful results on the stage. Do you want to do the same thing right in your own home and entertain your friends with all kinds of fancy shadows? You can do it with this outfit, for the book contains 100 illustrations and diagrams with directions for using the numerous articles included in the box. You will be surprised to see how easily you can make these funny shadows with the aid of the outfit. Better get one new and make shadows like a professional. The Outfit contains everything necessary for all ordinary shadow pictures, shadow entertainments, shadow plays, etc. The following articles are included: One book of Instructions called "Fun with Shadows"; 1 Shadow Screen; 2 Sheets of Tracing Paper; 1 Coil of Wire for Movable Figures; 1 Cardboard Frame for Circular Screen; 1 Cardboard House for Stage Scenery; 1 Jointed Wire Fish-pole and Line; 2 Bent Wire Scenery Holders; 4 Clamps for Screen; 1 Wire Figure Support; 1 Wire for Oar; 2 Spring Wire Table Clamps; 1 Wire Candlestick Holder; 5 Cardboard Plates containing the following printed figures that should be cut out with shears; 12 Character Hats, 1 Boat, 1 Oar-blade, 1 Candlestick, 1 Fish; 1 Cardboard Plate containing printed parts for making movable figures.

No. R5 Complete Outfit "Fun with Shadows"..... \$ .25  
Shipping weight, 1 lb.

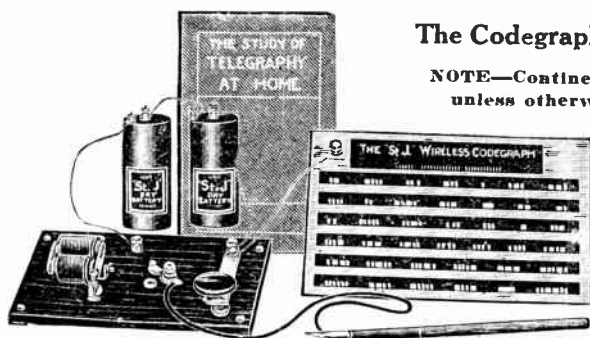


## Fun with Photography

Popular pastimes are numerous, but to many there is nothing more fascinating than photography. The magic of sunshine, the wonders of nature, and the beauties of art are tools in the hands of the amateur photographer. If you want to get

a start in this up-to-date hobby, this outfit will help you. You will enjoy the work and be delighted with the beautiful pictures you can make. The Outfit contains everything necessary for making prints—together with other articles to be used in various ways. The following things are included: One Illustrated Book of Instructions, called "Fun with Photography"; 1 Package of Sensitized Paper; 1 Printing Frame, including glass, back and spring; 1 Set of Masks for Printing Frame; 1 Set of Patterns for Fancy Shapes; 1 Book of Negatives (Patented) ready for use; 6 Sheets of Black Negative Paper; 1 Alphabet Sheet; 1 Package of Card Mounts; 1 Package of Folding Mounts; 1 Package of "Fixo." CONTENTS OF BOOK: Chapter I. Introduction—Photography—Magic Sunshine—The Outfit. II. General Instructions—The Sensitized Paper—How the Effects are Produced—Negatives—Prints—Printing Frames—Our Printing Frame—Putting Negatives in Printing Frame—Printing—Developing—Fixing—Drying—Trimming—Fancy Shapes—Mounting. III. Negatives and How to Make Them—The Paper—Making Transparent Paper—Making the Negatives—Printed Negatives—Perforated Negatives—Negatives made from Magazine Pictures—Ground Glass Negatives. IV. Nature Photography—Aids to Nature Study—Ferns and Leaves—Photographing Leaves—Perforating Leaves—Drying Leaves, Ferns, etc., for Negatives—Flowers. V. Miscellaneous Photographs—Magnetic Photographs—Combination Pictures—Initial Pictures—Name Plates—Christmas, Easter and Birthday Cards.

No. R6 Complete Outfit "Fun with Photography"..... \$ .50  
Shipping weight, 2 lbs.



## The Codegraph (Patented)

**NOTE**—Continental Code sent unless otherwise ordered.

The Codegraph is a brand-new scheme for thoroughly and rapidly learning the telegraphic code, and it has been worked out with the beginner in mind. This code-learning system really adapts itself to the beginner, and it gives a personal touch to each individual student according to his

needs. No other system can do so much, for the student sees, hears and feels every letter and signal. The greatest trouble that every one has in learning by listening to regular messages is in separating the letters and words as they come in so fast. There is no time to think, and letters pile up in the mind. The codegraph avoids all confusion because every letter is under perfect control and may be repeated as many times as desired; hard things can be made easy; words and sentences can be built at will. We guarantee that anyone of average ability can make rapid improvement with the codegraph.

**WHAT IT IS.** A complete codegraph outfit, as shown in the illustration, has three main parts: (1) The "plate and pen," (2) some form of "key and sounder" and (3) two batteries. While any key and sounder can be used with the plate, we wish to call especial attention to the duplex sounder shown, as this has been designed to do double work. If you already have "Fun with Telegraphy," for example, and want to order the "Codegraph Plate and Pen," we will include, free of charge, an extra attachment for connecting up your instrument.

**THE PLATE AND PEN.** When the pen is lightly drawn over the plate, the sounder responds and shows exactly how every letter and signal should sound. The student can then practise each letter until perfect. The surface of the plate is covered with a special insulating enamel, bare spots corresponding to correct dots and dashes. The polished brass plate measures about 6x8 inches and has a most elegant appearance. The book tells all about practising, etc.

**DUPLEX CODEGRAPH KEY AND SOUNDER,** as shown, has a double action and is the latest thing in code-learning devices. By the mere turning of a switch you can have the ordinary telegraph clicks or the wireless buzzes, making two sounders in one and at the cost of one. The combination sounder and a substantial key are mounted upon a finely finished base with nickel-plated trimmings, binding-posts, switch, etc. If you want to become an operator in the shortest possible time no matter whether you have ever tried before or not, get one of these outfits and begin at once. You will be pleased right from the start, because you will make rapid progress right from the start.

- No. 2350 "Codegraph Plate and Pen," with Book of Instructions.. \$1.00  
*Shipping weight, 2 lbs.*
- No. 2351 "Duplex Codegraph Key and Sounder" (no batteries).... 1.00  
*Shipping weight, 2 lbs.*
- SPECIAL—COMPLETE CODEGRAPH OUTFIT, as in cut, postpaid.. 2.50**

Buffalo, N. Y.

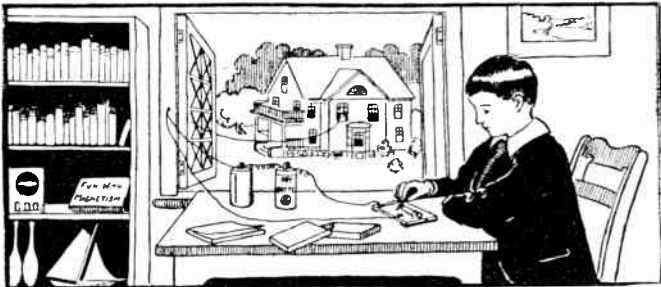
Adams-Morgan Company, Upper Montclair, N. J.

Dear Sir:—Received my steam engine O. K. Was surprised in getting it so soon, and I like it very much. Hoping to have another order for you soon, I am,

Very truly yours,

DOUGLAS PITTMAN.

## Fun with Telegraphy (Patented)



These two outfits are similar in construction, although they differ in details, each being designed for its special work. The "keys," "sounders" and "binding-posts" are neatly mounted upon ebonized bases measuring  $6\frac{1}{2} \times 3\frac{3}{4}$  inches, these also serving as sounding-boards. "FUN WITH TELEGRAPHY" is the original low-price telegraph outfit for students that has sold by the thousands and given universal satisfaction. It is considered the best 50-cent outfit ever produced, and, although we have made several improvements lately, the price is the same as before. In connection with a peculiar oscillating electromagnet and a queer anvil the sounding board aids in giving out a loud, clear click that is found elsewhere only in noisy railroad sounders. This outfit is best adapted for a learner's set of one instrument and a battery to be used on the table for practising, either with or without the "codegraph," and not for telegraphing over wires to other stations. OUTFIT: Illustrated Book of Instructions, called "Fun with Telegraphy"; Telegraphy "Key"; Telegraph "Sounder"; Nickel-plated "Binding-Posts"; Insulated Wires for connections.

No. R8 "Fun with Telegraphy" without battery. . . 50 cents *Shipping weight, 1 lb.*

## Fun with Puzzles

Here is an outfit that every boy and girl should have, for it is amusing, instructive and educational. It is real fun to do puzzles and to puzzle your friends, and this book contains some real brain-teasers that will make you think. The book contains 15 chapters, 80 pages, and 128 illustrations, and measures  $5 \times 7\frac{1}{2}$  inches. If you can't do any particular puzzle you will find its solution in the "key," which is bound with the book. If you want to win prizes by doing the puzzles in the magazines, you will find this book of four hundred puzzles a regular school of puzzles that will give you a thorough training for this kind of work. The book alone is well worth the price, to say nothing of the outfit of numbers, counters, pictures, etc. CONTENTS OF BOOK—Chapter (1) Secret Writing. (2) Magic Triangles, Squares, Rectangles, Hexagons, Crosses, Circles, etc. (3) Dropped Letter and Dropped Word Puzzles. (4) Mixed Proverbs, Prose and Rhyme. (5) Word Diamonds, Squares, Triangles and Rhomboids. (6) Numerical Enigmas. (7) Jumbled Writing and Magic Proverbs. (8) Dissected Puzzles. (9) Hidden and Concealed Words. (10) Divided Cakes, Pies, Gardens, Farms, etc. (11) Bicycle and Boat Puzzles. (12) Various Word and Letter Puzzles. (13) Puzzles with Counters. (14) Combination Puzzles. (15) Mazes and Labyrinths. SECRET WRITING is explained in this book, and it shows how you can write letters to your friends and be sure that no one can read them unless they are also in the secret. This one thing alone will give you a great deal of enjoyment. Get this outfit and have some fun.

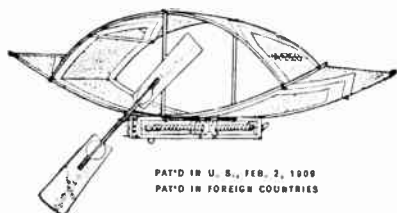
No. R3 Complete Outfit "Fun with Puzzles"..... \$ .25

*Shipping weight, 1 lb.*

**ALWAYS MAKE SURE YOUR POSTAGE IS CORRECT  
IT WILL SAVE DELAYS.**



### A Very Pleasing and Instructive Toy



PAT'D IN U. S., FEB. 2, 1909  
PAT'D IN FOREIGN COUNTRIES

## FLYING MACHINE

This is a miniature Flying Machine of the biplane type, and measures 6 inches long by 14 inches wide. It is very strongly built and practically indestructible. The framework is split bamboo covered with Japanese paper. The propeller and mechanism are made of aluminum. The machine will fly over 100 feet either in a straight line or a curve as desired. The rubber band motor is equipped with a set of multiplying gears, increasing the speed of the propeller six times.

No. 505—Flying Machine, as described, 75 cents, postage extra, 12 cents

## Rubber Strand for Model Aeroplanes

Pure para rubber is the only material that will insure the success of your model. Poor rubber will not fly a model well. We carry a large stock of the best quality.

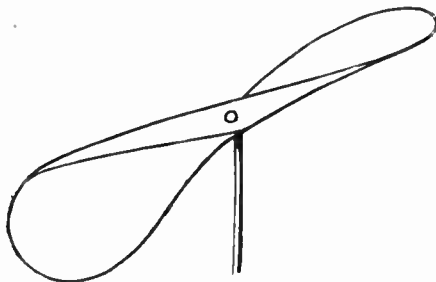
No. A10 Rubber Strand 3-32 square, per foot..... 1½c.  
Postage extra, 2 cents per 10 feet. Not less than 10 feet sold.

## High Efficiency Aluminum Propellers

Ideal for racing machines and long-distance models. Very light in weight and practically indestructible. Fitted with strong steel shaft. Highly efficient. State whether propeller is to push or pull, right or left are desired.

	DIAMETER	PRICE EACH
No. A20	3½ inch.....	10 cents
No. A22	6 inch.....	20 "
No. A24	8 inch.....	35 "
No. A26	10 inch.....	50 "
No. A28	12 inch.....	75 "

Prices include postage.



## Amco Propellers



BLANK



PROPELLER

Your success in model aeroplaning depends largely upon the propeller used. Our propellers are not only the lightest and strongest, but are the most efficient and scientifically made in the country. They have proven eminently successful and have been generally adopted by model flyers. Designed to give the greatest thrust with minimum power and losses. We supply blanks for those who wish to carve their own propellers.

	SIZE	FINISHED AMCO PROPELLER	BLANKS
No. A30	6 inch.....	45 cents each	20 cents per pair
No. A32	7 inch.....	55 " "	25 " " "
No. A34	8 inch.....	65 " "	30 " " "
No. A36	9 inch.....	75 " "	35 " " "
No. A38	10 inch.....	85 " "	40 " " "

## Dowel, Rattan and Sticks

### DOWEL AND RATTAN SIZES



### STICK SIZES



No.1 No.2 No.3 No.4 No.5 No.6

Rattan may be easily bent or steamed into any shape. Basswood sticks are straight grained, free from knots and may be used for many purposes.

	DOWEL	RATTAN IN COILS	BASSWOOD STICKS
No. 1.....	1 cents per foot	1/2 cents per foot	
No. 2.....	1 " " "	1 " " "	
No. 3.....	1 " " "	1 " " "	All sizes
No. 4.....	1 " " "	1 1/2 " " "	5 cents per
No. 5.....	2 " " "	1 1/2 " " "	3 ft. length
No. 6.....	2 " " "	2 " " "	

Postage and wrapping, 3 cents for each 5 feet. *Not less than ten cents worth sold.*

## Split Bamboo

For wiring frames, ribs and shock absorbers. In three foot lengths.  
 1-16 x 1-8 in.... 1 cent    1-16 x 1-4 in.... 2 cents    1-8 x 1-4 in.... 4 cents  
 Postage 3 cents for each 6 feet. *Not less than ten cents' worth sold*

## Bamboo Paper

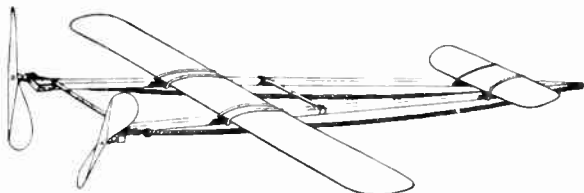
A very strong material made in Japan from bamboo fibre. When coated with flexible varnish it forms an ideal covering for planes. Very light and practically indestructible.

No. A50 Bamboo Paper, in sheets 11 x 16 inches, price..... 15 cents



## AMCO "PEERLESS" RACING MODEL AEROPLANE

Not a Toy but a practical long distance machine



especially made for Model Contests.

**FLIES 1000-1200 FEET UNDER ITS OWN POWER**

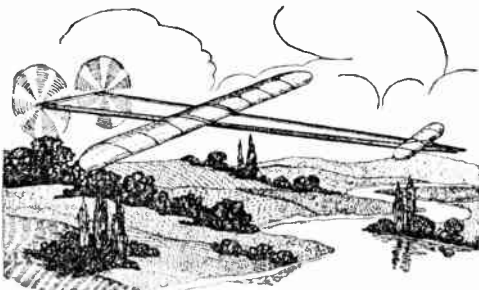
The "Peerless" Racing Model Aeroplanes are the only low priced machines worthy of the name and the only models can successfully compete in long distant contests.

Much study and experiment were required to develop this Racing Model into its present form.

There is nothing so fascinating as a Model Aeroplane that will leave the hands and soar away under its own power for nearly a quarter of a mile.

Simplicity of design, first-class materials and careful workmanship have resulted in a machine that is practically indestructible. The "Peerless" is so far superior to all other model aeroplanes on the market that there can be no comparison.

The machine is three feet long over all and is fitted with aluminum propellers and hangers. **The model will not break no matter how violently it falls to the ground.**

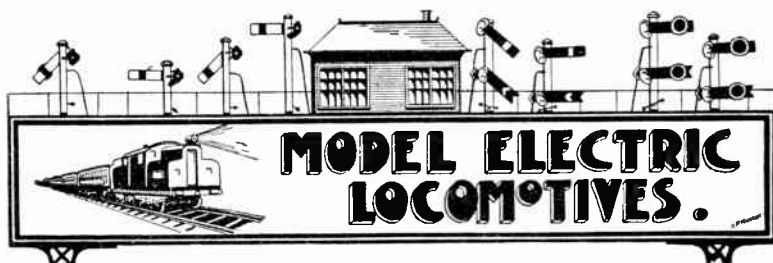


Any one can build a complete machine from the parts in  $\frac{3}{4}$  of an hour. Both the complete machine and the parts come packed in a strong box, accompanied by full directions.

**NO. 500. PEERLESS AEROPLANE PARTS.....\$1.50**

**NO. 501. PEERLESS AEROPLANE COMPLETE.....\$2.00**

Shipping weight, 2 lbs.



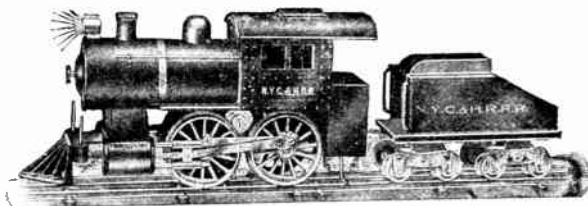
There are no toys on the market to-day that appeal more to the imagination of the average boy than electric trains and railways. We present in the following pages the most distinctively high class electric railways and accessories in the country. They are absolutely above comparison with any others. All of the railways and accessories described herewith are made entirely of metal stampings. Every detail of design has been carefully carried out, making a finished product second to none, and at prices below the nearest competitor.

The scientific principles underlying the manufacture of these toys are identical with those governing the creation of the large machines, of which these illustrated are miniature replicas. Commutators have six-pole armature and horseshoe type field, steel laminations throughout. Commutators are solid bronze, mica insulated with gauze brushes, easily renewable; will wear indefinitely, running continuously.

The manufacturers guarantee each article to be perfect in every respect, and will replace any piece or part received in damaged condition if express charges are prepaid. Lamp not guaranteed.

## Steam Type Locomotives

(Electrically operated)

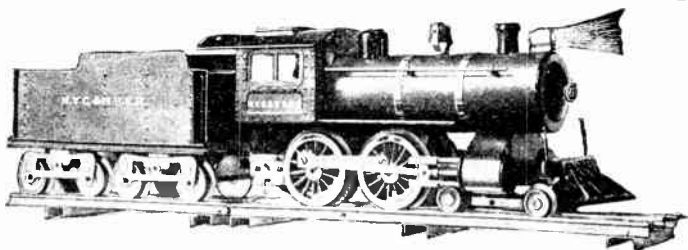


Outfit No. 51

These are faithfully modeled after the latest patterns of passenger and freight engines in general use. Locomotives are constructed of sheet steel and boilers are made of Russian iron. All locomotives are equipped with controllers, electric headlights, and bodies are mounted on flexible trucks. Contacts are placed in cabs for connecting interior lights for passenger coaches. These locomotives can be used in conjunction with freight cars, numbered 11, 12, 13, 14, 15, 16 and 17, described on page 143; also with pullman cars numbered 180, 181, 182, described on page 142, and with the large pullman cars numbered 18, 19 and 190. Locomotives described on this page can be reversed automatically by the use of our No. 62 trips.

Outfit No. 51 Consists of one No. 5 locomotive, 11 inches long, 8 curved and 4 straight sections of track, measuring 15½ feet. Operates on 5 dry batteries, or reduced house lighting current. The locomotive is fitted with a double truck tender, 7 inches long.

Price ..... \$10.50



Outfit No. 6

Outfit No. 6. This is larger and more powerful than the No. 5. Locomotive is 13½ inches long, and is fitted with a four wheeled pilot truck. The tender is 9 inches long. Outfit includes 8 curved and 4 straight sections of track, measuring 15½ feet. Operates on 5 to 7 dry batteries or house lighting current reducers, described on pages 13 and 139.

Price, attractively packed..... \$14.25

## Electric Type Locomotives

The complete and extensive range of Electric Type Locomotives shown here, are modeled after the newest patterns of engines in use upon electrified systems throughout the country. Motors contained in them are mechanically and electrically perfect. Bodies are constructed of sheet steel, richly enameled, lettered and ornamented in gold. Locomotives are equipped with headlights, and excepting No. 33, have controllers for starting, stopping and reversing automatically by the use of our No. 62 Trips.

Wheels are heavy castings, turned absolutely true, nicked and polished. Cowcatchers have couplers protruding from an aperture specially cast in their centers. Locomotives numbered 33 and 38 are for use with freight cars numbered 112, 113, 114, 116 and 117, also with pullman cars numbered 35 and 36. Locomotive No. 53 can be used with pullman cars numbered 180, 181 and 182, and with the large freight cars numbered 11, 12, 13, 14, 15, 16 and 17. The largest locomotives numbered 42 and 54, are for use with large pullman cars numbered 18, 19 and 190, or with large freight cars mentioned above. All locomotives and cars operate on our standard gauge track.

Outfit No. 33. Consists of one No. 33 locomotive, 11 inches long, and 8 sections of curved track, making circle 3½ feet in diameter. Operates on 4 or 5 dry batteries or reduced house lighting current.

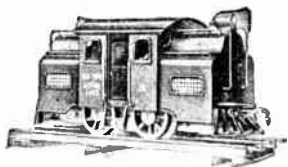
Price, attractively packed..... \$6.25

Outfit No. 38. Consists of one No. 38 locomotive, 12 inches long, and 8 sections of curved track, making circle 3½ feet diameter. Locomotive has four large driving wheels and is equipped with controller. Operates on 4 or 5 dry batteries or reduced house lighting current.

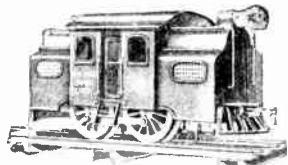
Price, attractively packed..... \$7.75

Outfit No. 53. Consists of one No. 53 locomotive, 12 inches long, 8 curved and 4 straight sections of track, measuring 15½ feet. Locomotive has two sets of four driving wheels and is equipped with controller and contact for interior illumination of passenger cars. Operates on 5 or 6 dry batteries or reduced house lighting current.

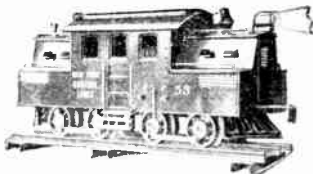
Price, attractively packed..... \$9.00



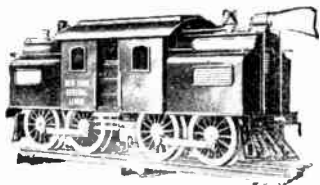
Locomotive No. 33



Locomotive No. 38



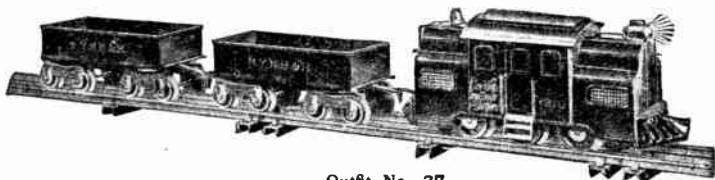
Locomotive No. 53



Outfit No. 42. The largest of the Electric Type Locomotives. Outfit consists of one No. 42 locomotive 15½ inches long, 8 curved and 4 straight sections of track, measuring 15½ feet. Locomotive has two sets of four large driving wheels and is equipped with controller and contact for interior illumination of passenger cars. Operates on 6 dry batteries or reduced house lighting current.

Price, attractively packed..... \$12.60

## Pullman and Freight Trains with Electric Type Locomotives



Outfit No. 37

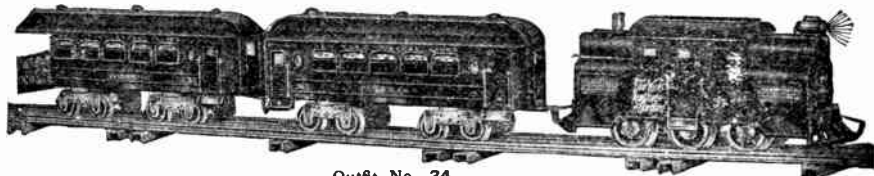
The variety of combinations shown are all packed as complete outfits. Pullman and freight cars may be added to these outfits, and layouts can be extended by adding straight track. Outfit No. 37. Consists of one No. 33 Locomotive, two No. 112 Gondola Cars, and 8 sections of curved track, making a circle 3½ feet in diameter. Operates on 4 or 5 dry batteries or on the reduced house lighting current. The complete train is 31 ins. in length.

Price, attractively packed ..... \$7.20



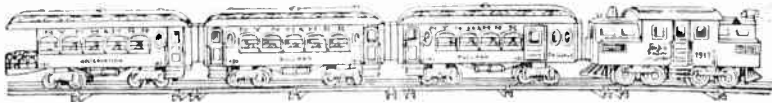
Outfit No. 39. Consists of one No. 38 locomotive, two No. 116 Coal Cars, and 8 sections of curved track, making a circle 3½ ft. in diameter. Operates on 4 or 5 dry batteries or on the reduced house lighting current. The complete train is 31 inches in length.

Price, attractively packed..... \$9.00



Outfit No. 34

Outfit No. 34. Consists of one No. 33 Locomotive, one No. 35 Pullman Car and one No. 36 Observation Car, together with 8 sections of curved track, making a circle 3½ feet in diameter. Operates on 4 or 5 dry batteries or on the reduced house lighting current. The complete train is 34 inches in length. Price, attractively packed ..... \$9.90



Outfit No. 40

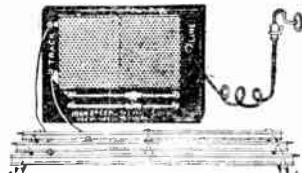
Outfit No. 40. Consists of our No. 38 Locomotive, two No. 35 Pullman Cars and one No. 36 Observation Car, together with 8 curved and 4 straight sections of track, measuring 15½ feet. Operates on 6 or 7 dry batteries or on the reduced house lighting current. The complete train is 4 feet in length. Price, attractively packed..... **\$14.40**

Outfit No. 41. Consists of one No. 38 Locomotive, one each of the Freight Cars numbered 112, 113, 114, 116 and 117, together with 8 curved and 4 straight sections of track, measuring 15½ feet. Operates on 6 or 8 dry batteries or on the reduced house lighting current. The complete train is 5 ft. 7 ins. in length. Price, attractively packed **\$13.00**

Outfit No. 52. Consists of our No. 53 Locomotive, one each of the Pullman Cars numbered 180, 181 and 182, together with 8 curved and 4 straight sections of track, measuring 15½ feet. Operates on 6 or 7 dry batteries or on the reduced house lighting current. The complete train is 4 feet 6 inches in length. Price, attractively packed.. **\$18.00**

## Direct Current Reducer

This is constructed upon a substantial slate base, measuring 8 x 10 inches and ¼ inch in thickness. The resistance wires are wound around four porcelain tubes and these are protected by a perforated Russian iron cover lined asbestos. The voltage that regulates the speed, and which is sufficient for operating any of our outfits, is controlled by a sliding lever. The reducer is connected with the house current by a screw plug, which with 9 feet of flexible cord, is provided with the apparatus. The reducer can be fixed to wall or table by using the four porcelain knobs and screws which are supplied with it.



Nos. 107 and 170

No. 107—for 110 volts. Price complete..... **\$7.50**  
 No. 170—for 220 volts. Price complete..... **10.00**

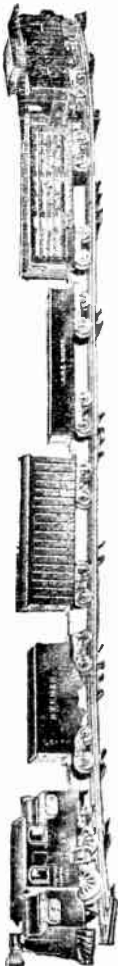
We also wish to call attention to our line of **AMCO STEP-DOWN TRANSFORMERS** shown on pages 11 to 13. These are intended for use on the 110 volt alternating current electric lights and will operate the trains very satisfactorily, with no danger or trouble and practically no expense.

Adams-Morgan Company, Montclair, N. J.

Hartford, Conn.

Gentlemen:—Received my order and am well pleased with everything. I did not have time to write before.

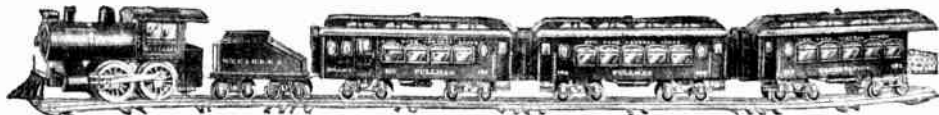
NORMAN C. WEIL.



Outfit No. 41

## Pullman and Day Coach Trains with Steam Type Locomotives

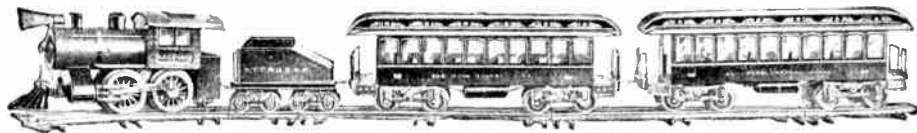
These numbers are all packed complete, and should it be found desirable, the user can substitute the freight cars numbering 11, 12, 13, 14, 15, 16 and 17, for the Pullman Cars or Day Coaches, which come with the outfits. An endless variety of combinations may thus be formed.



Outfit No. 50

Outfit No. 50. Consists of one No. 51 Locomotive and Tender, and one of the Pullman Cars numbered 180, 181 and 182, together with 8 curved and 4 straight sections of track, measuring  $15\frac{1}{2}$  feet. Operates on 8 to 10 dry batteries, or the reduced house lighting current. The complete train is 5 feet in length.

Price, attractively packed..... **\$22.00**



Outfit No. 43

Outfit No. 43. Consists of one No. 51 Locomotive and Tender, two No. 29 Day Coaches, together with 8 curved and 4 straight sections of track, measuring  $15\frac{1}{2}$  feet. Operates on 8 to 10 dry batteries, or on the reduced house lighting current. The complete train is 4 feet 5 inches in length.

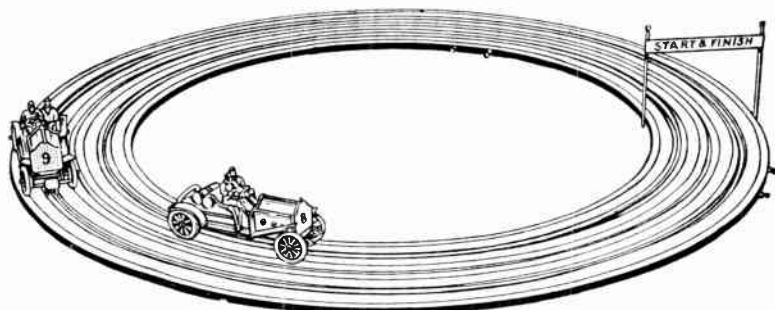
Price, attractively packed..... **\$17.50**

Adams-Morgan Co., Upper Montclair, N. J.  
Gentlemen:—The detector and other materials ordered arrived O. K. and I am well pleased.

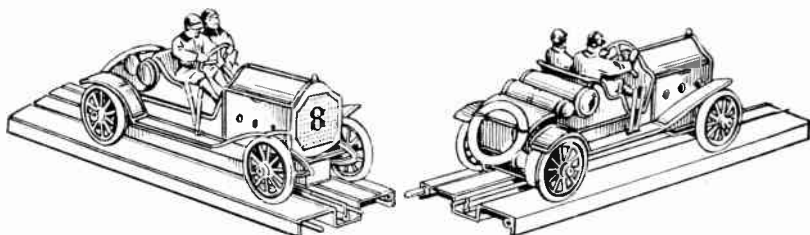
Hartford City, Ind.

Respectfully,  
W. R. SCHISLER.

## Lionel Racing Automobiles



Outfit No. 84



Showing Front and Rear Views of Cars

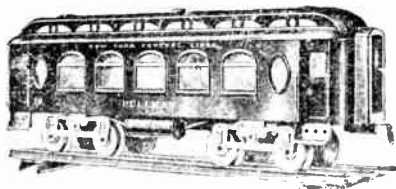
The latest and greatest of the Lionel Electric Toys. A real automobile racecourse in miniature, providing endless fun, and unlimited excitement. Makes the biggest window attraction, and is unsurpassed for showroom display. Cars are  $8\frac{1}{2}$  inches long—body removes from chassis in same manner as standard cars. Motor and working parts are easily accessible for cleaning and lubricating. Wheels have nicked hubs and solid rubber tires—spare tire for replacing worn one is carried on rear of the car. Cars have rear shoe for collecting current from insulated rail in the track bed, and flexible front shoe for guiding. Cars are differently numbered and richly enameled in a variety of colors. The outfits can be operated on dry batteries, or on the house current (either direct or alternating) in conjunction with Amco Current Reducers. Full directions for operating accompany each outfit.

- Outfit No. 80 Consists of 8 sections "O" curved track, making a circle 36 inches in diameter, one car, drivers and starting post. Price complete, attractively packed **\$5.40**
- Outfit No. 81 Consists of 8 sections "I" curved track, making a circle 30 inches in diameter, one car, drivers and starting post. (This circle fits inside of Outfit No. 80.) Price complete, attractively packed..... **5.40**
- Outfit No. 84 Consists of Outfits No. 80 and 81 in combination, forming a double circular racing track. Price complete, attractively packed..... **10.75**
- Outfit No. 85 Consists of 8 sections "O" curved track, 8 sections "I" curved track, and 8 sections "A" straight track, together with two cars, drivers, and starting post. This outfit makes a complete double oval racing track, the extreme outside measurement being  $5\frac{1}{2}$  feet by 3 feet 8 inches. Price complete, attractively packed **12.60**
- Extra sections "A" straight track—14 inches long—fitting either inside or outside circle. Per section..... **.40**

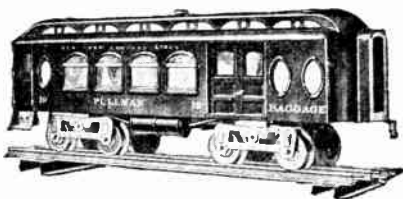
## Pullman Cars

(Made in three sizes)

The Pullman Cars illustrated and described on this page are made in three sizes to conform with every type of locomotive we manufacture. They are constructed of sheet steel, richly enameled, and striped and lettered in gold. Doors are hinged, roofs are removable, and seats in the interior of cars are fitted with pins for the insertion of miniature figures. Provision is also made for connecting a series of lights for interior illumination. Cars are mounted upon flexible trucks, which are in proportion to the size of the cars, but all operate on our standard gauge track. Pullman Cars numbered 18, 19 and 190, and Day Coach No. 29, are for use with locomotives numbered 5, 51, 6, 7, 42 and 54. Pullman Cars numbered 180, 181 and 182, are for use with locomotives numbered 5, 51 and 53. Pullman Cars numbered 35 and 36 are for use with locomotives numbered 33 and 38.



Pullman



Pullman and Baggage Car

Pullman Car No. 18 (Large size) length 16½ inches. Price, boxed..... **\$4.00**

Pullman Car No. 180 (Medium size), length 12½ inches. Price, boxed. **3.15**

Pullman Car No. 35 (Small size) length 11 inches Price, boxed..... **2.25**

Pullman and Baggage Car No. 19 (Large size) length 16½ inches. Has baggage compartment with sliding doors. Price, boxed ..... **4.50**

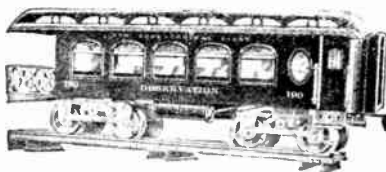
Pullman and Baggage Car No. 181. (Medium size) length 12½ inches. Has baggage compartment with sliding doors. Price, boxed ..... **3.60**

Observation Car No. 190. (Large size) length 16½ inches. Has observation platform. Price, boxed..... **4.50**

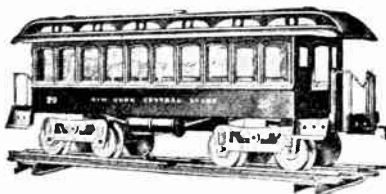
Observation Car No. 182 (Medium size) length 12½ inches. Has observation platform. Price, boxed..... **3.60**

Observation Car No. 36 (Small size) length 11 inches. Has observation platform. Price, boxed..... **2.25**

Day Coach No. 29 (Large size) length 16½ inches. Has front and rear platforms. Price, boxed..... **2.70**



Observation Car



Day Coach No. 29

Adams-Morgan Company, Upper Montclair, N. J.

Lawrence, Mass.

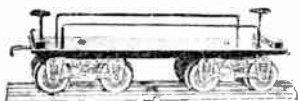
Dear Sirs:—Please send me your book, "Model Flying Machines," also one of your latest catalogs. I find that your propellers and rubber strands are excellent.

OLIVER M. BLACK.

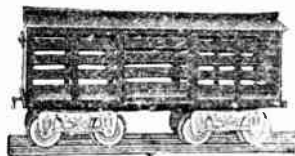


## Freight Cars

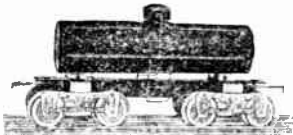
(Made in two sizes)



Flat Car No. 11



Cattle Car No. 13 and 113



Oil Car No. 15



Caboose No. 17 and 117



Gondola Car No. 12 and 112



Box Car No. 14 and 114

These cars are constructed entirely of sheet steel and are modeled after the regulation types of freight cars in general use. They are beautifully enameled, perfectly finished, and are fitted with flexible trucks, enabling them to stay on the track when rounding short curves. All roofs of closed cars slide off, so that interior can be easily reached. Freight cars numbered 11, 12, 13, 14, 15, 16 and 17, are for use with all locomotives excepting number 33 and 38. Small size freight cars are for use with numbers 33 and 38 locomotives.

Flat Car No. 11 11 inches long. Fitted with hand rails, brakes and couplers. Price, boxed \$1.55

Gondola Car No. 12 11 inches long. Carries a considerable load, fitted with hand brakes and couplers. Price, boxed..... 1.80

Gondola Car No. 112 9½ inches long. Similar to No. 12 in appearance. Price, boxed... .80

Cattle Car No. 13 11 inches long. Sliding doors and roof, hand brakes and couplers. Price, boxed ..... 2.25

Cattle Car No. 113 9½ inches long. Similar to No. 13 in appearance. Price, boxed.. 1.10

Box Car No. 14 11 inches long. Sliding doors and roof, hand brakes and couplers. Price, boxed ..... 2.25

Box Car No. 114 9½ inches long. Similar to No. 14 in appearance. Price, boxed..... 1.10

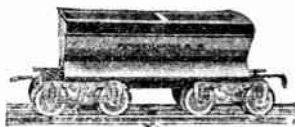
Oil Car No. 15 11 inches long. Fitted with ladders, run-boards, hand brakes and couplers. Price, boxed ..... 2.25

Ballast Car No. 16 11 inches long. Sides are hinged to release contents. Fitted with couplers. Price, boxed..... 2.25

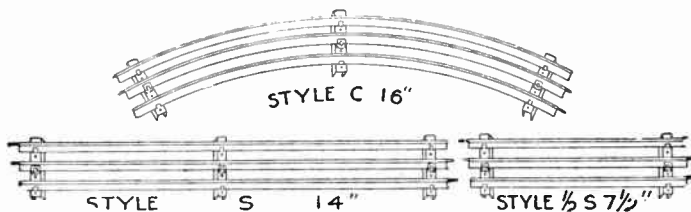
Ballast Car No. 116 9½ inches long. Bottom of car is hinged to release contents. Price, boxed ..... 1.10

Caboose No. 17 11½ inches long. Has sliding roof, seats in interior, windows, and ventilators in roof. Price, boxed..... 2.25

Caboose No. 117 9¾ inches long. Similar to No. 17 in appearance. Price, boxed..... 1.10



Ballast Car No. 16 and 116



### Track and Accessories

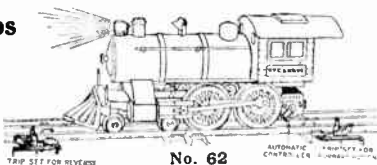
The track is constructed entirely of 2X tin. Perfect insulated third rail, guaranteed to carry much higher voltage than necessary. Pin terminals at ends of each section make it possible to use curved sections for either right or left hand curves. Connecting ties (which slide over end ties of track) hold sections rigidly together. One section of track fitted with battery connections supplied with every outfit.

Style C 16 Track (16½ inches long) per section.....	20 cents
Style S 14 Track (14 inches long) per section.....	20 cents
Style ½S Track (7½ inches long) per section.....	15 cents

### Automatic Reversing Trips

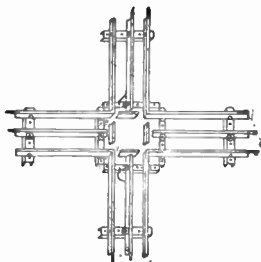
The spring engages with the lever of the reversing controller as the car strikes it and sends it in the opposite direction. In places where continuous track is not possible or desired, our cars are the only ones made that do not have to be reversed by hand.

No. 62 Price, per pair... 50 cents



### Crossing

No. 20 Crossing. Measures 12 inches square. Enables formation of figure 8 loop. Solidly built—permanent electrical connections. Price complete..... 90 cents



No. 20 Crossing

### Bumper

No. 23 Bumper. Fitted with two spring plungers which absorb shock of car. Length 14 inches—mounted on removable steel frame. Is attached to track in same manner as straight or curved sections. An invaluable accessory. Price, complete, 90 cents



### Switch

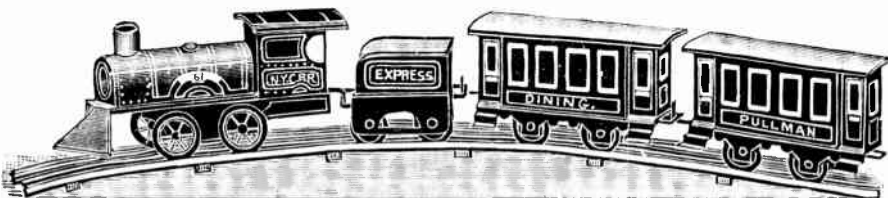
No. 22 Switch. Right and left. Sound mechanical construction—perfectly insulated—permanent electrical connections. Lever which operates rails correctly, acts signals and locks mechanism. Signals are red and white enameled. Connects with track in same manner as curved or straight sections. Length 16½ inches.

Price, each ..... \$1.80



No. 22 Switch

## Reversible High-speed Electric Train



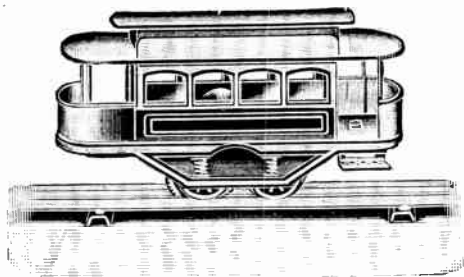
A finely finished electric railway consisting of our electric locomotive with a real electric headlight, tender, two passenger cars and eight feet of No. 00 gauge third-rail track.

### A REAL INSTRUCTIVE NOVELTY

The motor is connected to the wheels by means of cogs and will run on an extremely small amount of current, only one or two dry cells being required. The train can be reversed by a turn of a switch. The track is in sections and when put together forms a circle. Carefully packed in a strong box. Weight packed, 5 lbs.

No. 360 Electric railway, complete..... **\$2.49**

## Reversible Electric Trolley



A finely finished electric trolley car which will run nicely on two dry cells. The outfit consists of one trolley and six feet of No. 00 gauge third-rail track, neatly packed in a cardboard box. The track is in sections and forms a circle when put together. The trolley may be reversed and made to run in either direction with a switch. Carefully packed in a strong box.

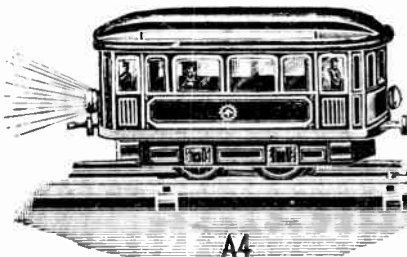
PRICE

No. 365 Electric Trolley  
with track..... **\$2.20**  
Weight packed, 3 lbs.

## Electric Trolley

This trolley is larger than the No. 365. The car is nicely finished in colors. The motor is of the permanent magnet type and will run on a very small amount of current. The car will run in either direction. A set includes eight feet of No. 0 gauge third-rail track and one trolley with a headlight. Length of car 8 inches.

No. 366 Electric Trolley and track **\$3.30**  
Shipping weight, 5 lbs.



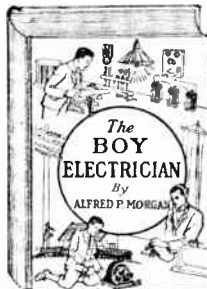
## THE BOY ELECTRICIAN

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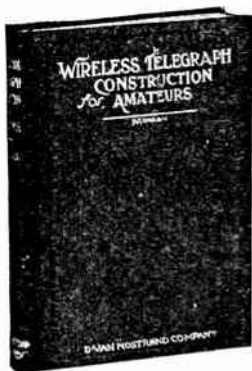
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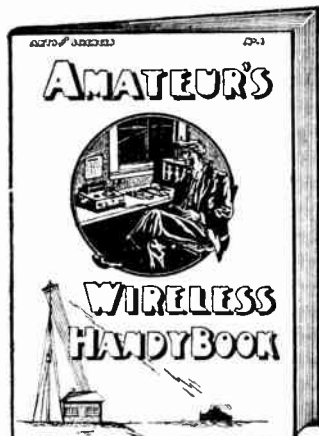
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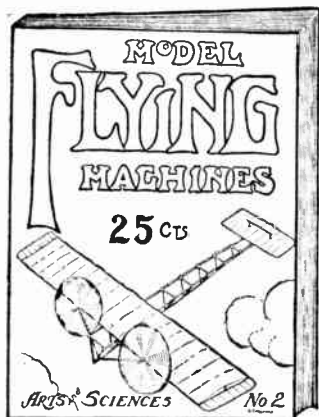
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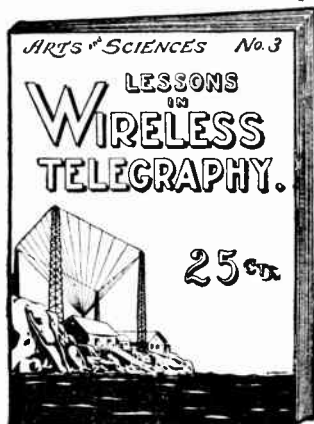
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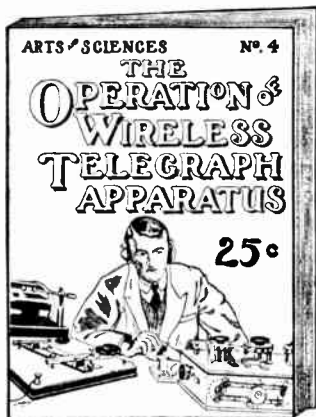
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Chapter V.—TELEPHONE RECEIVERS AND HEADBANDS.

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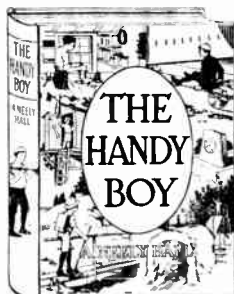
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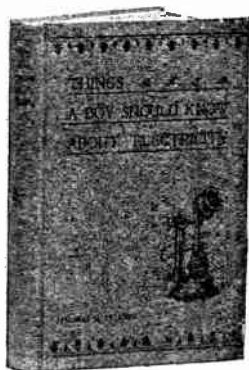


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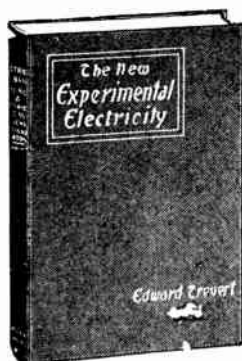
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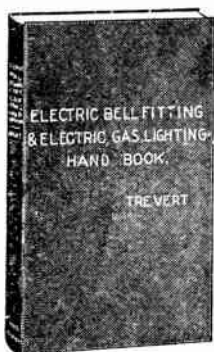
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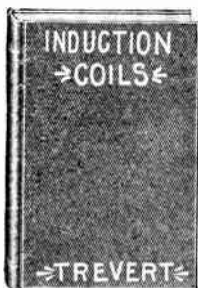
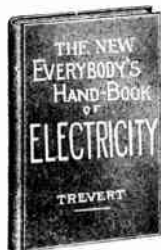
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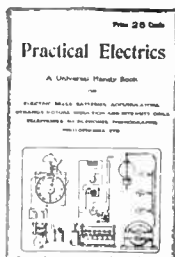
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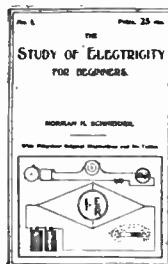
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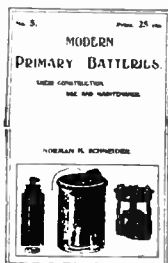
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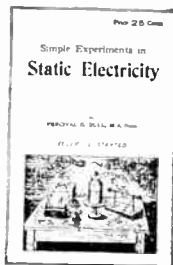
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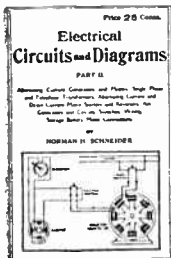
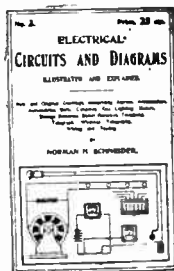
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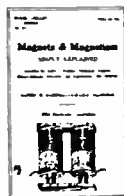


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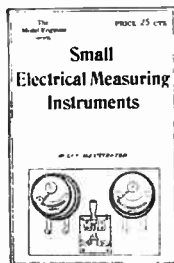
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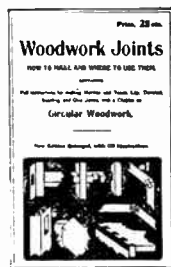
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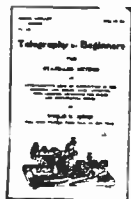
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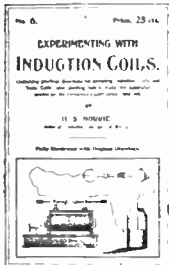
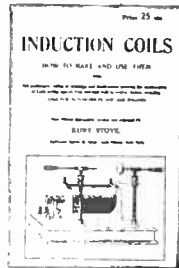
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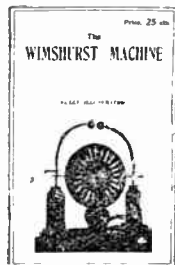
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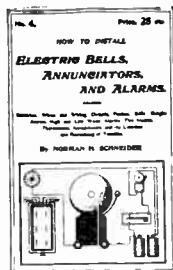
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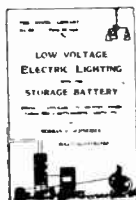


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I. Introduction. The advantages of the isolated plant. The unit of electrical power, etc. II. The storage battery. Choice of a battery. Simple storage battery, etc. III. Estimating the installation. The number of lights needed. Locating the lights, etc. IV. The electric plant. The electric plant in general. The generator, etc. V. Some typical plants. Descriptions of outfits. Schug lighting outfit, etc. VI. Installation and operation. The battery. The electrolyte, etc.

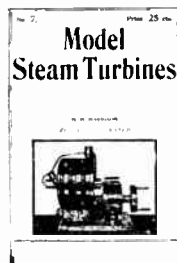


## Model Steam Turbines

HOW TO DESIGN AND BUILD THEM

85 Pages, 74 Illustrations

A practical handbook for model makers. Contents of chapters. I. General consideration. II. Pressure developed by an impinging jet; velocity and flow of steam through orifices. III. Method of designing a steam turbine. IV. Complete designs for DeLaval Steam Turbines; method of making vanes; shrouding. V. The theory of multiple stage turbines. With detail drawings and tables.

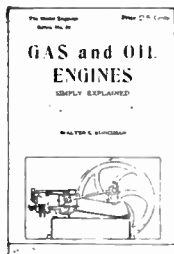


## Gas and Oil Engines

SIMPLY EXPLAINED

88 Pages, 54 Illustrations

A practical handbook for engine attendants. Contents of chapters: Preface. I. Introductory. II. The component parts of an engine. III. How a gas engine works. IV. Governing. V. Cams and valve settings. VI. Oil Engines.



## Small Dynamos and Motors

HOW TO MAKE AND USE THEM

A practical handbook, by F. E. POWELL. 76 Pages, Fully Illustrated. Contents of chapters: I. General considerations. II. Field magnets. III. Armatures. IV. Commutators and other details. V. Tables of windings. VI. How to build a small machine. VII. Useful data. VIII. Testing and repairing.



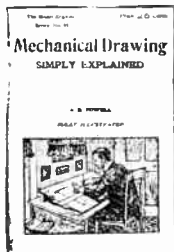
## Small Electric Motors

HOW TO MAKE AND USE THEM

By F. E. POWELL.

75 Pages, 48 Illustrations.

Contents of chapters: I. Some points in the design of electric motors. II. Examples of small motors to be worked by battery power. III. A model four-pole electro motor. 4. Motors for use on electric lighting circuits. V. Applications of small motors and the power required for certain work. VI. Starting and speed controlling switches; fuses. VII. Reversing switches for model motor; gearing, with tables of windings.

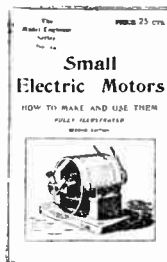


## Mechanical Drawing Simply Explained

By F. E. POWELL.

78 Pages, 44 Illustrations.

The threefold object of this book is to show how drawings are made, how to read other peoples' drawings, and how to make practical working drawings. Contents of chapters: I. Introduction. II. The use and care of drawing instruments. III. On "reading" and setting out drawings. IV. Inking-in and finishing drawings. V. On drawing for reproduction.



## The Beginner's Guide to the Lathe

76 Pages, 75 Illustrations.

An elementary instruction book on Turning in Wood and Metal. By PERCIVAL MARSHALL. Specially written in plain language for the beginner and as an elementary text-book for manual training schools. Contents of chapters: I. The lathe and its parts. II. Method of holding and driving work. III. Turning in wood. IV. Turning in metal. V. The slide-rest. VI. Drilling and boring in the lathe

## Model Railways

72 Pages, 76 Illustrations.

A handbook on the choice of model locomotives and railway equipment, including designs for rail formations and model railway signaling. By W. J. BASSETT-LOWKE.

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By PERCIVAL MARSHALL.

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## Machinery for Model Steamers

By PERCIVAL MARSHALL.

64 Pages, 44 Illustrations.

A practical handbook on the design and construction of engines and boilers for model steamers, single and double cylinder engines, side-wheel engines. The use of liquid fuel and the proportions of machinery for model boats.

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HOW TO MAKE AND USE THEM

By PERCIVAL MARSHALL.

64 Pages, 34 Illustrations.

How to make the following: Water and wind motors; hot-air engines; steam engine and pump; slide valve launch engine; model steam boats; working locomotive in cardboard; model gravitation railway, etc.

## Electrical Apparatus Simply Explained

80 Pages, 35 Illustrations.

A first-rate little book describing the principles and working of some of the electrical appliances in general use.

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A handbook for young engineers and apprentices. Shows how to use simple tools required in metal working and model making.

## Model Steam Engines

HOW TO UNDERSTAND THEM AND HOW TO RUN THEM

By H. GREENLY. 87 Pages, 55 Illustrations.

Including examples of stationary locomotive, portable and marine engines. With different kinds of boilers and methods of getting up steam, as well as engine design and valve mechanisms, etc.

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A practical handbook on the Designing, Making and Testing of Small Steam Boilers. Contents of chapters: I. General principles of boiler design, materials, shape, proportions, strength, capacity, heating surface. II. Stationary boilers. III. Launch boilers. IV. Locomotive boilers. V. Setting out plates, spacing tubes, etc. VI. Boiler fittings. VII. Fuel, lamps, fire-grates.

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By T. T. BAKER. 72 Pages, 19 Illustrations.

A series of instructive experiments in inorganic chemistry. Contents of chapters: I. How to fit up and equip a small chemical laboratory. II. How to fit up apparatus. III. Elements and compounds. IV. Preparation of chlorine. Ammonia, hydrochloric acid, etc. V. Combustion. VI. How to make oxygen, hydrogen, ozone, etc. VII. Preparation of metallic salts. VIII. Sulphur. IX. The atmosphere. X. Making chemicals.

# Practical Ten Cent Books on Electrical Subjects

**No. 1. How to Make a Dynamo.** By EDWARD TREVERT. Full working drawings for a dynamo which will develop about  $\frac{1}{4}$  horse-power. The "Two-Light" Type. (Castings, rough, \$4.75.)

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**No. 5. How to Make a Wimshurst Electric Machine.** With directions for operating, and a description of many interesting experiments.

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**No. 7. How to Make a Medical Coil.** By B. J. WHITE. A simply-made medical coil which can be made easily by an amateur, but will be most effective for medical use.

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**No. 12. How to Make a Hand Dynamo.** By S. R. BOTTONE. A uni-direction-current machine, especially useful in testing.

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**No. 18. How to Wind Armatures.** By A. E. WATSON. A practical treatise for general use.

**No. 19. How to Wind Field Magnets.** By EDWARD TREVERT. Both of these numbers are necessary for every dynamo builder, clear lucid directions and drawings.

**No. 20. How to Make an Ammeter.** By S. R. BOTTONE. Another practical measuring instrument, such as every experimenter needs.

**No. 21. How to Make a Thermostat.** By R. H. BYRON. Full working drawings of a good, practical instrument.

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**No. 25. How to Make an Electric Furnace, and its Auxiliary Appliances.** By CLYDE E. DOUGLAS. A good practical furnace, easily made.

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**No. 27. How to Make a Jump Spark Coil.** By T. E. O'DONNELL, E.E. Every wireless experimenter needs a jump-spark coil, and this one is easily made.

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**No. 29. How to Make a Transformer.** By L. MILTON. This transformer has given universal satisfaction for all uses.

**No. 30. How to Make a Condenser and a Leyden Jar.** By T. E. O'DONNELL, E.E. Working drawings and descriptions, easy to follow and to make.

**How to Make an Automobile.** By E. T. BUBIER. A book with working drawings, originally published at 50 cents, Price, Cloth, 10 cents.

Waterbury, Conn.

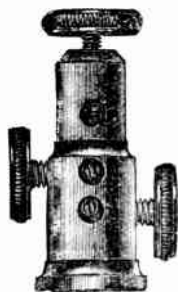
Adams-Morgan Company, Upper Montclair, N. J.

Gentlemen:—Received my two "Amco Wonder Light" Outfits the other day and all my friends thing they are certainly wonderful. I have one set up in a dark stairway and it's just the thing I needed. Please send me your latest catalog.

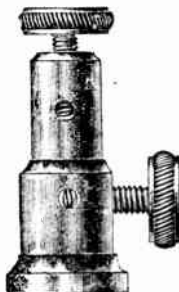
WILLIAM J. FALLOWELL.

## Amco Binding Posts

Amco Binding Posts are manufactured by Adams-Morgan Co., in our own factory. They will be found far superior to any of those offered in imitation. By making our own posts on our own machinery, we are able to give you a far better article than those firms who buy their posts. Amco Binding Posts are made of brass. They are cleanly cut, the holes accurately bored and have well fitting threads. They can be supplied either in lacquered brass or polished nickel. Each post is furnished with a machine screw and a washer not shown in the cuts. Poorly made binding posts will lower the efficiency and appearance of your apparatus greatly and we advise you to obtain the best by making certain that those posts you buy are manufactured by Adams-Morgan Co.



No. 1  
Each 12 cents



No. 2  
Each 10 cents



No. 31  
Each 8 cents



No. 8  
Each 6 cents



No. 25  
Each 8 cents



No. 26  
Each 5½ cents



No. 27  
Each 5 cents



No. 9  
Each 6 cents



No. 11  
Each 5½ cents



No. 3  
Each 5 cents



No. 4  
Each 4 cents



No. 10  
Each 4 cts



No. 29  
Each 4 cts



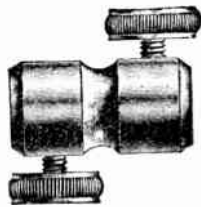
No. 6  
Each 3½ cts



No. 30  
Each 3½ cts



No. 28  
Each 4 cts

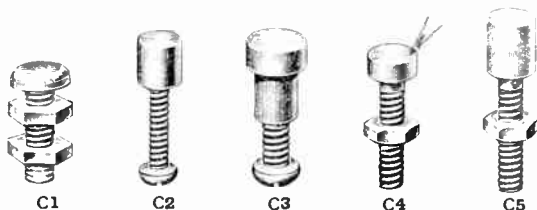


No. 22  
Each 6 cents

**BEWARE OF IMITATIONS. REMEMBER "AMCO" BINDING POSTS ARE MADE IN A FACTORY WHERE QUALITY IS THE FIRST CONSIDERATION**

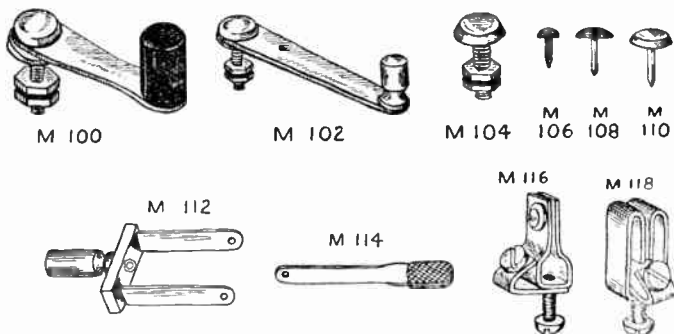
*Shipping weight of any above posts, 16 oz. per dozen, or one cent each in less than dozen lots*

## Switch Contact Points



	EACH	PER DOZ.
No. C1 Nickel-plated Switch Contact. The same as supplied on our Wood Base Switches. Provided with two brass nuts. 8-32 thread	\$.02	.20
No. C2 Brass Contact Point. Especially adapted to be mounted on hard materials such as hard rubber or fibre. Provided with a round head machine screw which fits into bottom. 4-36 thread	.03	.30
No. C3 Brass Contact Point. This is an excellent contact. We use it on most of our Loose Couplers, Receiving Sets, etc. Especially adapted to be mounted on wood. Fitted with a round headed machine screw. 6-32 thread.	.04	.45
No. C4 Brass Contact Point. Has a threaded shank, 6-32 thread. Fitted with a brass nut.	.04	.45
No. C5 Brass Contact Point. Similar to C4 but is higher. 6-32 thread on shank. Fitted with a brass nut.	.04	.45

*Postage extra on any above Contacts, 4 cents per dozen*



## Switch Levers, Points, Contacts, etc.

	PRICE	POST
No. M100 Switch Lever, same as used on wood base switches, each	\$.05	.01
Per dozen	.50	.04
No. M102 Switch Lever, 2½ inches long, each	.12	.02
No. M104 Contact Points, with nuts, same as on wood base switches, each	.02	.01
Per dozen	.20	.04
No. M106 Brass Pin Contacts, per 25	.06	.02
No. M108 Brass Nail Contacts, per 25	.10	.02
No. M110 Switch Contact Point, per dozen	.12	.02
No. M112 Double Pole Blades with fibre crossbar, handle, etc.	.14	.02
No. M114 Single Pole Blade with handle	.11	.02
No. M116 Hinge Post with screws	.05	.01
No. M118 Contact Post with screws	.05	.01

## Helix Clips, Knobs, Sliders, Cups, Switches and Scales



M 29



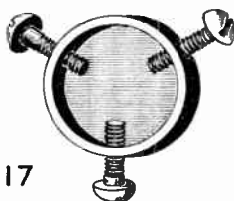
M 14



M 15



M 16



M 17



M 18



M 10



M 11



M 12



M 13



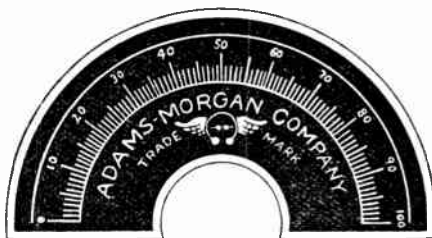
M 8



M 43



M 47



M 71

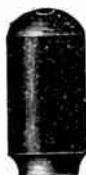
	PRICE
No. M8 Knurled Composition Knob with threaded brass shank 8-32.....	\$ .15
No. M10 Large Helix Clip to snap on round wire.....	.35
No. M11 Large Helix Clip to snap on brass ribbon.....	.35
No. M12 Medium Helix Clip to snap on round wire.....	.28
No. M13 Medium Helix Clip to snap on brass ribbon.....	.25
No. M14 Large Composition Knob, fits 10-32 screw.....	.20
No. M15 Knurled Rubber Composition Knob, fits 12-32 screw.....	.20
No. M16 Composition Rubber Binding Post, 8-32 screw.....	.05
No. M17 Turned Brass Cup, 1 1/4 inch in diameter, with four 6-32 screws to hold crystal.....	.35
No. M17a Same as above, nickel plated and polished.....	.45
No. M18 Offset Cup, set on brass rod fitted with composition rubber knob. May be used on detectors of the Perikon type.....	.50
No. M29 Large Knurled Composition Knob fitted with switcharm and threaded shank for loose couplers, etc.....	.30
No. M43 Brass Slider, fitted with Composition Rubber Knob and Phosphor Bronze Spring. Fits 3-16 inch square brass rod.....	.18
No. M47 Same as above to fit 1/4 inch square rod.....	.25
No. M71 Large Engraved Brass Scale for Variable Condensers, etc. Figures are in brass on black background.....	.30
No. M72 Similar to above, 5/4 inches diameter. For Variometers, etc.....	.45

Any above parts by mail, two cents extra

## "Electrose" Parts



No. 8002



No. 8003



No. 8007



No. 8008



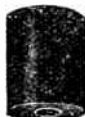
No. 8004



No. 8005



No. 8009



No. 8006



No. 8001

(Cuts are full size)

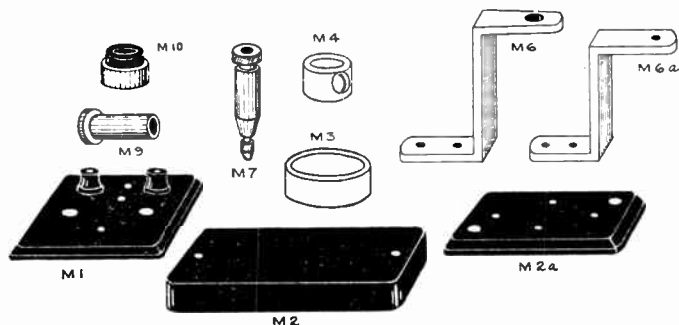
These knobs have the appearance and characteristics of hard rubber. They will be found of great value to the experimenter who wishes to fit up any of his own apparatus.

	PRICE EACH
No. 8001 Telegraph Knob, threaded for 8-32 screw.....	6 cents
No. 8002 Switch Handle, threaded for 10-32 screw.....	4 "
No. 8003 Switch Handle, threaded for 6-32 screw.....	4 "
No. 8004 Electroæ Knob, threaded for 8-32 screw.....	4 "
No. 8005 Electroæ Key Knob, threaded for 8-32 screw.....	3 "
No. 8006 Key Handle, threaded for 6-32 or 8-32 screws.....	3 "
No. 8007 Electroæ Knob, threaded for 8-32 screw.....	6 "
No. 8008 Electroæ Knob, threaded for 10-32 screw.....	15 "
No. 8009 Electroæ Knob, threaded for 8-32 screw.....	3 "

Shipping weight of a single knob, 2 oz. Shipping weight of one dozen knobs, 5 oz.

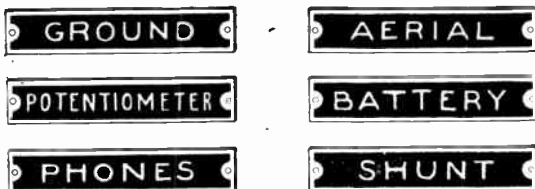


## Miscellaneous Amco Detector Parts and Fittings



		PRICE	SHIPPING WEIGHT
No. M1	Hard Rubber Composition Base, 3 x 3 inches.....	\$.25	1 lb.
No. M2	Hard Rubber Composition Base, 4½ x 2½ inches.....	.30	1 lb.
No. M2a	Hard Rubber Composition Base, 2½ x 3½ inches.....	.30	1 lb.
No. M3	Turned Brass Cup, diameter 1½ in.....	.25	2 oz.
No. M4	Small Brass Cup with Setscrew, diameter ⅝ in.....	.10	2 oz.
No. M6	Brass Bracket, to fit M7 bushing.....	.25	2 oz.
No. M6a	Brass Bracket, with hole drilled and tapped to fit 8-32 thread..	.25	2 oz.
No. M7	Adjustment Bushing for Electrolytic Detectors, etc. Consists of a slotted barrel provided with a plunger fitted with a chuck to receive Wollaston wire or fine phosphor bronze spring wire..	.30	2 oz.
No. M9	Brass Bushing. Fits a 3-16 round rod. Used on Loose Coupler Secondaries, etc.....	.07	2 oz.
No. M10	Carbon Cup, set in a brass cup. For electrolytic detectors.....	.12	2 oz.

## Amco Name Plates



We have had so many inquiries for the small name plates attached to the Amco sets that we have decided to list them. These name plates are original with Adams-Morgan Co., and lend a very handsome appearance to any wireless apparatus to which they are attached. They are made of brass with raised letters and borders, polished and lacquered. The background is dead black. Pierced with two holes ready for attaching. We can furnish BATTERY, POTENTIOMETER, SHUNT, PHONES, AERIAL, GROUND, CONDENSER, TUNER, ON and OFF.

No. M140 Name Plates, any above, 1½ x ⅞ in., postpaid..... 5 cents



6-32

## Threaded Brass Rod



8-32

Good clean cut threads. Handy in constructing apparatus

Threaded Brass Rod, 6-32, per foot..... 25 cents

Threaded Brass Rod, 8-32, per foot..... 25 cents

Threaded Brass Rod, 10-32, per foot..... 28 cents



10-32

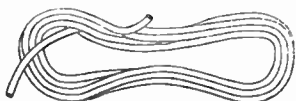
Shipping weight, 4 ounces per foot

## Brass Balls

Used for spark gap balls, in making Leyden jars, static machines and other instruments. Solid brass and absolutely accurate

	EACH	PER DOZ.		
No. B1 1/8 inch Brass Balls.....			\$ .02	\$ .20
No. B2 1/4 inch Brass Balls.....			.03	.25
No. B3 3/8 inch Brass Balls.....			.03	.30

Postage 4 cents



## Wire Solder

The very best grade of wire solder, suitable for general mechanical and electrical purposes. Comes in 1/2 and 1 lb. bundles. Price per lb... 40 cents

Postage extra

## Machine Screws

Round head, iron only. Not less than one dozen of one size sold

Length	6.32 Thread		8.32 Thread	
	Price per Gross	Price per Dozen	Price per Gross	Price per Dozen
1/4 in.	\$ .23	\$ .03	\$ .28	\$ .03
3/8 "	.25	.03	.30	.03
1/2 "	.26	.03	.33	.04
5/8 "	.29	.03	.37	.04
3/4 "	.34	.04	.42	.05
7/8 "	.38	.04	.48	.05
1 "	.44	.05	.56	.06
1 1/4 "	.68	.07	.68	.07
1 1/2 "			.92	.10
1 3/4 "			1.24	.12
2 "			1.32	.14
2 1/4 "			1.60	.18
2 1/2 "			1.88	.20
3 "			2.60	.27



## Brass Hexagonal Nuts

No.	Hexagonal Brass Nuts.....	THREAD	PER DOZ.	PER 100
No. 4N36	Hexagonal Brass Nuts.....	4-36	\$ .08	\$ .38
No. 6N32	Hexagonal Brass Nuts.....	6-32	.10	.42
No. 8N32	Hexagonal Brass Nuts.....	8-32	.10	.42
No. 10N32	Hexagonal Brass Nuts.....	10-32	.12	.53
No. 10N24	Hexagonal Brass Nuts.....	10-24	.12	.53

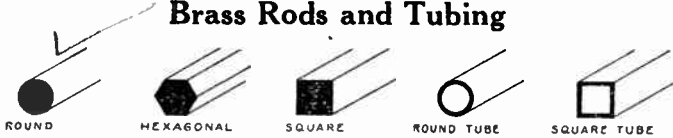
Shipping weight, 2 ounces per dozen

## Brass Cap Nuts



No. CN832 Brass Cap Nuts. Cuts full size. Used to finish up an instrument where an ordinary brass nut or screwhead would look unsightly. 8-32 thread only.  
 Price, Each 1½ cents, Per Dozen 15 cents  
 Shipping weight, 4 ounces per dozen

## Brass Rods and Tubing



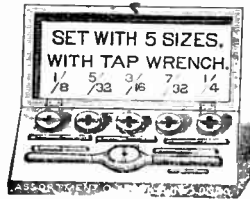
Prices are per foot. Not less than one foot sold. Cut to any length over one foot.

SIZE	ROUND ROD	SQUARE ROD	HEX. ROD	SQUARE TUBE	ROUND TUBE
8/32 in.....	.03	....	....	....	....
7/8 in.....	.04	....	....	....	.14
5/32 in.....	.05	....	....	....	....
8/16 in.....	.07	.12	....	.25	.16
7/32 in.....	.09	....	....	....	....
1/4 in.....	.10	.20	.14	.30	.18
5/16 in.....	.14	.25	.18	.35	.20
11/32 in.....	.18	....	....	....	....
3/8 in.....	.24	.30	.30	....	....
7/16 in.....	.25	.40	.35	....	.25
1/2 in.....	.28	....	.40	....	.25

NOTICE—Postage charges are figured by weight and amount to one-quarter of the cost of the rod or tube; for example, 1 foot of 3/8 round rod costs 24 cents, postage is 6 cts. extra.

## Sets of Taps and Dies

Are practically indispensable to every experimenter and mechanic. These tools have a worldwide reputation and have proved themselves in thousands of hands to be all that we claim for them. The work is finished at one cut, making a screw equal to the best lathe work; no burr being raised above the true size. Nuts and bolts threaded with these taps and dies need not be matched and kept together. They always correspond. The dies are adjustable for wear so as to keep the exact size of the taps, notwithstanding long use, and to allow nuts or bolts for different purposes to be made to fit together tightly or loosely as may be desired. A set of these taps and dies offer a considerable range of sizes and enable the experimenter to thread his own parts.



No. 151

- |   |                               |
|---|-------------------------------|
| No. 150 Die Holder, Tap Wrench (fitting in stock) and five sizes Taps, Dies and Guides, 1/8-40, 5/32-32, 3/16-24, 7/32-24, 1/4-20, complete in hardwood case .....            | <b>PRICE</b><br><b>\$4.98</b> |
| No. 151 Die Holder, Tap Wrench (fitting in stock) and five sizes Taps, Dies and Guides, Screw Gauge Sizes, Nos. 4-36, 6-32, 8-32, 10-24, 12-24 complete in hardwood case..... | <b>\$4.98</b>                 |



DIE

## Machine Screw Taps, Dies and Twist Drills



TAP

We have listed below only the sizes commonly used in electrical work. They are the highest grade obtainable. The taps and dies cut clean, accurate V threads.

Size of Thread	Price of Tap	Price of Die	Price of Tap Drill	Price of Clearance Drill
2-56	.12	.30	.06	.06
4-36	.12	.30	.06	.08
6-32	.12	.30	.08	.09
8-32	.12	.30	.09	.11
10-32	.12	.30	.09	.11
10-24	.12	.30	.10	.11
12-24	.12	.30	.11	.13
14-20	.12	.30	.11	.13

By mail, extra 1 cent

## Tap Wrenches

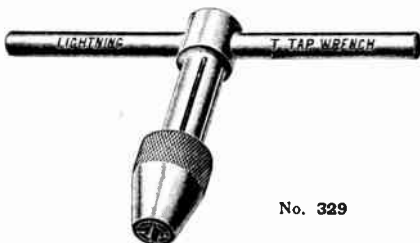
Made of the finest steel carefully hardened and tempered.

No. 329 Adjustable T Tap Wrench, will take machine screw taps Nos. 2-14, straight shank taps 5-64 to 1/4 in. .... 50 cents

Shipping weight, 5 ounces

No. 333 Adjustable T Tap Wrench, will take machine screw taps Nos. 14 to 24 and hand taps 9-32 to 1/2 in. .... \$1.00

Shipping weight, 12 ounces



No. 329

## Stocks or Die Holders



No. 1850

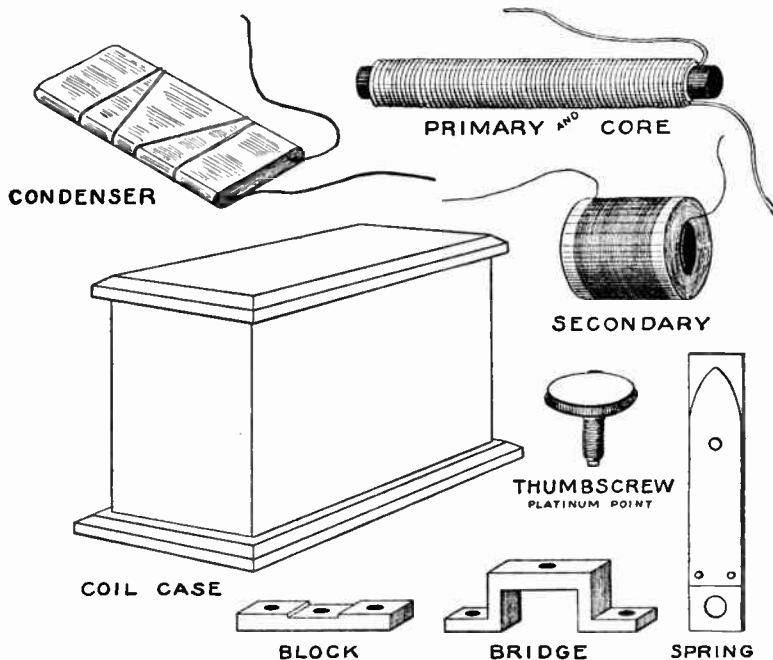
Made of the finest steel, carefully hardened and finished.

No. 1851 fits dies at top of page.

No.	Holding Dies	1/4 in.	Outside Diameter	PRICE	SHIPPING WEIGHT
No. 1850	"	"	"	.40	4 oz.
No. 1851	"	13-16	"	.50	6 oz.
No. 1852	"	1	"	.75	10 oz.
No. 1853	"	1 1/2	"	1.25	1 lb.

## Amco Spark Coil Parts

### TYPE B COILS

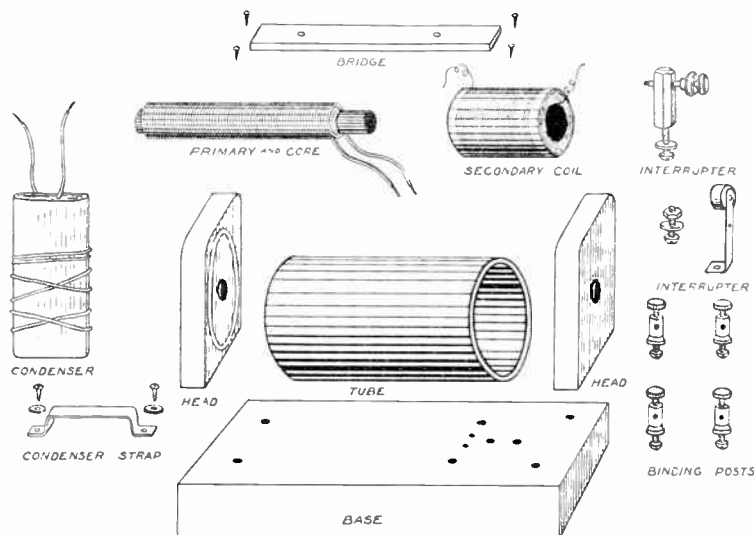


Our coil parts are all completely finished ready for assembling, thus enabling the experimenter to build or repair his own coil.

Size of Spark  
 $\frac{1}{2}$  inch 1 inch  $1\frac{1}{2}$  inch

No. M70	Polished Hardwood Coil Case.....	\$.60	\$.75	\$.75
No. M71	Complete Primary and Core.....	.35	.40	.60
No. M72	Complete Secondary Winding.....	.80	1.60	2.85
No. M73	Condenser, including Glass Plate.....	.35	.40	.85
No. M74	Thumbscrew with Platinum Point.....	.60	.75	.80
No. M75	Brass Bridge with Screws.....	.20	.20	.20
No. M76	Brass Block with Screws.....	.15	.15	.15
No. M77	Vibrator Spring with Platinum Point.....	.60	.75	.80
No. M78	Four Binding Posts.....	.20	.20	.20
No. M79	Red Coil Wax for filling.....	.20	.20	.20
No. M80	COMPLETE PARTS.....	3.00	4.25	6.00
	Shipping weight complete parts.....	5 lbs.	8 lbs.	8 lbs.

## Boys! Build Your Own Spark Coil with the Amco Junior Spark Coil Parts



What boy does not want to build his own spark coil. The thought of tediously winding many thousand feet of fine hair-like wire into smooth even layers and the lack of proper facilities to carry out some of the machine work required has deterred many from actually making the attempt. We have solved the secret however, and the young experimenter wishing to build his own coil can do so most economically by using the Amco Junior Spark Coil Parts. We supply them with all the difficult work already done. No further machine work is necessary. The secondary is wound and ready to slip on the primary. The metal parts are all turned and threaded. The only tools required are a screwdriver and a small drill or brace and wood bit. It is not necessary to buy any other parts in order to finish the coil. They are all supplied and at a price that it would cost most experimenters to buy the wire alone. Each set of parts is accompanied by an extremely well-illustrated set of printed directions showing how to accomplish each step involved in putting the parts together and completing the coil. The directions have been prepared by a well-known writer and authority on such matters and you cannot possibly go wrong. It will only require two or three hours' work to complete the coil and when it is finished you can perform hundreds of interesting experiments as well as use the coil to send wireless messages if you wish.

The complete set of parts consists of the wooden base, coil ends, coil tube, bridge, secondary (completely wound), core, primary, complete interrupter, condenser, binding posts, insulating tubes and all screws, etc., carefully packed in a strong box with directions.

### PRICE LIST OF PARTS

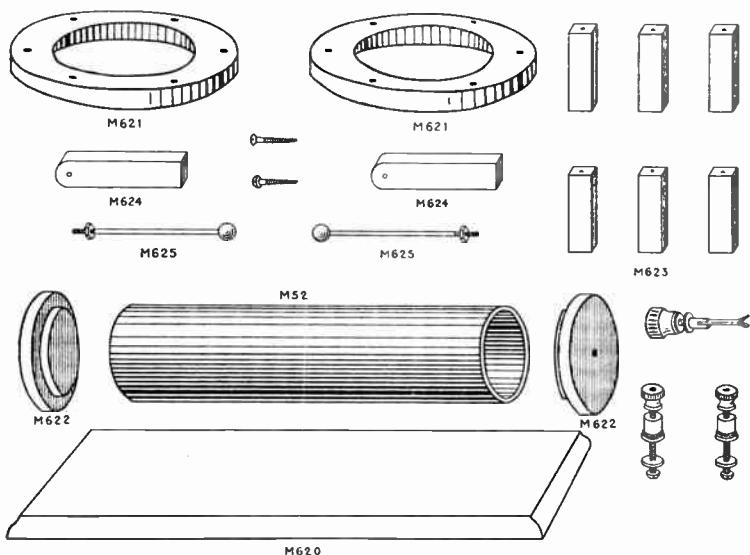
		PRICE	SHIPPING WEIGHT
No. M800	Complete Primary and Core Materials.....	.30	1 lb.
No. M801	Wooden Bridge.....	.05	2 oz.
No. M802	Tube .....	.18	4 oz.
No. M803	Complete Secondary .....	.80	4 oz.
No. M804	Empire Cloth for Insulating Tube.....	.10	2 oz.

No. M805	Binding Posts with Screws, each.....	.04	2 oz.
No. M806	Complete Vibrator with Contacts.....	.35	4 oz.
No. M807	Complete Condenser Materials.....	.18	4 oz.
No. M809	Wooden Coil Base.....	.35	1 lb.
No. M810	Turned Wooden Coil Heads each.....	.15	1 lb.
No. M811	Complete Directions and Working Drawings.....	.25	2 oz.
No. M2080	COMPLETE SET OF PARTS FOR BUILDING THE JUNIOR SPARK COIL, WITH PRINTED DIRECTIONS AND DRAWINGS .....	\$2.20	

*Shipping weight of the complete parts, 4 lbs.*

## Amco Parts for Tesla High Frequency Coil

Price, \$3.50



The parts are all drilled, etc., so that the only tools required to complete the Tesla Coil are a pair of pliers and a screwdriver.

		PRICE	SHIPPING WEIGHT
No. M620	Hardwood Base .....	.45	2 lbs.
No. M52	Secondary Tube .....	.30	8 oz.
No. M622	Turned Wooden End Pieces for Secondary.....	.40	8 oz.
No. M621	Two Large Hardwood Rings for Primary.....	.50	18 oz.
No. M623	Six Hardwood Supports for Primary.....	.30	6 oz.
No. M626	Wire for Secondary .....	.50	16 oz.
No. M627	Conductor for Primary .....	.35	16 oz.
No. M624	Rubber Supports for Secondary.....	.80	6 oz.
No. M625	Two Brass Rods and Spark Balls.....	.30	4 oz.
No. M631	COMPLETE SET OF PARTS FOR TESLA COIL WITH BLUEPRINT AND DIRECTIONS.....	\$3.50	

*Shipping weight, 5 lbs.*

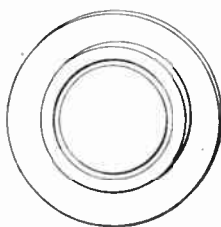
### Soft Iron Core Wire

No. M120 Soft Norway Iron Wire, machine cut and perfectly straight. Thoroughly annealed. The size is No. 22 B & S..... Price per lb. \$ .20

#### No. of lbs. per Core in decimal fractions of a lb.

Diameter of Core	Length of Core in Inches				
	8	10	12	14	16
½ inch	.33	.41	.50	.58	.66
⅝ " "	.52	.65	.78	.91	1.05
¾ " "	.75	.94	1.13	1.31	1.50
7/8 " "	1.02	1.28	1.52	1.79	2.04
1 " "	1.33	1.67	2.00	2.33	2.67
1 1/8 " "	1.69	2.11	2.53	2.95	3.38
1 1/4 " "	2.08	2.60	3.13	3.65	4.17
1 1/2 " "	2.52	3.15	3.78	4.41	5.04
1 5/8 " "	3.00	3.75	4.50	5.25	6.00

### Quenched Gap Parts



M210



M212

No. M210 Quenched Gap Disk, 3¾ inches in diameter, provided with radiating fin and insulating groove. Accurately machined from a solid brass casting. Ample sparking surface. Each..... \$1.00

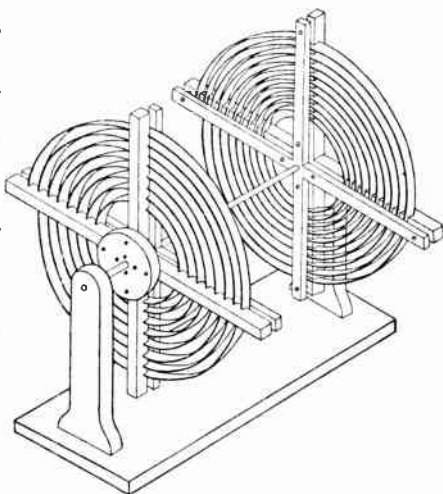
Weight, each 1 lb.

No. M212 India Mica Ring for separator between disks ..... .15



## Oscillation Transformer Parts

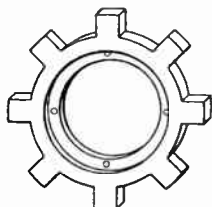
This set of complete parts will enable any experimenter to build one of our high grade Oscillation Transformers with very little labor. It is merely necessary to stain and varnish the woodwork and assemble the parts in order to complete the instrument. Each set is accompanied by a large blue print drawing with full directions, and consists of one hardwood base 16" x 6" x 3/4", two hardwood standards, two hardwood hubs, four slotted cross bars, four plain cross bars, three dozen screws, one 18 ft. coil heavy brass ribbon, one 30 ft. coil secondary ribbon, one brass tie rod and nuts, binding posts, etc., complete.



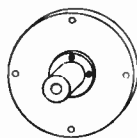
No. M280 Oscillation  
Transformer Parts... \$4.00

*Shipping weight, 6 lbs.*

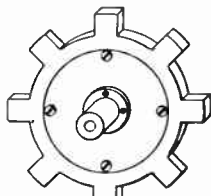
## Rotary Gap Parts



M 200



M 202

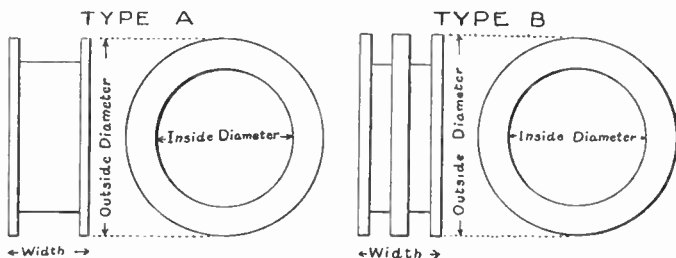


M 204

- No. M200 High Speed Rotary Disk with electrodes around periphery. Cast from a special alloy in order to insure light weight and efficiency. Fully machined and faced. May be mounted on suitable hard rubber bushing. Diameter 4 1/2 inches. Weight 5 ounces..... \$1.50
- No. M202 Hard Rubber Disk with metal bushing for mounting on motor shaft, completely machined and finished. State size of motor shaft. Weight, 3 ounces ..... 1.25
- No. M204 High Speed Rotary Disk fitted to hard rubber disk and bushing ready to place on motor shaft. State size of shaft. Weight 8 ounces... 3.00

NOTE—Our latest disk has TEN Electrodes

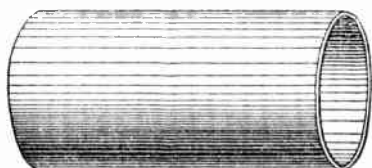
## Amco Turned Wood Spools and Rings



We are offering this material for the benefit of those experimenters who wish to build their own Variometers, Doughnut Tuning Coils, Rotary Tuners, Loading Tuners, etc. They are turned true and smooth.

TYPE A.					
	Number of Grooves	Inside Dia. Inches	Outside Dia. Inches	Width Inches	Price
No. M1000	1	4 1/4	5 1/2	1 3/8	\$ .35
No. M1001	1	3 1/4	4 1/2	2 3/4	.50
No. M1002	1	2 1/4	3 3/8	2 3/8	.30
TYPE B.					
No. M1003	2	3 1/4	4	1	.35
No. M1004	2	2 1/4	3	1	.35

Shipping weight of any of above spools, 1 lb.



No. M50

## Special Cardboard Tubes

For winding Loose Couplers, Loading Coils, Tuning Coils, etc.

Carefully baked and impregnated so as to be unshrinkable. Very hard and strong.

	Diameter	Length	Price
No. M50	2 5/8 - 1 6 inches	3 3/8 inches	.15
No. M25	2 5/8 "	3 3/8 "	.15
No. M51	2 5/8 "	6 3/4 "	.18
No. M24	3 1/8 "	4 1/8 "	.15
No. M41	3 1/8 "	8 "	.20
No. M52	3 1/8 "	12 "	.30
No. M53	4 "	4 3/4 "	.25
No. M54	4 "	10 "	.35

Shipping weight of any above, 1 lb.

Adams-Morgan Company, Upper Montclair, N. J.

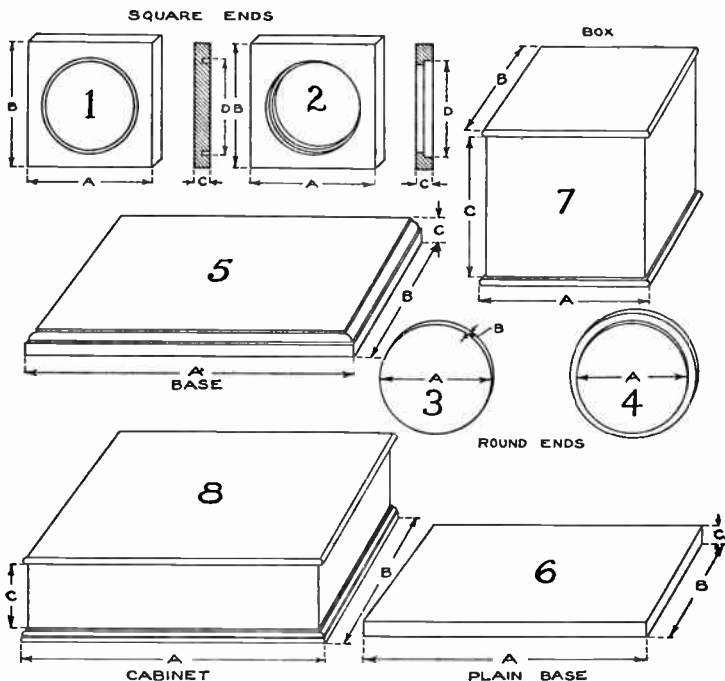
Clyde, Ohio.

Dear Sirs:—I received your order and am well pleased with it.

GEORGE LAST.

## Amco Wooden Parts.

FOR EXPERIMENTERS.



We offer here a wide selection of wooden parts for those experimenters who wish to build some of their own apparatus. The parts are adapted for making various types of Loose Couplers, Tuning Coils, Loading Coils, Variometers, Condensers, Receiving Sets, etc. The parts are all plain, that is, they have no holes bored in them. We can furnish them either plain, ready for staining and varnishing, or already stained dark mahogany color and polished. The finished parts are hand rubbed and have a fine polish. All parts are made of birch. The only sizes carried in stock are those listed below. Special sizes can be made to order at an increased price. We are pleased to quote, but requests for quotations must be accompanied by a dimensioned drawing showing just what is desired.

**SQUARE ENDS** (Nos. 1 and 2) may be used for loose coupler primaries, tuning coils, loading coils, etc. They can be furnished with a groove turned in them (No. 1) or a hole (No. 2) to accommodate a tube.

**ROUND ENDS** (Nos. 3 and 4) may be used to fit in the ends of tubes for loose coupler secondaries, etc.

**BASES** (Nos. 5 and 6) may be used for receiving sets, loose couplers, etc., or to mount other instruments upon. No. 5 style has a fancy edge. No. 6 is plain.

**BOXES** (No. 7) may be used as a case for condensers, variometers, or other apparatus.

**CABINETS** (No. 8) may be used for receiving sets or to mount other instruments in or upon.

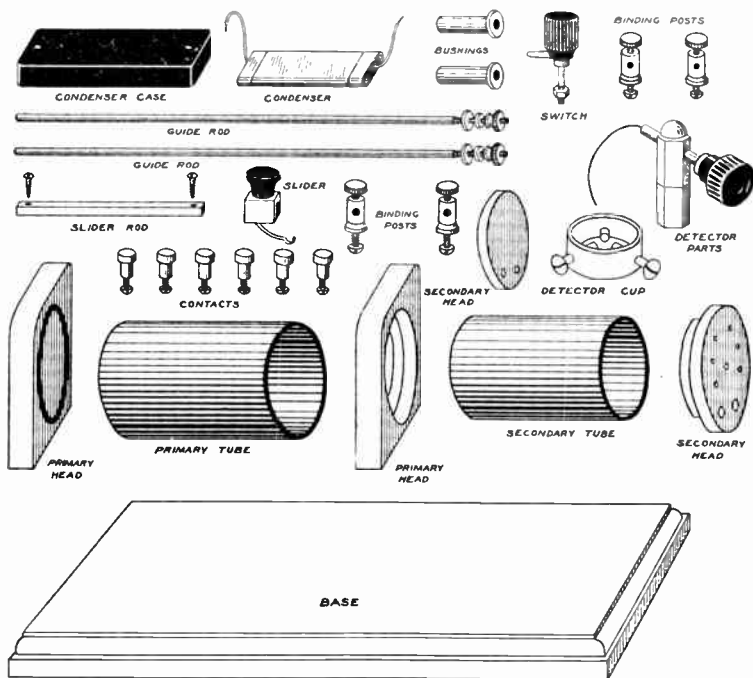


This outfit is a general favorite among amateurs wishing to construct a low priced efficient receiving set, having a range of from 200 to 600 miles. The outfit is very easy to assemble. All parts are finished and no tools other than a gimlet and a screwdriver are required. We supply full directions and every part including the smallest screw. The outfit consists of a large double slide tuning coil especially adapted for long wave lengths, a sensitive "cat-whisker" detector, a fixed condenser, together with all screws, rods, binding posts, etc., and a large hardwood base.

No. MRB10 Complete Set of Parts with full directions..... **\$4.98**  
*Shipping weight, 7 lbs.*

## Parts for Amco Receiving Outfit, Type R C

AN IDEAL SET AT AN EXCEPTIONALLY LOW PRICE

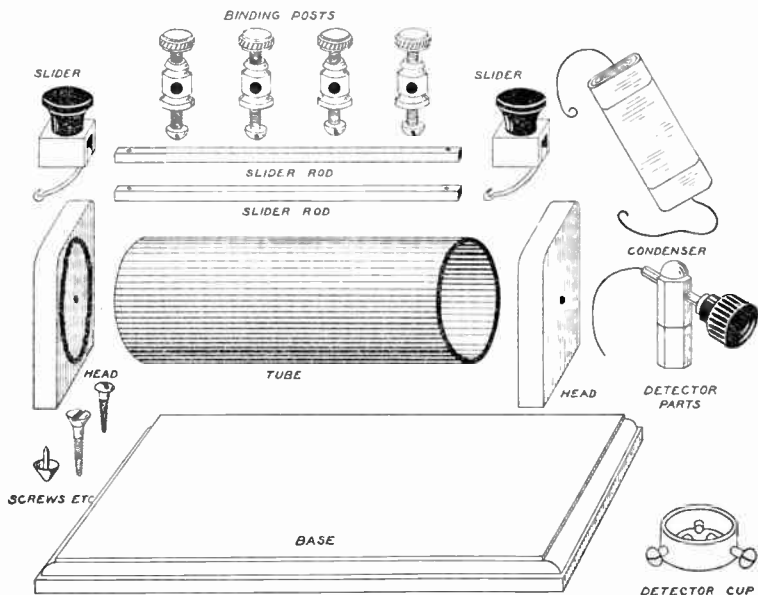


This is the most desirable set of parts that an amateur desiring to build a very sensitive receiving outfit could possess. If you wish to receive long-distance messages this is the outfit you ought to have. We supply everything, even the smallest screw. No tools other than a gimlet and a screwdriver are required in order to assemble the set. The outfit consists of a receiving transformer, "cat-whisker" detector, fixed condenser, all necessary binding posts, screws, etc., and a large hardwood base.

No. MRC10 Complete Set of Parts with full directions..... **\$6.25**  
*Shipping weight, 7 lbs.*

## Parts for Amco Receiving Outfit, Type R A

### THE IDEAL SET FOR THE BEGINNER



This is probably the set that most boys and beginners prefer. It is a highly efficient outfit capable of receiving from 200 to 400 miles under ordinary conditions. It is very easy to assemble. All parts are finished ready for assembling and no tools other than a gimlet and a screwdriver are necessary. We supply full directions and every part including the smallest screw. The outfit consists of a double slide tuning coil, a very sensitive "cat-whisker" detector, a fixed condenser, together with all screws, binding posts and a large hardwood base.

No. MRA10 Complete Set of Parts with full directions..... **PRICE \$3.80**

Shipping weight, 5 lbs.

### READ THIS TESTIMONIAL

Manchester, Mass.

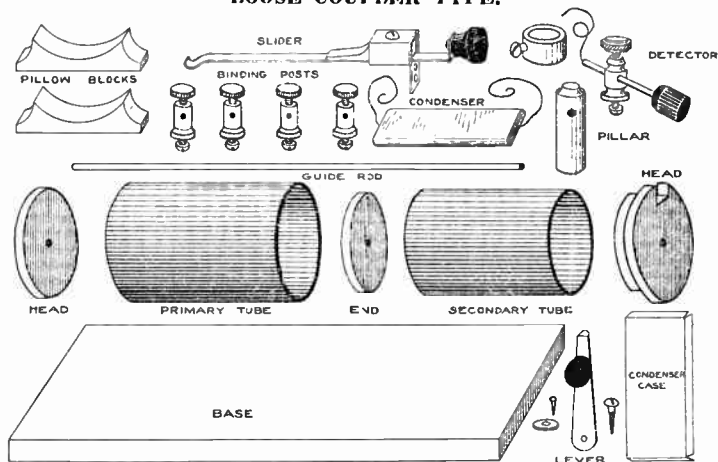
Adams-Morgan Company, Upper Montclair, N. J.

Dear Sirs:—I was so much pleased with the Helix Knobs and the Rubber Switch Knobs that I am going to file another order with you. I was very much pleased with the quick delivery of my first order and hope the next one will be as prompt.

Yours truly,  
JOSEPH B. DODGE.

## Amco Parts for Simplex Receiving Set.

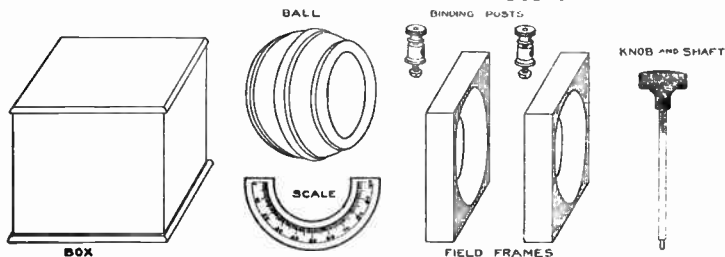
LOOSE COUPLER TYPE.



Here are the complete parts of our No. 2024 Simplex Receiving Outfit with all the hard work done in our factory so that any boy can easily put them together himself. No tools except a gimlet and screwdriver and possibly a pair of pliers are required. This is the easiest way of making an efficient receiving set that there is. All parts and materials, including wire, are supplied. It is unnecessary to purchase anything additional. We furnish even the smallest screw.

No. M2024 Complete Parts and Materials for building the Simplex Loose Coupled Receiving Set, with drawings and full directions **\$3.75**  
Shipping weight, 6 lbs.

## Amco Parts for Variometer.



Here are the complete parts for building your own Variometer. They consist of a Hardwood Case, Field Frames, Turned Wooden Ball, Scale, Knob, Shaft, Pointer, Binding Posts, Bearings, Wire, etc., complete with a blueprint drawing.

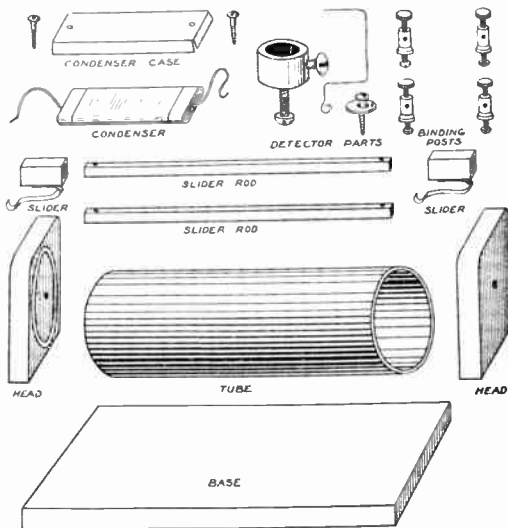
No. M7010 Complete Parts for Variometer..... **\$6.00**  
Shipping weight, 8 lbs.

## Amco Parts for "Simplex" Receiving Set

Here are the complete parts of our No. 2020 Simplex Receiving Set with all the hard work done in our factory so that any boy can easily put them together himself. No tools except a gimlet and screw-driver are required. This is the easiest way of making an efficient receiving set that there is. All parts and materials, including wire, are supplied. It is unnecessary to purchase anything additional.

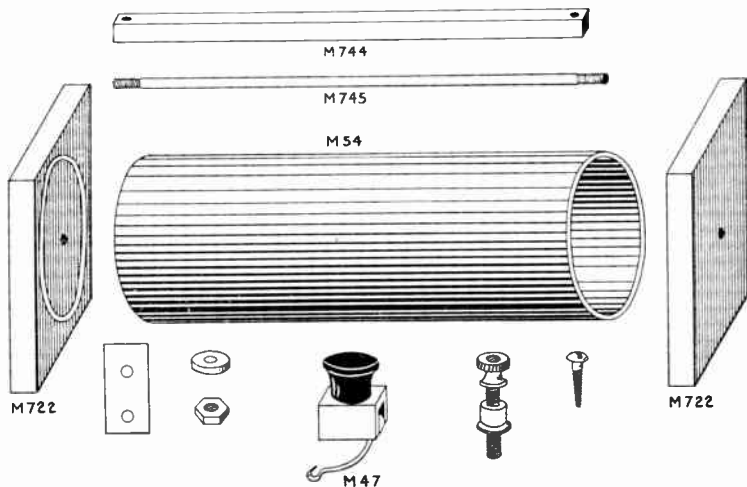
No. M2020 Complete Parts and Directions..... **\$2.25**

Shipping weight, 5 lbs.



## Amco Parts for Precision Loading Coil

All wooden parts are drilled and smoothed. All metal parts are drilled and tapped. When the parts are assembled they form the most efficient loading coil on the market.

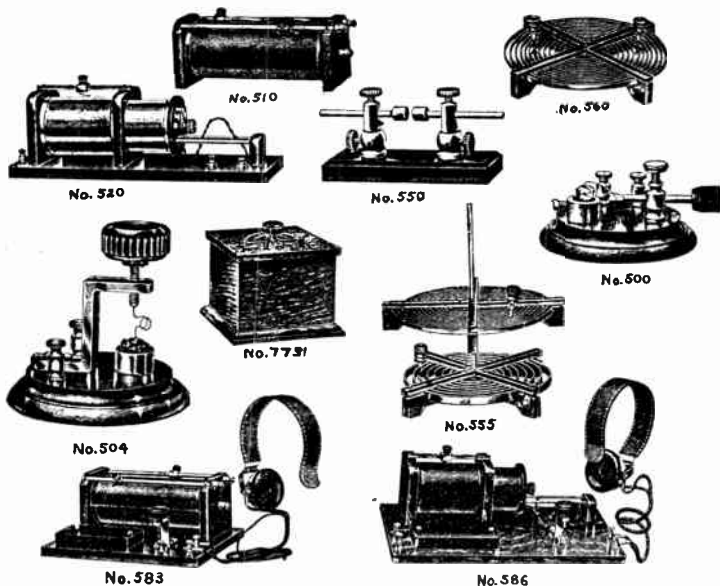




	PRICE	SHIPPING WEIGHT
No. M722 Two Hardwood Ends.....	.50	12 oz.
No. M54 Cardboard Tube .....	.35	10 oz.
No. M744 Brass Slider Rod.....	.20	8 oz.
No. M745 Brass Tie Rod.....	.15	6 oz.
No. M47 Slider .....	.25	2 oz.
No. M731 Wire for winding tube.....	.60	12 oz.
No. M701 COMPLETE SET OF PARTS FOR BUILDING THE AMCO LOADING COIL, TOGETHER WITH ALL SCREWS, BINDING POSTS, etc.....	\$2.00	

*Shipping weight, 5 lbs.*

## You Can Build Any of These Instruments



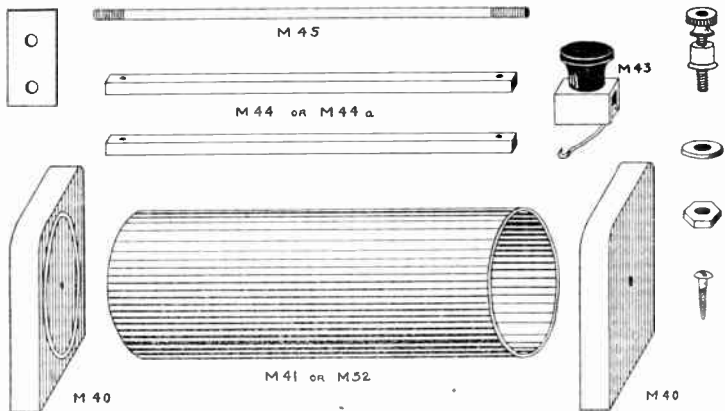
## We Supply the Parts and Full Directions

Consists of all the woodwork, metal parts, wire, tubes, rods, contacts, sliders, clips, binding posts, knobs, cups, screws, etc., complete with drawings and full directions for building any of the "Junior" Instruments. All the hard work is done in our factory. All that you have to do is finish up and assemble. Any boy can do it. A screwdriver and a pair of pliers are all that is required as tools. Nothing has to be purchased elsewhere. All the parts and materials are complete.

Anyone is now easily able to derive the pleasure and knowledge obtained by building wireless instruments. By purchasing these parts you get the benefit of our knowledge and experience. You are thereby enabled to obtain better instruments than by following your own designs and using hap-hazard materials.

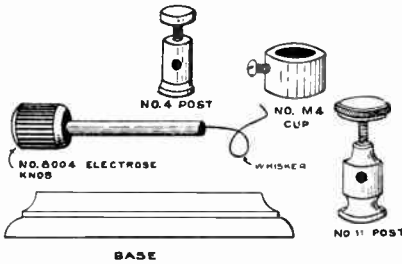
		PRICE	WEIGHT
No. M580	Complete Parts and directions for building the Junior Double Slide Tuner Receiving Set.....	\$3.00	6 lbs.
No. M585	Complete Parts and directions for building the Junior Loose Coupled Tuner Receiving Set.....	4.50	8 lbs.
No. M520	Complete Parts and directions for building a No. 520 Junior Loose Coupler .....	2.75	3 lbs.
No. M510	Complete Parts and directions for building a No. 510 Junior Tuning Coil.....	1.50	2 lbs.
No. M500	Complete Parts and Directions for building a No. 500 Junior Detector .....	.70	5 ozs.
No. M504	Complete Parts and directions for building a No. 504 Junior Detector .....	.85	6 ozs.
No. M560	Complete Parts and directions for building a No. 560 Junior Helix .....	1.50	3 lbs.
No. M555	Complete Parts and directions for building a No. 555 Junior Oscillation Helix.....	3.00	6 lbs.
No. M550	Complete Parts and directions for building a No. 550 Junior Spark Gap.....	.50	8 ozs.

## Amco Parts for Tuning Coils Nos. 7724-7726



These are the parts for making our standard "AMCO" Double or Three-slide Tuning Coils. All parts are drilled and machined ready for assembling.

		PRICE	WEIGHT
No. M40	Hardwood End Pieces, each.....	.20	5 oz.
No. M41	Special Tube for Nos. 7724 and 7725 Tuners.....	.20	5 oz.
No. M52	Special Cardboard Tube for No. 7726 Tuner.....	.30	8 oz.
No. M44	Slider Rods for Nos. 7724 and 7725 Tuners, each.....	.20	2 oz.
No. M44a	Slider Rod for No. 7726 Tuner, each.....	.25	3 oz.
No. M43	Sliders to fit above rods, each.....	.18	2 oz.
No. M45	Threaded Tie Rod with Nuts.....	.15	2 oz.
No. M46	Wire to wind the No. M41 Tube.....	.35	8 oz.
No. M47	Wire to wind the No. M52 Tube.....	.50	12 oz.
No. M48	COMPLETE SET OF PARTS TO BUILD THE NO. 7724 DOUBLE SLIDE TUNING COIL, WITH ALL NECESSARY SCREWS, BINDING POSTS, WASHERS, ETC.....	1.50	3 lbs.
No. M49	COMPLETE SET OF PARTS FOR THE NO. 7725 THREE-SLIDE TUNER .....	1.98	3 lbs.
No. M42	COMPLETE SET OF PARTS FOR THE NO. 7726 THREE-SLIDE TUNER .....	2.50	3 lbs.

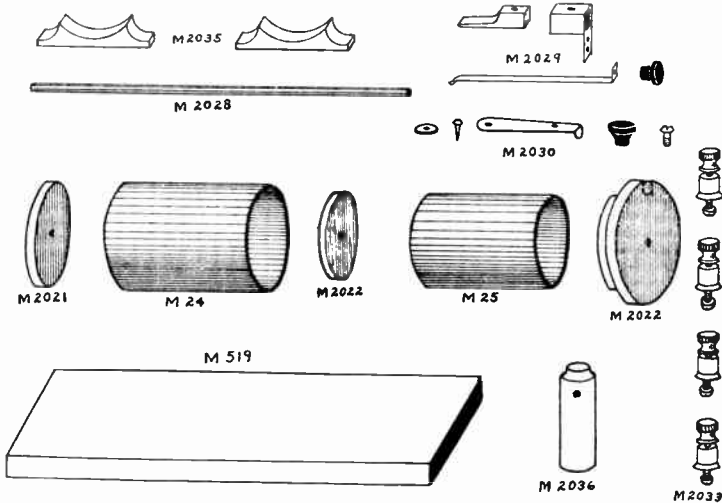


### Amco Junior Detector Parts.

No. M500 Complete Set of finished parts for making a No. 500 Junior Detector, with blueprint..... 70 cents  
Shipping weight, 5 oz.

No. M504 Complete Set of finished parts for making a No. 504 Junior Detector with blueprint ..... 85 cents  
Shipping weight, 6 oz.

### Amco Parts for the "Simplex" Loose Coupler



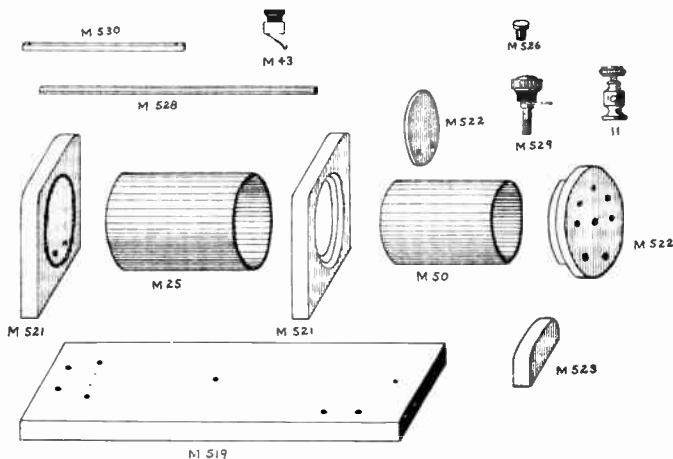
All wooden parts are drilled and smoothed ready for shellacing. All metal parts are drilled and tapped. A screwdriver and a pair of pliers are the only tools required to complete the instrument.

		PRICE	SHIPPING WEIGHT
No. M519	Hardwood Base .....	.30	20 oz.
No. M2035	Two Pillow Blocks, each.....	.15	4 oz.
No. M24	Cardboard Tube for Primary.....	.15	4 oz.
No. M2021	Hardwood End for Primary.....	.15	2 oz.
No. M2022	Two Hardwood Ends for Secondary.....	.30	4 oz.
No. M25	Cardboard Tube for Secondary.....	.15	4 oz.
No. M2036	Wooden Pillar .....	.15	2 oz.
No. M2030	Primary Switch Parts.....	.15	4 oz.
No. M2029	Secondary Slider Parts.....	.25	4 oz.

No. M2028	Guide Rod .....	.12	6 oz.
No. M2031	Primary Wire .....	.20	4 oz.
No. M2032	Secondary Wire .....	.20	4 oz.
No. M2033	Four Binding Posts .....	.20	3 oz.
No. M2034	Blueprint Drawing with directions .....	.25	2 oz.
No. M2060	Complete Set of Parts for Simplex Loose Coupler, with all Screws, Binding Posts, etc., and full directions.....	\$2.25	4 lbs.

## Amco Parts for No. 520 Junior Loose Coupler

Complete, \$2.75



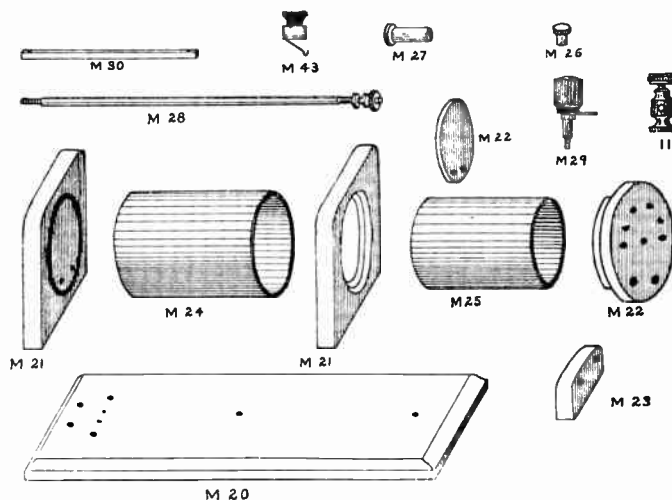
All wooden parts are turned and drilled but not stained. All metal parts are turned, drilled and tapped. The only tool required to finish the coupler is a screwdriver.

		PRICE	SHIPPING WEIGHT
No. M519	Hardwood Base .....	.30	13 oz.
No. M521	Hardwood End Pieces for Primary, per pair .....	.45	10 oz.
No. M522	Hardwood End Pieces for Secondary, per pair .....	.25	4 oz.
No. M523	Hardwood Support for Rods .....	.12	1 oz.
No. M25	Primary Tube .....	.15	4 oz.
No. M50	Secondary Tube .....	.15	4 oz.
No. M526	Five Contacts for Secondary, each .....	.04	4 oz.
No. M527	Silk covered Flexible Conductor .....	.05	1 oz.
No. M528	Two Brass Guide Rods, each .....	.13	2 oz.
No. M529	Secondary Switch Arm, Knob and Shaft .....	.25	4 oz.
No. M530	Brass Slider Rod with Screws .....	.16	2 oz.
No. M43	Slider .....	.18	2 oz.
No. M531	Wire for Primary .....	.25	4 oz.
No. M532	Wire for Secondary .....	.25	4 oz.
No. M534	Blueprint and Directions .....	.25	
No. M520	COMPLETE SET OF PARTS TO BUILD THE JUNIOR LOOSE COUPLER, WITH BLUEPRINT AND FULL DIRECTIONS..	\$2.75	3 lbs.

We can supply the M520 Loose Coupler Parts with *primary and secondary wound* for 60 cents extra

## Amco Parts for No. 7720 Loose Coupler

Complete, \$3.50



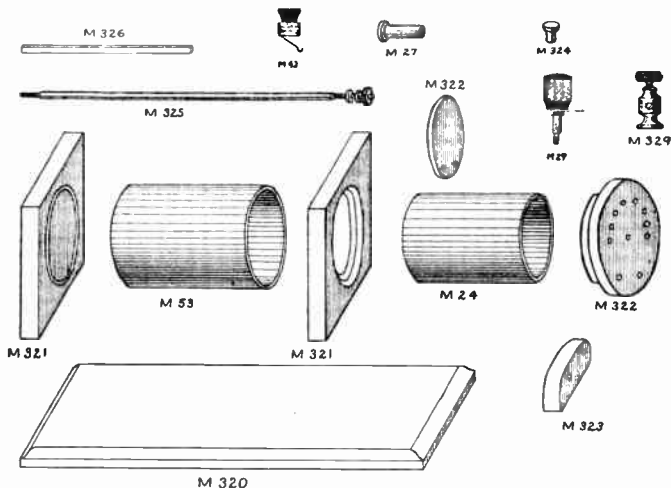
These are the parts for our famous No. 7720 Loose Coupler. All wooden parts are drilled, tapped, etc., so that the only work required in order to complete the instrument in addition to staining the woodwork is to wind on the wire and assemble. A screwdriver and a pair of pliers are the only tools required.

	PRICE	SHIPPING WEIGHT
No. M20 Hardwood Base, 13 $\frac{1}{2}$ x 5 x $\frac{5}{8}$ inches.....	.35	24 oz.
No. M21 Two Hardwood End Pieces for Primary, 3 $\frac{3}{4}$ x 3 $\frac{3}{4}$ x $\frac{5}{8}$ inches..	.50	8 oz.
No. M22 Two Hardwood End Pieces for Secondary, $\frac{1}{2}$ and 3 in. dia	.40	6 oz.
No. M23 Hardwood Support for Rods, 2 x 1 $\frac{1}{4}$ inches.....	.15	2 oz.
No. M24 Cardboard Tube for Primary.....	.15	4 oz.
No. M25 Cardboard Tube for Secondary.....	.15	4 oz.
No. M26 Six Contact Points for Secondary.....	.24	2 oz.
No. M27 Two Bushings for Secondary.....	.14	2 oz.
No. M28 Two Guide Rods for Secondary, with Binding Posts.....	.30	8 oz.
No. M29 Switch Arm Knob and Shaft.....	.30	3 oz.
No. M30 Slider Rod with Screws.....	.15	4 oz.
No. M43 Slider .....	.18	2 oz.
No. M31 Wire for Primary .....	.25	5 oz.
No. M32 Wire for Secondary.....	.30	4 oz.
No. 11 Two Binding Posts.....	.10	2 oz.
No. M34 Blueprint of Assembly.....	.25	2 oz.
No. M35 COMPLETE PARTS WITH BLUEPRINT AND ALL NECESSARY SCREWS .....	\$3.50	

Shipping weight, 4 lbs.

We can supply the M35 Loose Coupler Parts complete with *Primary and Secondary* wound for 75 cents extra

## Parts for No. 7721 Loose Coupler



All wooden parts are drilled, etc., but not stained. The metal parts are all drilled, tapped, etc., it merely being necessary to stain and varnish the woodwork, wind on the wire and assemble.

	PRICE
No. M320 Hardwood Base, 15x6x $\frac{3}{4}$ inches.....	\$.45
No. M321 Two Hardwood End Pieces for Primary, $4\frac{1}{2}$ in. square...	.60
No. M322 Two Turned End Pieces for Secondary.....	.40
No. M323 Hardwood Support for Rods.....	.15
No. M53 Impregnated Primary Tube.....	.25
No. M24 Impregnated Secondary Tube.....	.15
No. M324 Eight Brass Contacts, 4 cents each.....	.32
No. M27 Two Bushings for Secondary.....	.14
No. M325 Two Guide Rods for Secondary with Binding Posts.....	.40
No. M29a Switch Arm, Knob and Stem.....	.30
No. M326 Slider Rod and Slider.....	.45
No. M327 Wire for Primary.....	.40
No. M328 Silk covered wire for Secondary.....	.45
No. M329 Two Primary Binding Posts.....	.10
No. M330 Large Blueprint Drawings.....	.50
No. M331 COMPLETE SET OF PARTS.....	4.50

Shipping weight, 7 lbs.

We can supply these parts with the *Primary and Secondary wound* for 75 cents extra

Adams-Morgan Co., Upper Montclair, N. J.

Elizabeth, N. J.

Dear Sirs:—I received my storage battery O.K. and am well pleased with it. I would like to have you send me some order blanks.

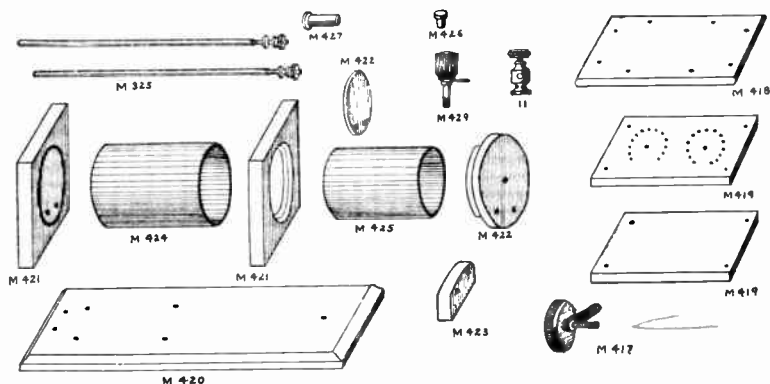
DAVID T. DONNER.

## Tinfoil

We carry in stock three thicknesses of Tinfoil but can supply any thickness desired

- No. M130 Thin, about 1700 sq. in. to lb., for paper condensers..... .25 cents per lb.  
 No. M131 Medium, about 800 sq. in. to lb., for small leyden jar.... .20 cents per lb.  
 No. M132 Heavy, about 600 sq. in. to lb., for transmitting condensers .20 cents per lb.  
*Shipping weight, 2 lbs. Postage extra*

## Amco Parts for No. 7722 Loose Coupler.

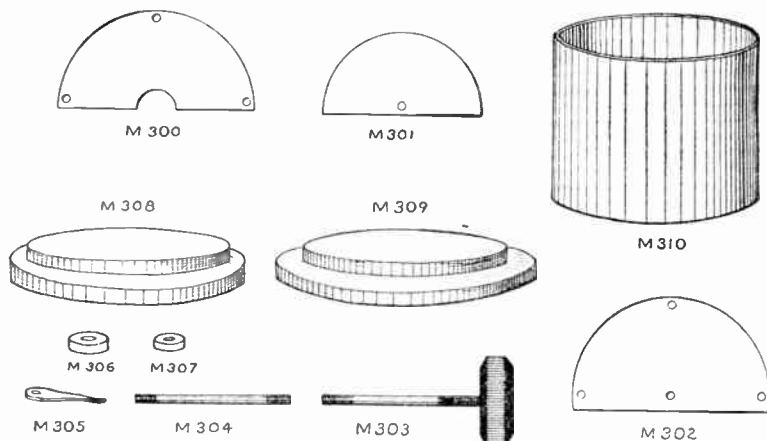


All wooden parts are drilled, etc., but not stained. They are sandpapered ready for staining and finishing. All metal parts are drilled and threaded. The machine work is complete so that no tools other than a screwdriver are required.

	PRICE	SHIPPING WEIGHT
No. M420 Hardwood Base, 15 x 6 x 3/4 inches.....	\$.45	2 lbs.
No. M421 Hardwood End Pieces for Primary.....	.50	8 oz.
No. M422 Hardwood End Pieces for Secondary.....	.42	4 oz.
No. M423 Hardwood Support for Rods.....	.15	2 oz.
No. M418 Top for Primary.....	.20	8 oz.
No. M419 Front and Back for Primary.....	.20	10 oz.
No. M41a Impregnated Primary Tube.....	.20	4 oz.
No. M51a Impregnated Secondary Tube.....	.18	4 oz.
No. M426 37 Brass Contacts.....	1.62	8 oz.
No. M427 Two Bushings for Secondary.....	.14	2 oz.
No. M425 Two Guide Rods with Binding Posts.....	.40	8 oz.
No. M417 Two Knurled Hard Rubber Knobs with Switch Levers and Shafts for Primary.....	.80	8 oz.
No. M429 Switch Arm, Knob and Stem for Secondary.....	.30	3 oz.
No. M4 Wire for Primary.....	.40	8 oz.
No. M4 Wire for Secondary.....	.50	6 oz.
No. 11 Two Binding Posts for Primary.....	.10	2 oz.
No. 434 Large Blueprint Drawing.....	.25	2 oz.
No. M7722 COMPLETE SET OF PARTS FOR No. 7722 LOOSE COUPLER, WITH ALL NECESSARY SCREWS, DIRECTIONS, etc.	\$6.25	5 lbs.

We can supply these parts with the *Primary and Secondary wound* for \$1.50 extra

## Junior Rotary Condenser Parts



These are the parts of our famous Rotary Variable Condenser arranged so that the experimenter may have the pleasure of finishing his own instrument. All parts are finished and ready for assembling.

		PRICE	SHIPPING WEIGHT
No. M300	Fixed Aluminum Plate, 16 used; each.....	.04	16 oz.
No. M301	Movable Aluminum Plate, 15 used; each.....	.04	16 oz.
No. M302	Fibre Plate .....	.15	4 oz.
No. M303	Large Knob with Shaft and Pointer.....	.35	4 oz.
No. M304	Three Threaded Rods with Nuts.....	.18	2 oz.
No. M305	Lacquered Brass Pointer.....	.05	2 oz.
No. M306	Lathe turned Brass Separator for Movable Plates, 14 used each	.01½	2 oz.
No. M307	Lathe turned Brass Separator for Fixed Plates, 45 used, each	.01½	2 oz.
No. M308	Circular Wooden Top, stained and polished.....	.35	4 oz.
No. M309	Circular Wooden Bottom, stained and polished.....	.35	4 oz.
No. M310	Drawn Brass Cylindrical Case, polished and lacquered.....	.30	10 oz.
No. M71	Brass Scale .....	.30	4 oz.
No. M311	COMPLETE SET OF PARTS READY FOR ASSEMBLING...	2.75	3 lbs.
No. M312	Condenser Unit with Knob, Pointer and Scale ready assembled for mounting in your own case, 31 plates.....	2.50	2 lbs.

Adams-Morgan Company, Upper Montclair, N. J.

Earl Park, Indiana.

Dear Sirs:—You will find enclosed money order for \$1.00 for which send me one storage cell No. 5502. I recently sent in two orders amounting to \$3.50, and wish to say that I am well pleased.

WALLACE McMAHAN.

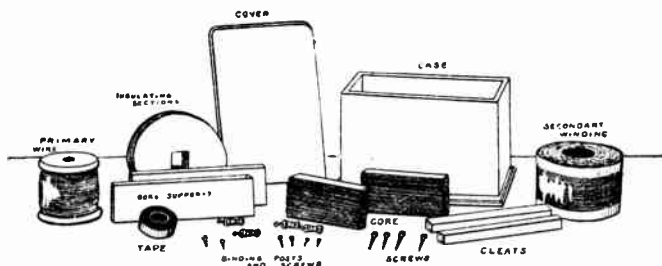


## Parts for Variable Rotary Plate Condenser, No. 7730



		PRICE	SHIPPING WEIGHT
No. M60	Quartered Oak Case and Cover, stained and polished, size $7\frac{1}{4} \times 7\frac{1}{4} \times 7$ inches	\$1.25	3 lbs.
No. M61	16 Semi-circular Aluminum Plates, diam. $5\frac{1}{4}$ inches, drilled	.96	2 lbs.
No. M62	15 Semi-circular Aluminum Plates, diam. $4\frac{1}{2}$ inches, drilled	.90	2 lbs.
No. M63	16 $\frac{1}{2}$ -inch Brass Separators, drilled	.32	5 oz.
No. M64	51 $\frac{3}{8}$ -inch Brass Separators, drilled	1.02	8 oz.
No. M65	Four Rods (threaded) to connect plates	.20	3 oz.
No. M66	Eight Threaded Brass Nuts for Rods	.08	2 oz.
No. M67	Large Knurled Moulded Knob (hard rubber)	.20	4 oz.
No. M68	Brass Pointer with Bushing	.10	2 oz.
No. M69	Two Insulating Plates for Rotary Element	.20	4 oz.
No. M70	Oval Screws, Bushings, etc.	.10	2 oz.
No. M7730	Complete Parts	4.75	5 lbs.

## One-Quarter KW High Potential Transformer Parts



To meet the popular demand and in response to numerous requests, we now supply parts for the construction of our famous "Gnome" High Potential Closed Core Transformer. Each set of parts is accompanied by blue print drawings and full directions. A complete set consists of one hardwood case \* \* \* with screws, one high potential secondary winding complete, one spool of magnet wire for primary, one roll of tape, sufficient cut sheet iron for core, insulating sections, t. e. core supports, cleats, screws and binding posts. All that is necessary to finish the instrument is to stain and varnish the case, wind the primary (secondary is already wound), and assemble the parts. *By purchasing a set of these parts you can not only save an endless amount of time and trouble but enable yourself to build an instrument of which you will be proud.*

No. M220 Complete parts for Gnome Transformer as described, with directions..... \$9.00

THE EASIEST AND BEST WAY OF BUILDING A TRANSFORMER IS TO BUY A SET OF AMCO PARTS

## Antenna Materials

### Stranded Phosphor Bronze Aerial Wire

No. 7830 An exceedingly strong wire of high conductivity. Used by all commercial wireless companies and the U. S. Government. Consists of 7 strands, each No. 20 B & S.  
Price per foot..... 1¾ cents

### Premo Stranded Aerial Wire

No. 7831 A hard wire of extremely high conductivity and tensile strength. Resembles hard drawn copper. Consists of 7 strands, each No. 20 B & S.  
Price per foot..... 1½ cents

### Stranded Copper Aerial Wire

No. 7832 A flexible wire of exceedingly high conductivity. Consists of 7 strands, each No. 20 B & S. Price per foot..... 1¼ cents  
No. 7893 Composed of 7 strands No. 22 tinned copper. Price per foot..... 1 cent

### Aluminum Aerial Wire

Aluminum wire is much lighter and stronger than copper but the conductivity is not quite so great.  
No. 7833 No. 14 B & S Aluminum Aerial Wire, about 250 ft. to the lb. Price per lb., 60c.  
No. 7834 No. 12 B & S Aluminum Aerial Wire, about 175 ft. to the lb. Price per lb., 60c.  
*Shipping weight is one pound more than the weight of wire.*

### Antennum Wire



This is the latest wire being used for wireless antennas. It is copper clad and is manufactured by a special process. It is much stronger and possesses great conductivity. The approximate breaking weight of a single strand of No. 14 Antennum Wire is 330 lbs.

		PRICE
No. 7835	Antennum Wire, No. 14 B. S. gauge (about 85 feet to the lb.)....	30 cents
No. 7836	No. 12 Antennum Wire, per lb.....	30 cents
	Above wires in 5 lb. lots, per lb.....	28 cents
No. 7837	Stranded Antennum Wire, 7 strands No. 22 B. S. gauge, per 100 ft.	75 cents
No. 7838	Stranded Antennum Wire, 4 strands No. 22 B S., per 100 ft.....	45 cents

*Shipping weight is one pound more than the weight of wire*

### Copper Aerial Wire

No. 14 B. S. Bare Copper Wire, about 70 feet in a pound. Per lb..... 45 cents  
*Shipping weight, one pound extra*

Wilmington, N. C.

Adams-Morgan Company, Upper Montclair, N. J.

Dear Sirs:—I received my outfit last week and I am glad to say that it works alright, and I am perfectly satisfied. Will probably have some orders for you soon.

Your truly,

EUGENE E. ALSTON.

## "Electrose" Aerial Insulators



Made of moulded "Electrose." Used by all the government and commercial stations. Provided with deep corrugations to reduce surface leakage. Heavy wrought iron rings are imbedded in each end. These insulators will stand considerable tension and are unaffected by ordinary degrees of heat and cold.

No. 7840	5 inch Moulded Insulator.....	30 cents	Shipping weight, 1 lb.
No. 7842	Moulded Ball Insulator.....	25 cents	" " 1 "
No. 7844	10½ inch Moulded Insulator.....	50 cents	" " 2 "

## Ball Antenna Insulator

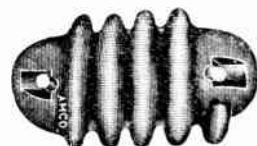
This insulator is made entirely of porcelain, in one piece, and has a triple coating of brown glaze. The insulating value of this insulator is of the highest order and greater than similar insulators. All the grooves are undershot so that it "sheds water like a duck."



No. 7841	Ball Antenna Insulator.....	PRICE \$ .16
		Weight, 7½ ounces

No. 7841

## Junior Insulator



No. 7843

For small aerials, used principally for receiving, a small but highly efficient insulator is necessary. The Junior will be found an excellent insulator for this purpose. Size overall, 2¾ in. long and 1¼ in. in diameter. Made of brown glazed porcelain, corrugated so that the surface area is over twice as great as if it were smooth.

No. 7843	Junior Porcelain Insulator.....	10 cents
		Shipping weight, 3 lbs. per eight

## "Electrose" Lead-in Insulators and Bushings

It is highly important that the wires leading into a building from the aerial be carefully insulated. Electrose Insulators are the best in the world for this purpose.



No. 6824



No. 6815



No. 6222

	Diameter	Length over all	Diameter of Hole	Electrical Value Dry Test	Price	Shipping Weight
No. 6065	2 in.	4 3/8 in.	1/4 in.	30,000 volts	\$.60	2 lbs.
No. 6204	2 "	4 3/8 "	3/4 "	30,000 "	.73	2 lbs.
No. 6205	2 1/8 "	4 31-32 "	1/2 "	50,000 "	1.48	2 lbs.
No. 6206	2 1/2 "	6 1/4 in.	1/2 "	60,000 "	1.48	3 lbs.
No. 6227	2 1/8 "	15 "	1/2 "	75,000 "	2.60	4 lbs.
No. 6222	2 1/8 "	15 "	1/2 "	75,000 "	3.70	4 lbs.
No. 6824	2 "	4 3/8 "	1/4 in. rod	30,000 "	.90	2 lbs.
No. 6815	2 1/2 "	2 1/4 "	3/8 in. rod	60,000 "	1.85	2 lbs.
No. 6811	2 1/8 "	17 "	1/2 in. rod	75,000 "	5.10	4 lbs.



## Aerial Masts

These masts are made of iron pipe in two sections, joined by malleable iron reduction couplings. The lower section is made of one-inch pipe (inside), and the upper one three-quarter inch pipe. The masts are shipped in sections. Each mast is provided with a mast socket with screw holes for fastening to the roof of the building. These masts should be supported by at least three guy wires.

No. 7850	24 foot Iron Aerial Mast.....	\$4.50
No. 7851	Iron Tackle Block.....	.10

## Detector Materials

### Wollaston Wire

The best grade obtainable. For use in electrolytic detectors. Heavily silver coated. Size given is diameter of platinum core.

No. 7800	Wollaston Wire 0.0005 in. diameter....	Price per inch	25 cents
No. 7802	Wollaston Wire 0.0001 in. diameter....	Price per inch	35 cents

*By mail, extra 2 cents. Discount on greater lengths.*

### Amco Prepared Electrolyte for Electrolytic Detector

Prepared Nitric Acid Solution. Guaranteed chemically pure and of the proper specific gravity. Price includes rubber-stoppered bottle.

No. 7810	Electrolyte (two ounce bottle).....	15 cents
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*Shipping weight, 4 oz.*



### Selected Minerals

Special selected crystals of maximum sensitivity. Pure specimens

No. 7820	Galena, per oz.....	15 cents
No. 7821	Iron Pyrites (Ferron) per oz.....	20 cents
No. 7822	Zincite, per oz.....	75 cents
No. 7823	Chalcopyrites, per oz.....	25 cents
No. 7824	Bornite, per oz.....	25 cents
No. 7825	Domeykite, per oz.....	30 cents
No. 7826	Nickelite, per oz.....	30 cents
No. 7827	Silicon, per oz.....	20 cents

*Postage extra, per oz., 2 cents*

### Mineral Sets

No. 7828	A Set of Zincite and Copper Pyrites Crystals.....	50 cents
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*Shipping weight, 4 oz.*

### Empire Cloth

Used for insulating high tension transformers, motors, dynamos and other electrical machines. Has great mechanical strength and will withstand 7,500 volts without puncturing. Only sold in pieces 1 yard wide. Any length up to 20 yards. Not less than half a yard sold. Price, per square yard..... 50 cents *Shipping weight per square yard, 1 lb.*

### Empire Paper

A cheaper substitute for Empire Cloth. Will withstand the same voltage but does not possess as much mechanical strength. Comes 1 yard wide. Not less than 1 square yard sold. Price, per square yard..... 20 cents  
*Shipping weight per square yard, 1 lb.*

### Paraffine Paper

We carry the best grade of paper, especially manufactured for electrical condensers. This paper will withstand high voltage and may be used in any condenser subjected to same. This size is suitable as a primary condenser of a spark coil.

Price, per sheet, 24 x 36 inches..... 5 cents *Postage per sheet, 1 cent*

### Paraffine Paper in Strips

Used for making condensers, winding secondaries of spark coils and transformers, etc.

Length of strips, 36 inches. Width in inches, 2 3/8	3 1/2	3	4
Price per dozen.....	10	11	10 12 cents

*Postage extra, 2 cents per dozen*

### Sheet Mica

For condensers mica is acknowledged to be the best dielectric. Our sheets are quite heavy and can be safely split with a penknife. As many as ten perfect sheets can be split from a single sheet to make condensers of an astonishing capacity.

Mica, 3 x 5 inches, per sheet.....	12 cents
Mica, 4 x 5 inches, per sheet.....	15 cents

### Fibre—Vulcanized Fibre Sheeting

(BLACK AND RED)

Best grade fibre. Cut to any dimension. For less than 1/2 square foot, price is figured per square inch. Ten per cent discount on sheets over 1 1/2 square feet.

Thickness	Price per sq. ft.	Price per sq. in.	Weight per sq. ft.
1/8 in.	.50	.02	10 oz.
3/8 "	.70	.02	1 lb. 3 "
1/4 "	1.10	.02	2 lbs. 4 "
3/8 "	1.70	.02	3 lbs. 7 "
1/2 "	2.40	.04	4 lbs. 8 "

### Phosphor Bronze Strip

Is well known for its springy qualities. It is used in all places where a spring strip is required, such as in detectors, tuning coil slides, mechanical movements, etc. The very best material for flat motor and dynamo brushes, and also for spark coil vibrators, etc.

Thickness, B. & S. Gauge	Width	Price per foot	Weight per foot
No. 34	1/8 inch	12 cents	1/2 oz.
No. 34	1/8 "	10 "	1/2 "
No. 28	1/8 "	10 "	1/2 "
No. 28	1/8 "	12 "	3/4 "

### Transformer Core Iron

Cut in strips all ready for those who wish to build their own transformers. About .015 inch thick. Comes in 24 inch lengths. Not less than 10 lbs. sold.

Width	Length	Weight of a Pile of Strips one inch high	Price per lb.
1 1/8 in.	24 in.	7 lbs.	10 cents
1 3/8 in.	24 in.	8 1/2 lbs.	10 cents
1 7/8 in.	24 in.	12 lbs.	10 cents

*If sent by mail, figure one lb. extra for weight of the wrapping*

Notice: All prices on this page are subject to a discount of 50%.



## Amco Storage Battery Materials

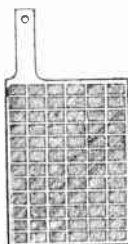
### Battery Jars

Finest quality. Very strong and substantial. Heavily reinforced with moulded projections in bottom to raise the plates. They may also be used as containers for small oil immersed condensers.



No. 5540	Glass Jar, outside, $3\frac{3}{4} \times 4 \times 1\frac{1}{2}$ inches.....	\$ .30
No. 5542	Glass Jar, outside, $3\frac{3}{4} \times 5 \times 1\frac{1}{2}$ inches.....	.40
No. 5544	Hard Rubber Jar, outside $6\frac{1}{2} \times 3\frac{1}{2} \times 1\frac{1}{2}$ inches.....	1.00
No. 5546	Hard Rubber Jar, outside, $6\frac{1}{2} \times 6\frac{1}{2} \times 1\frac{1}{2}$ inches.....	1.20

Shipping weight, 1 lb.



### Amco Storage Battery Plates

Fully formed, with heavy lugs

No. 5550	Positive or Negative Plate, size $2\frac{7}{8} \times 2\frac{1}{2}$ .....	\$ .40
No. 5552	" " " " " " $3\frac{1}{8} \times 2\frac{7}{8}$ .....	.70
No. 5554	" " " " " " $3\frac{1}{8} \times 5\frac{3}{4}$ .....	.90
No. 5556	" " " " " " $4\frac{3}{4} \times 2\frac{7}{8}$ .....	.80
No. 5558	" " " " " " $4\frac{3}{4} \times 5\frac{3}{4}$ .....	1.00

### Amco Separators

Corrugated wood, chemically treated to remove all deleterious substances.

No. 5559	Wooden Separator, price per square foot.....	\$ .40
	Postage per square foot.....	.04

### Concentrated Acid

Chemically pure acid for preparing electrolyte. Should be diluted by means of water and a hydrometer before being poured into battery.

No. 5560	Price per lb.....	\$ .30
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Cannot be sent by mail.

### Rubberoid Battery Sealing Compound

For cementing the tops of storage cells. Sticks to hard rubber and has a wide range of temperature without becoming brittle or softening.

No. 5545	Five pound tin of Sealing Compound, convenient for melting	\$3.00
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*The Ever Increasing Demand for AMCO STORAGE CELLS is Sufficient Proof of their Unexcelled Quality.*

**Notice: All prices on this page are subject to a discount of 50%.**

### Hard Rubber Sheet

Thickness	Price per Square Foot	Post per Square Foot	Price per Square Inch	Post per Square Inch
1/32 inch	\$ 1.10	\$0.08	\$0.01	\$0.01
1/16 "	1.80	.12	.02	.01
3/32 "	2.60	.15	.02	.01
1/8 "	3.10	.20	.02½	.01
3/16 "	4.70	.30	.04	.01
1/4 "	5.90	.35	.04½	.01
5/16 "	7.20	.40	.05	.01
3/8 "	8.00	.55	.06	.01
7/16 "	9.80	.65	.07	.01
1/2 "	11.20	.80	.08	.01
5/8 "	13.30	.90	.09½	.01
3/4 "	15.50	1.00	.11	.01

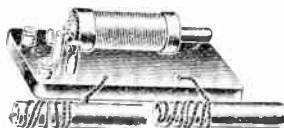
### Hard Rubber Tubing

Outside Diameter	Inside Diameter	Price per Foot	Price per Inch
1/8 inch	1/16 inch	\$0.24	\$0.04
3/16 "	1/8 "	.24	.04
1/4 "	1/8 "	.40	.08
5/16 "	3/16 "	.50	.08
7/16 "	3/16 "	.60	.10
1/2 "	3/16 "	.80	.12
5/8 "	3/16 "	.90	.14
3/4 "	1/2 "	1.00	.16
1¼ "	1 "	1.60	.24

NOTES—For less than ½ square foot of sheet rubber the price is figured per square inch. For less than ½ foot of tubing, the price is figured per inch. Hard rubber tubing is sent postpaid.

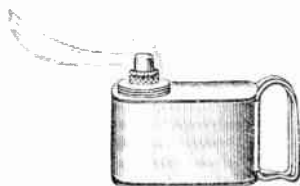
## Amco Medical Coil

Medical coils are especially adapted to the treatment of nervous affections, inflammatory diseases, rheumatism, neuralgia, etc., and to arouse and give tone to the system. Persons suffering from any of these complaints will generally find much relief from the use of electricity in this form. This coil is the best small medical coil made. It has all the good features of a much more expensive apparatus. It will operate efficiently on one cell of dry or other battery. The coil has perfect regulation. The current at the handles may be varied from a strength that is almost unperceptible to all that can be borne. The coil is mounted upon a polished wood base, and is beautifully finished throughout. The coil ends are polished and all metal parts are buffed and lacquered. The vibrator parts are very compactly built. The vibrator contacts are pure silver which is superior to platinum for this purpose on a medical coil. The apparatus has all the features of a much more expensive coil. The vibrator may be very accurately adjusted by means of a small thumbscrew. The secondary current at the handles is variable by means of a regulating tube with a graduated scale sliding in and out of the coil. The handles themselves are connected to the coil by means of flexible conducting cords. Considerable fun and entertainment may be had with this coil by using it to produce shocks. It is practically harmless.



No. 420

No. 420 Amco Medical Coil, size  $5 \times 2\frac{1}{8} \times 2\frac{1}{8}$  inches, weight 8 ounces PRICE  
Shipping weight, 1 lb. 75c.



## Blow Torch

This is the most compact little torch ever put on the market. It has the power and capacity of a torch of much larger size. It is entirely automatic and works without air pressure. It burns two hours at one filling. Just the thing for melting wax, soldering, etc., or for laboratory use.

No. C100 Blow Torch ..... \$ .50  
Postpaid

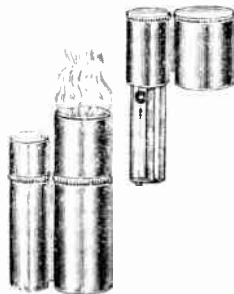
## Flaming Pocket Lighter

Useful to Every Smoker. Takes the Place of Matches.

One of the Handiest Things ever put on the market.

The Flaming Pocket Lighter may be carried in the vest pocket. Nothing to spill. No batteries. No trouble. It consists of a small platinum sponge attached to several thin platinum wires. As soon as this is inserted in the compartment containing alcohol on a wick, the platinum sponge gets red hot from the action of the fumes and lights the wick. One charge of alcohol lasts two to three weeks. Simply insert the longest end of the lighter in compartment with a wick and a strong flame issues at once. To extinguish, simply put on the cover.

No. 310 Flaming Pocket Lighter..... \$ .25  
Postpaid



**YOU WILL NEED IT EVERY DAY IN THE WEEK**

Adams-Morgan Co., Upper Montclair, N. J.

Youngstown, Ohio.

Gentlemen:—I received the telegraph instruments and am very much pleased with them.

ALBERT B. MILLMAN.



## Ship and Land Stations of the United States

CALL SIGNAL	NAME OF STATION	CALL SIGNAL	NAME OF STATION
KDA	S. S. Philadelphia	KJD	S. S. North Land
KDB	S. S. Caracas	KJM	S. S. Massachusetts
KDC	Douglas, Ariz.	KJO	S. S. Old Colony
KDM	S. S. Maracaibo	KJS	S. S. North Star
KDN	San Luis Obispo, Cal.	KKA	S. S. Antilles
KDS	S. S. S. V. Lukenbach	KKB	S. S. El Sol
KDT	S. S. Harry Luckenbach	KKC	S. S. Chalmette
KDU	Juneau, Alaska	KKD	S. S. Comus
KDV	S. S. Grayson	KKE	S. S. Topila
KDW	S. S. Borinquen	KKL	S. S. ElAlba
KDX	S. S. Bayamon	KKM	S. S. Momus
KDY	S. S. Yaquez	KKN	S. S. El Norte
KDZ	S. S. Zulia	KKO	S. S. Excelsior
KEB	S. S. Sabine	KKP	S. S. Proteus
KEC	S. S. Concho	KKQ	S. S. El Sud
KED	S. S. Denver	KKR	S. S. Creole
KEG	S. S. Rio Grande	KKS	S. S. El Siglo
KEH	S. S. Nueces	KKT	S. S. El Cid
KEJ	S. S. Alamo	KKU	S. S. El Mundo
KEK	S. S. San Marcos	KKV	S. S. El Oriente
KEM	S. S. Comal	KKW	S. S. Valle
KEP	S. S. Lampasas	KKX	S. S. El Occidente
KES	S. S. San Jacinto	KKY	S. S. El Dia
KEX	Los Angeles, Cal.	KKZ	S. S. El Rio
KEZ	S. S. Brazos	KMA	S. S. Allianca
KFA	S. S. City of Columbus	KMD	S. S. Cristobal
KFB	S. S. City of Atlanta	KMH	S. S. Panama
KFC	S. S. City of Macon	KMS	S. S. Ancon
KFD	City of Memphis	KMV	S. S. Advance
KFF	S. S. Frieda	KMX	S. S. Colon
KFH	S. S. Herman Frasch	KNA	S. S. Dorothy Bradford
KFI	S. S. I. D. Fletcher	KNB	S. S. Lexington
KFJ	S. S. City of Augusta	KNC	S. S. Concord
KFK	S. S. City of Savannah	KNE	S. S. Evelyn
KFP	S. S. Nacoochee	KNF	S. S. Carolyn
KFT	S. S. Tasco	KNJ	S. S. New Jersey
KFX	S. S. City of St. Louis	KNK	S. S. New York
KFY	S. S. City of Montgomery	KNI	S. S. Nelson
KGA	S. S. Cosmo	KNM	S. S. Millinocket
KGB	S. S. Carolina	KNO	S. S. Lucy Neff
KGJ	S. S. San Juan	KNR	S. S. Zealandia
KGP	S. S. Ponce	KNS	S. S. Shinnecock
KGS	S. S. Senator Bailey	KNT	S. S. Montauk
KHA	Karluk, Alaska	KNU	S. S. Currier
KHB	Kogiung, Alaska	KNW	S. S. Wyandotte
KHC	Chignik, Alaska	KNZ	S. S. America
KHF	Nushagak, Alaska	KOA	S. S. Hamilton
KHG	Clark's Point, Alaska	KOB	S. S. Princess Anne
KHJ	Koko Head, T. H.	KOC	S. S. Jamestown
KHK	Kahuku, T. H.	KOD	S. S. Jefferson
KHL	Lahaina, T. H.	KOG	S. S. Madison
KHM	Lihue, T. H.	KOM	S. S. Monroe
KHN	Kawaihae, T. H.	KOS	S. S. Brunswick
KHO	Kaunakakai, T. H.	KOV	S. S. Olivette
KHP	Daley City, Cal.	KOW	S. S. Mascotte
KHO	Phoenix, Ariz.	KOZ	S. S. Miami
KHT	Naknek, Alaska	KPA	Seattle, Wash.
KIT	Take, Alaska	KPB	Ketchikan, Alaska
KIU	Burnett Inlet, Alaska	KPC	Astoria, Oreg.
KJA	Juatin, Alaska	KPD	Friday Harbor, Wash.
KJB	S. S. Bunker Hill	KPF	S. S. Forward

CALL SIGNAL	NAME OF STATION	CALL SIGNAL	NAME OF STATION
KPH	San Francisco, Cal.	KTE	S. S. Winifred
KPI	Avalon, Cal.	KTF	S. S. J. M. Guffey
KPJ	San Pedro, Cal.	KTG	S. S. Guffoy
KPM	Eureka, Cal.	KTH	S. S. Illinois
KPN	S. S. Adams	KTJ	S. S. Brilliant
KPR	P. R. R. No. 707	KTJ	S. S. Comet
KPW	S. S. Cape Cod	KTK	S. S. Elsegundo
KPX	Marshfield, Ohio	KTL	S. S. Rayo
KQA	S. S. Alleghany	KTM	S. S. Eoceme
KQB	S. S. Berkshire	KTN	S. S. Perfection
KQC	S. S. Cretan	KTO	S. S. Astral
KQD	S. S. Dorchester	KTP	Barge No. 94
KQE	S. S. Essex	KTQ	S. S. City of Everett
KQF	S. S. Frederick	KTR	S. S. Radiant
KQG	S. S. Gloucester	KTS	S. S. Vesta
KQH	S. S. Howard	KTT	S. S. Paraguay
KQI	S. S. Indian	KTU	S. S. Sun
KQJ	S. S. Juniata	KTV	S. S. Toledo
KQK	S. S. Kershaw	KTW	S. S. Delaware Sun
KQL	S. S. Lexington	KTX	S. S. Socony
KQM	S. S. Merrimack	KTY	Barge No. 92
KQN	S. S. Nantucket	KUC	S. S. Cuba
KQO	S. S. Ontario	KUP	S. S. Pettibone
KQP	S. S. Parthian	KUT	S. S. Pan American
KQO	S. S. Quantico	KUV	S. S. Admiral Dewey
KQR	S. S. Grecian	KUX	S. S. Admiral Schley
KQS	S. S. Somerset	KVA	S. S. Apache
KQT	S. S. Tuscan	KVB	S. S. Arapahoe
KQU	S. S. Itasca	KVC	S. S. Comanche
KQV	S. S. New Orleans	KVF	S. S. Iroquois
KQX	S. S. Persian	KVG	S. S. Algonquin
KQY	S. S. Powhatan	KVH	S. S. Huron
KQZ	S. S. Suwannee	KVJ	S. S. Seminole
KRB	S. S. Governor Cobb	KVK	S. S. Cherokee
KRC	S. S. Camden	KVL	S. S. Lenape
KRD	S. S. Belfast	KVM	S. S. Mohawk
KRE	S. S. Bay State	KVU	S. S. Elmer A. Keeler
KRF	S. S. Ransom B. Fuller	KVZ	S. S. Relay
KRH	S. S. City of Bangor	KWC	S. S. Morro Castle
KRI	S. S. City of Rockland	KWG	S. S. Segurancs
KRJ	S. S. Relief	KWH	S. S. Havana
KRI	S. S. Louise	KWS	S. S. Saratoga
KRN	S. S. Calvin Austin	KWV	S. S. Vigilancia
KRO	S. S. Columbia	KWX	S. S. Mexico
KRP	S. S. Rescue	KWY	S. S. Monterey
KRQ	S. S. I. J. Merritt	KWZ	S. S. Esperanza
KRR	S. S. Mills	KXA	S. S. Boston
KRS	S. S. Savage	KXB	S. S. City of Lowell
KRV	S. S. Governor Dingley	KXC	S. S. Commonwealth
KRY	S. S. City of Baltimore	KXD	S. S. Maine
KRZ	S. S. City of Norfolk	KXE	S. S. Mohawk
KSF	S. S. Finland	KZF	S. S. New Hampshire
KSH	S. S. Kroonland	KXG	S. S. Pilgrim
KSI	S. S. St. Louis	KXH	S. S. Plymouth
KSM	S. S. Philadelphia	KXI	S. S. Priscilla
KSN	S. S. New York	KXJ	S. S. Providence
KSO	S. S. St. Paul	KXK	S. S. Puritan
KSX	S. S. Alabama	KXL	S. S. City of Taunton
KSY	S. S. Florida	KXM	S. S. Mohegan
KSZ	S. S. Virginia	KXN	S. S. New Haven
KTA	S. S. Larimer	KXO	S. S. Connecticut
KTB	S. S. Oklahoma	KXP	S. S. Pequonnock
KTC	S. S. Shenango	KXQ	S. S. Chester W. Chapin
KTD	S. S. Ligonier	KXR	S. S. Richard Peck

CALL SIGNAL	NAME OF STATION
NIB...	Diamond Shoals, Cape Hatteras, N.C.
NIC	Frying Pan Shoals, N. C.
NMA	U. S. S. Nebraska
NMB	U. S. S. Nero
NME	U. S. S. New Hampshire
NMF	U. S. S. New Jersey
NMG	U. S. S. New Orleans
NMN	U. S. S. North Carolina
NMO	U. S. S. North Dakota
NMS	U. S. S. Neptune
NMW	U. S. S. Ohio
NMZ	U. S. S. Oregon
NNA	U. S. S. Brutus
NNK	U. S. S. Nanshan
NOA	U. S. S. Osceola
NOB	U. S. S. Abarenda
NOC	U. S. S. Orion
NOG	U. S. S. Paducah
NOJ	U. S. S. Panther
NOK	U. S. S. Patterson
NOL	U. S. S. Patapsco
NOM	U. S. S. Patuxent
NON	U. S. S. Paulding
NOP	U. S. S. Paul Jones
NOT	U. S. S. Pittsburgh
NOW	U. S. S. Peoria
NOX	U. S. S. Perkins
NOY	U. S. S. Perry
NOZ	U. S. S. Petrei
NPA	Cordova, Alaska
NPB	Sitka, Alaska
NPC	Bremerton, Wash.
NPD	Tatoosh, Wash.
NPE	North Head, Wash.
NPF	Cape Blanco, Oregon
NPH	Mare Island, Cal.
NPI	Paralions, Cal.
NPJ	Balboa, Panama C. Z.
NPK	Point Arguelo, Cal.
NPL	San Diego, Cal.
NPM	Honolulu, T. H.
NPN	Guam, Marianas
NPO	Cavite, P. I.
NPP	Peking, China
NPQ	St. Paul, Pribilof Islands, Alas.
NPR	Dutch Harbor, Alaska
NPS	Kodiak, Alaska
NPT	Olongapo, P. I.
NPV	Unalga, Alaska
NPW	Eureka, Cal.
NPY	St. George, Pribilof Islands, Alas.
NQF	U. S. S. Pompey
NOK	U. S. S. Potomac
NOM	U. S. S. Prairie
NON	U. S. S. Preble
NOO	U. S. S. Preston
NOP	U. S. S. Princeton
NOR	U. S. S. Prometheus
NRA	U. S. S. Algonquin
NRR	U. S. S. Bear
NRC	U. S. S. Morrill
NRD	U. S. S. Androscoggin
NRE	U. S. S. Seneca
NRF	U. S. S. Snodhomish

CALL SIGNAL	NAME OF STATION
NRG	U. S. S. Gresham
NRH	U. S. S. McCulloch
NRI	U. S. S. Itasca
NRJ	U. S. S. Woodbury
NRK	U. S. S. Tahoma
NRL	U. S. S. Tuscarora
NRM	U. S. S. Mohawk
NRN	U. S. S. Manning
NRO	U. S. S. Onondaga
NRP	U. S. S. Apache
NRO	U. S. S. Miami
NRR	U. S. S. Pamlico
NRS	U. S. S. Seminole
NRT	U. S. S. Thetis
NRU	U. S. S. Acushnet
NRV	U. S. S. Winona
NRW	U. S. S. Windom
NRX	U. S. S. Unalga
NRX	U. S. S. Yamacraw
NSQ	U. S. S. Smith
NST	U. S. S. Solace
NSW	U. S. S. South Carolina
NSX	U. S. S. South Dakota
NTA	U. S. S. Ontario
NTB	U. S. S. Sterrett
NTC	U. S. S. Stewart
NTD	U. S. S. Rainbow
NTE	U. S. S. Raleigh
NTF	U. S. S. St. Louis
NTG	U. S. S. Sonoma
NTI	U. S. S. Stringham
NTK	U. S. S. Supply
NTL	U. S. S. Sylvan
NTP	U. S. S. Salem
NTQ	U. S. S. San Francisco
NTR	U. S. S. Saratoga
NTT	U. S. S. Scorpion
NTU	U. S. S. Reid
NTX	U. S. S. Rhode Island
NTZ	U. S. S. Roe
NUA	U. S. S. Tacoma
NUC	U. S. S. Tallahassee
NUG	U. S. S. Tennessee
NUI	U. S. S. Terry
NUN	U. S. S. Tonopah
NUO	U. S. S. Trippe
NUS	U. S. S. Truxton
NVE	U. S. S. Utah
NVK	U. S. S. Vermont
NVM	U. S. S. Vesuvius
NVN	U. S. S. Vicksburg
NVP	U. S. S. Villalobos
NVR	U. S. S. Virginia
NVT	U. S. S. Vulcan
NWD	U. S. S. Warrington
NWE	U. S. S. Washington
NWG	U. S. S. West Virginia
NWH	U. S. S. Wheeling
NWI	U. S. S. Whipple
NWK	U. S. S. Wilmington
NWL	U. S. S. Walke
NWM	U. S. S. Wisconsin
NWQ	U. S. S. Wyoming
NXS	U. S. S. E-1

CALL SIGNAL	NAME OF STATION
KYA	S. S. Atalanta
KYB	S. S. North Wind
KYC	S. S. Corsair
KYD	S. S. Cyprus
KYE	S. S. Cassandra
KYF	S. S. Florence
KYH	S. S. Aloha
KYI	S. S. Alvina
KYK	S. S. Kismet
KYL	S. S. Lysistrata
KYM	S. S. Columbia
KYN	S. S. Niagara
KYO	S. S. Noma
KYP	S. S. Oneida
KYR	S. S. Karina
KYS	S. S. Sea Otter
KYT	S. S. Vanadis
KYU	S. S. Emeline
KYV	S. S. Adventuress
KYW	S. S. Warrior
KYX	S. S. Wana
NAA	Arlington, Radio, Va.
NAB	Portland, Me.
NAC	Portsmouth, N. H.
NAD	Boston, Mass.
NAE	Cape Cod, Mass.
NAF	Newport, R. I.
NAG	Fire Island, L. I., N. Y.
NAH	Brooklyn Navy Yard, N. Y.
NAI	Philadelphia, Pa.
NAK	Annapolis, Md.
NAL	Washington, D. C.
NAM	Norfolk, Va.
NAN	Beaufort, N. C.
NAO	Charleston, S. C.
NAP	St. Augustine, Fla...
NAQ	Jupiter, Fla.
NAR	Key West, Fla.
NAS	Pensacola, Fla.
NAT	New Orleans, La.
NAU	San Juan, P. R.
NAW	Guantanamo Bay, Cuba
NAX	Colon, Panama C. Z.
NAY	Porta Bello, R. P.
NBH	U. S. S. Ajax
NBI	U. S. S. Alabama
NBJ	U. S. S. Albany
NBL	U. S. S. Alert
NBP	U. S. S. Ammen
NBR	U. S. S. Annapolis
NBU	U. S. S. Buffalo
NBV	U. S. S. Arkansas
NCF	U. S. S. Bailey
NCH	U. S. S. Baltimore
NCL	U. S. S. Beale
NCM	U. S. S. Birmingham
NCV	U. S. S. Burrows
NCY	U. S. S. Caesar
NCZ	U. S. S. California
NDA	U. S. S. Castine
NDB	U. S. S. Celtic
NDG	U. S. S. Chester
NDH	U. S. S. Cheyenne
NDI	U. S. S. Chicago
NDL	U. S. S. Cincinnati

CALL SIGNAL	NAME OF STATION
NDM	U. S. S. Cleveland
NDN	U. S. S. Colorado
NDQ	U. S. S. Connecticut
NDU	U. S. S. Culgoa
NDY	U. S. S. Cyclops
NEK	U. S. S. Delaware
NEM	U. S. S. Denver
NEN	U. S. S. Des Moines
NEP	U. S. S. Dixie
NEQ	U. S. S. Dolphin
NET	U. S. S. Drayton
NFC	U. S. S. Eagle
NFD	U. S. S. Elcano
NFE	U. S. S. Charleston
NFM	U. S. S. Fanning
NFR	U. S. S. Florida
NFS	U. S. S. Flusser
NGD	U. S. S. Galveston
NGF	U. S. S. Georgia
NGH	U. S. S. Glacier
NGI	U. S. S. Chattanooga
NGJ	U. S. S. Goldsborough
NGU	U. S. S. Hannibal
NGX	U. S. S. Hector
NGY	U. S. S. Helena
NHA	U. S. S. Henley
NHC	U. S. S. Hopkins
NHE	U. S. S. Hull
NHN	U. S. S. Idaho
NHO	U. S. S. Illinois
NHQ	U. S. S. Indiana
NHT	U. S. S. Iowa
NHU	U. S. S. Iris
NHV	U. S. S. Iroquois
NIB	U. S. S. Jarvis
NID	U. S. S. Jenkins
NIE	U. S. S. Jouett
NIO	U. S. S. Kansas
NIP	U. S. S. Kearsarge
NIQ	U. S. S. Kentucky
NIW	U. S. S. Lamson
NIY	U. S. S. Lawrence
NIZ	U. S. S. Lebanon
NJB	U. S. S. Louisiana
NJH	U. S. S. Macdonough
NJL	U. S. S. Maine
NJQ	U. S. S. Marietta
NJR	U. S. S. Mars
NJS	U. S. S. Maryland
NJT	U. S. S. Massachusetts
NJU	U. S. S. Mayrant
NJV	U. S. S. Mayflower
NJW	U. S. S. McCall
NJZ	U. S. S. Michigan
NKD	U. S. S. Minnesota
NKE	U. S. S. Mississippi
NKF	U. S. S. Missouri
NKJ	U. S. S. Monadnock
NKI	U. S. S. Monahan
NKM	U. S. S. Montana
NKN	U. S. S. Monterey
NKO	U. S. S. Montgomery
NKY	U. S. S. Nashville
NKZ	U. S. S. Navajo
NLA	Nantucket Shoals, Newport, R. I.

CALL SIGNAL	NAME OF STATION
NXT	U. S. S. E-2
VBA	Port Arthur, Can.
VBB	Saulte Ste Marie, Can.
VBC	Midland, Ont., Can.
VBD	Tobermory, Ont., Can.
VBE	Port Edward, Can.
VCA	Montreal, Que., Can.
VCE	Cape Race, Can.
VGI	Assiniboia, Can.
WAA	S. S. Alameda
WAB	S. S. Buckman
WAC	S. S. Chicago
WAD	S. S. Victoria
WAE	S. S. Edith
WAF	S. S. Admiral Farragut
WAH	S. S. Dora
WAI	S. S. Latouche
WAJ	S. S. Jefferson
WAL	S. S. Santa Ana
WAN	S. S. Northwestern
WAO	S. S. Dirigo
WAR	S. S. Cordova
WAS	S. S. Admiral Sampson
WAU	S. S. Dolphin
WAV	S. S. Seward
WAW	S. S. Watson
WAX	Atlantic City, N. J.
WBD	S. S. Santa Cruz
WBF	Boston, Mass.
WBG	S. S. Iroquois
WBH	S. S. Chippewa
WBK	S. S. Breakwater
WBI	Buffalo, N. Y.
WBM	S. S. Redondo
WBN	Benton Harbor, Mich.
WBO	S. S. Nann Smith
WBP	S. S. Hermosa
WBO	S. S. Yukon
WBR	S. S. Bertha
WBS	Baltimore, Md.
WBV	S. S. Cabrillo
WBZ	S. S. Glory of the Seas
WCA	S. S. Tionesta
WCB	S. S. Juniata
WCC	South Wellfleet, Mass.
WCD	S. S. Octorara
WCG	Brooklyn, N. Y.
WCH	Boston, Mass.
WCM	Calumet, Mich.
WCN	S. S. North Land
WCT	S. S. Theodore Roosevelt
WCX	Cleveland, Ohio
WCY	Cape May, N. J.
WCZ	S. S. Illino's
WDA	S. S. Pere Marquett
WDB	S. S. Pere Marquette 19
WDC	S. S. Pere Marquette 17
WDD	S. S. Pere Marquette 18
WDE	S. S. Pere Marquette 20
WDI	S. S. City of South Haven
WDL	S. S. Lakeland
WDM	Duluth, Minn.
WDN	S. S. Ann Arbor No. 3
WDO	S. S. Ann Arbor No. 4
WDP	S. S. Ann Arbor No. 5

CALL SIGNAL	NAME OF STATION
WDR	Detroit, Mich.
WDS	S. S. City of Grand Rapids
WDT	S. S. City of Chicago
WDU	S. S. Puritan
WDV	S. S. City of Benton Harbor
WDW	S. S. Holland
WDY	S. S. Lydonia
WEA	S. S. City of Cleveland III
WEB	S. S. City of Mackinac II
WEC	S. S. City of Detroit II
WED	S. S. Western States
WEE	S. S. Eastern States
WEF	S. S. City of Detroit III
WEG	S. S. City of Ignace
WEH	S. S. City of Alpena I
WEJ	S. S. Nyack
WEK	S. S. Minnesota
WEI	S. S. E. G. Crosby
WEN	S. S. North American
WEP	El Paso, Texas
WEO	S. S. Col. Jas. I. Schoonmaker
WER	S. S. Wm. P. Snyder
WES	S. S. Wm. P. Snyder, Jr.
WET	S. S. Shenago
WEU	S. S. Wilpen
WEW	S. S. Marquette & Bessemer, No. 1
WEX	S. S. Marquette & Bessemer, No. 2
WEY	S. S. Alvina
WEZ	S. S. Ashtabula
WFA	S. S. Georgia
WFB	S. S. Alabama
WFC	S. S. Indiana
WFD	S. S. Iowa
WFE	S. S. Carolina
WFF	Fort Worth, Texas
WFG	S. S. Arizona
WFH	S. S. Virginia
WFI	S. S. Chicago
WFJ	S. S. Christopher Columbus
WFK	Frankfort, Mich.
WFM	Fort Morgan, Ala.
WFN	S. S. Eastland
WFP	S. S. City of Erie
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WFR	S. S. State of Ohio
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WGD	S. S. Delhi
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WGL	S. S. State of California
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WGO	Chicago, Ill.
WGP	S. S. President
WGO	S. S. City of Puebla
WGR	S. S. Governor
WGS	S. S. Senator
WGT	S. S. Congress
WGU	S. S. Umatilla
WGV	Galveston, Texas
WGW	Grand Island, Ia.

CALL SIGNAL	NAME OF STATION	CALL SIGNAL	NAME OF STATION
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WGY	S. S. City of Topeka	WNX	S. S. Northland
WGX	S. S. Guardian	WNY	S. S. St. Helens
WHA	Cape Hatteras, N. C.	WNZ	S. S. Vanguard
WHB	New York, N. Y.	WQV	S. S. Venetia
WHC	S. S. Columbia	WPA	S. S. Santa Cruz
WHE	Philadelphia, Pa.	WPB	S. S. Tyee Junior
WHG	S. S. W. B. Flint	WPC	S. S. Tyee
WHH	S. S. St. Francis	WPD	Tampa, Florida
WHI	New York, N. Y.	WPE	S. S. Tatoosh
WHJ	S. S. Sierra	WPG	S. S. Goliah
WHK	New Orleans, La.	WPK	S. S. Kingfisher
WHL	S. S. Ventura	WPN	S. S. Pioneer
WHM	S. S. Sonoma	WPQ	S. S. Zapora
WHN	S. S. Hanalei	WPR	Ensanada, P. R.
WHP	S. S. Mariposa	WPS	S. S. Starr
WHQ	Mackinac Island, Mich.	WPW	S. S. Columbia
WHS	S. S. Adeline Smith	WPX	S. S. Oneonta
WHT	S. S. Whittier	WPY	S. S. Wallula
WHW	S. S. Mackinaw	WPZ	S. S. Joseph Pulitzer
WHX	S. S. Humboldt	WQC	S. S. Camino
WJX	Jacksonville, Fla.	WQE	S. S. Edgar H. Vance
WKD	S. S. Dakotan	WQG	S. S. Greenwood
WKG	S. S. Georgian	WQS	S. S. Speedwell
WKH	S. S. Honolulu	WQY	S. S. Yosemite
WKK	S. S. Kansas	WRA	S. S. Henry T. Scott
WKM	S. S. Minnesotan	WRB	S. S. Berlin
WKN	S. S. Montanan	WRC	S. S. J. B. Stetson
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WMT	S. S. General Hubbard	WRY	S. S. Yale
WMW	Manitowoc, Wis.	WSA	Ashtabula, Ohio
WMX	Manistique, Mich.	WSB	S. S. Francis H. Leggett
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WNC	S. S. Carlos	WSE	Seagate, N. Y.
WND	S. S. Windber	WSF	S. S. Grace Dollar
WNE	S. S. Nushagak	WSG	S. S. Norwood
WNF	S. S. Lyra	WSH	S. S. Chehalis
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WNH	S. S. Lewis Luckenbach	WSJ	S. S. John A. Hooper
WNI	S. S. Leelanaw	WSK	Sagaponack, N. Y.
WNJ	S. S. Navajo	WSL	Sayville, L. I., N. Y.
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WTG	S. S. Santa Rita
WTH	S. S. Washtenaw
WTI	S. S. Catania
WTK	S. S. J. A. Chanslor
WTM	S. S. W. S. Porter
WTN	S. S. Wm. F. Herrin
WTR	S. S. Richmond
WTS	S. S. Col. E. L. Drake
WTT	S. S. Atlas
WTU	S. O. Co., No. 91
WTV	S. S. Capt. A. F. Lucas
WTW	S. S. Maverick
WTX	S. S. Asuncion
WTY	S. O. Co., No. 93
WTZ	S. O. Co., No. 95
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WUE	Fort Lovett, Me.
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WUM	Fort Wood, N. Y.
WUN	Fort Worden, Wash.
WUO	Fort Winfield Scott, Cal.
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