

SHIPWRECK

Let us read the story of how a man tapping away into space saved a thousand lives.

Let us picture to ourselves an immense liner moving slowly from its berth. The wharf is crowded with people waving their hands and fluttering handkerchiefs. From the side of the ship, on all the decks, leans a multitude of passengers waving farewell. The space between these two crowds slowly widens. Between ship and shore flows an increasing space of troubled water. The faces of people become indistinct. The sounds die away. Then the engines get to work, and the great ship moves forward, and draws impressively to sea.

The passengers hurry to their cabins. They see that everything is comfort-

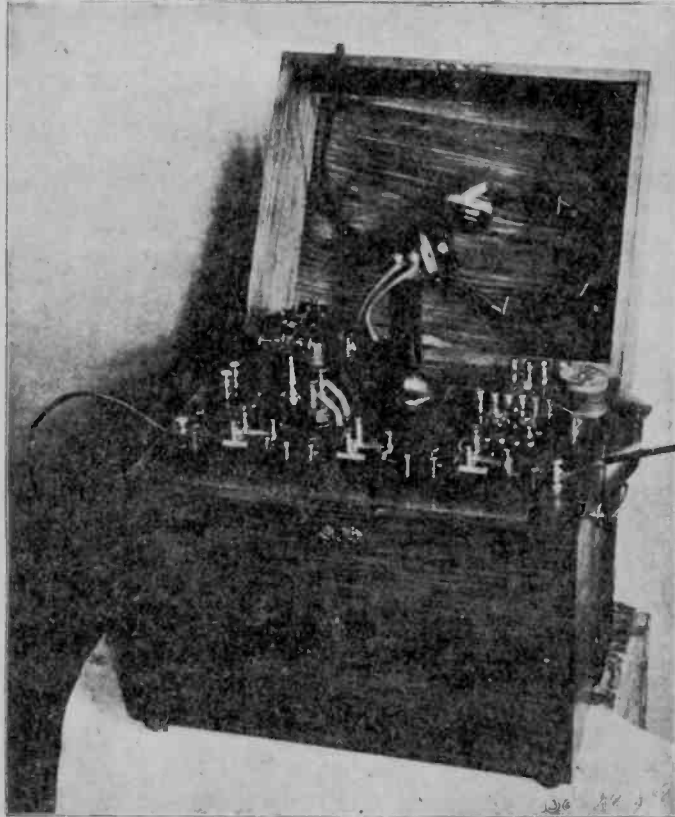
Continued on page 6

THE NEWSPAPER FOR THE HOBBYIST OF VINTAGE ELECTRONICS AND SOUND

THE HORN SPEAKER

Anniversary Edition

LEE DE FOREST'S PROGRESS FOR 1902



THE DE FOREST RECEIVER

THE DE FOREST SYSTEM OF WIRELESS TELEGRAPHY.

For several months now a regular interchange of wireless telegraph messages has been maintained by the De Forest Wireless Telegraph Company between their stations near the Battery in New York, and at Staten Island.

The history of the inception of the new system is interesting. In 1899 the inventors began the search for a new receiver for use in wireless telegraphy, one possessing that much desired quality of auto-sensitiveness. From the first the necessity for tapping the old coherer to restore it to sensitiveness, the complicated apparatus thus involved, the uncertainty of its action, and the slow speed of word-transmission necessitated, has called for a better, simpler, quicker receiver than that of Branley's.

Starting on this quest various principles were tried, at first without satisfactory results. The device lacked either sensitiveness or reliability. None of the so-called "auto-coherers" filled the bill. During the year following Dr. De Forest carried on his researches in this field in the laboratory of Armour Institute, kindly tendered him for this purpose. There he received the assistance of E. H. Smythe, of the Western Electric Company, and the responder is the result of their combined effort.

The new receiver, or "responder" as it is aptly called, depends on an electrotypic principle for its action. The field of investigation was entirely new, no data existed on the subject, and the present state of com-

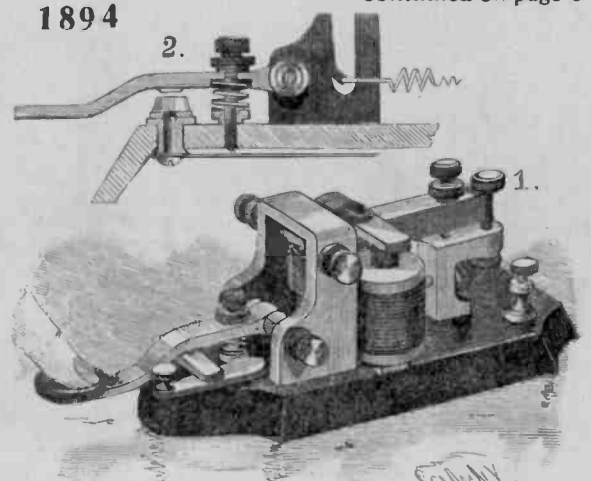
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A TELEGRAPH KEY AND SOUNDER.

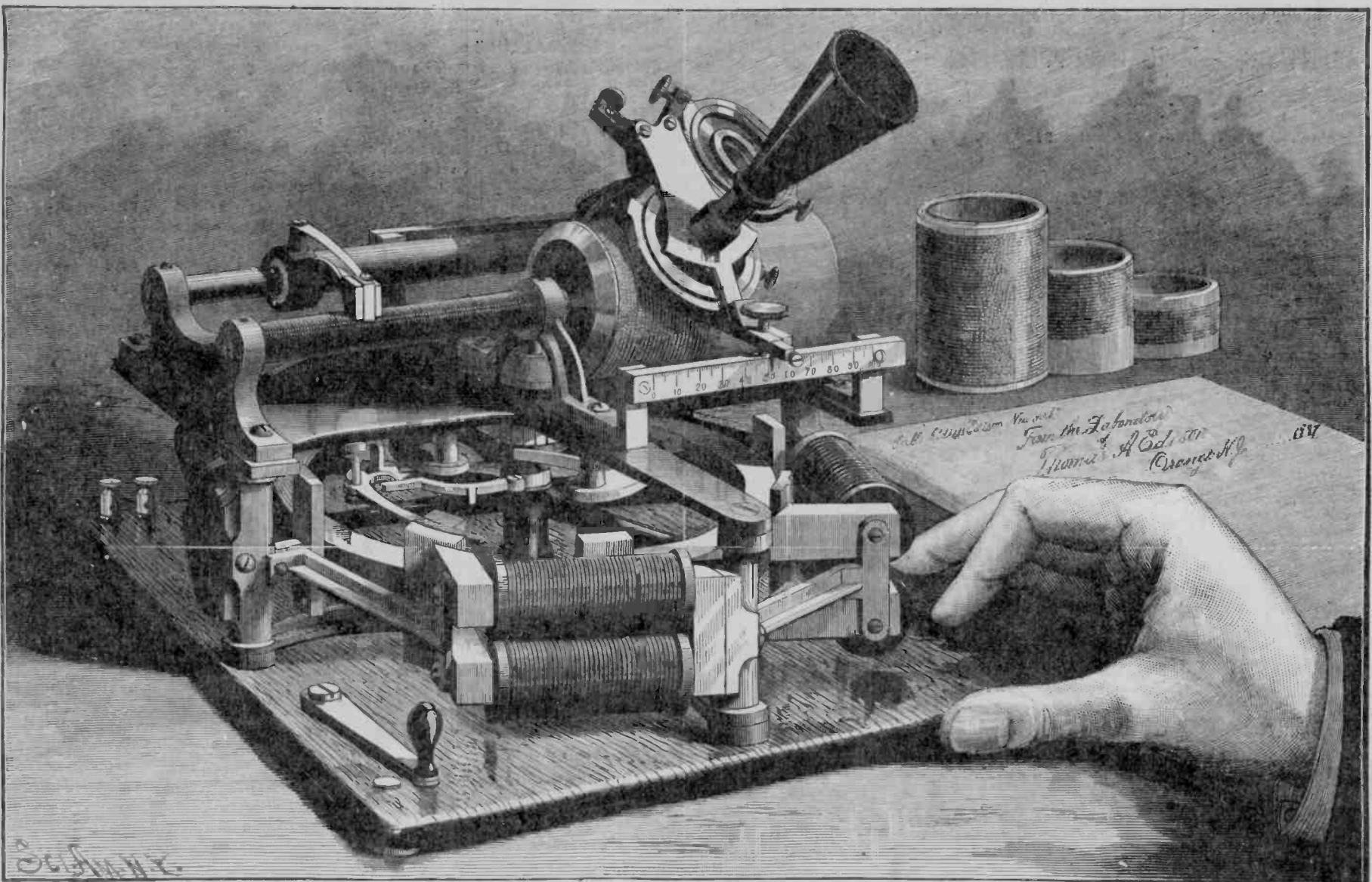
The combination device shown in the illustration has been patented by Mr. Philip D. Cox, of Hawthorn, Florida, and presents some novelties in construction and arrangement of parts. The yoke of the sounder magnet is centrally let into the base, which is preferably made hollow to admit of making the electrical

Continued on page 6

1894



COX'S TELEGRAPH KEY AND SOUNDER.



TALKING MACHINE, EDISON'S WONDERFUL PHONOGRAPH.

1887 ELECTRIC PHONOGRAPH

The new phonograph, which forms the subject of the larger illustration, is of about the size of an ordinary sewing machine. In its construction, it is something like a very small engine lathe; the main spindle is threaded between its bearings, and is prolonged at one

end to receive the hardened wax cylinder upon which the sound record is made. Behind the spindle and the cylinder is a rod upon which is arranged a slide, having at one end an arm adapted to engage the screw of the spindle, and at the opposite end an arm carrying a pivoted head, provided with two diaphragms, whose positions may be instantly interchanged when desirable. One of these diaphragms is turned into the position of use when it is desired to talk to the phonograph, and when the speech is to be reproduced, the other diaphragm takes its place. The diaphragm which receives the speech and makes the impressions upon the

cylinder is shown at 3 in one of the small cuts. The needle by which the impressions are made in the wax is attached to the center of the diaphragm, and pivotally connected to a spring arm attached to the side of the diaphragm cell. The device by which the speech is reproduced is shown in section at 4. The cell contains a delicate diaphragm of gold beater's skin, to the center of which is secured a stud connected with a small curved steel wire, one end of which is attached to the diaphragm cell. The spindle

Continued on page 5

WILL ROGERS (1879-1935)

The humorist cowboy from Oklahoma who enjoyed the company of kings and hired hands. Of course, both of them enjoyed his wit. . . a most universal man.



"I see where Kid McCoy is going to plead insanity. If he has saved his marriage certificates, he can prove it."
 "Nine marriage certificates will beat any alienist's testimony in a plea for insanity."

"We can't have another war; we haven't got a slogan."

Public acknowledgement of his ability to entertain began in 1905, when he appeared on the vaudeville in an act that combined witty monologue with rope swinging. He was given several engagements in the Ziegfeld Follies. His radio engagements consisted of comments on current events with rare shrewdness and humor.

There is a booklet that was published by E. R. Squibbs in the early '30's. Many collectors seek this book. It contains many of his early radio broadcasts.

on the Air

IT HAPPENED IN 1972.
 100 radios sold for \$1,000 at an auction in California.

A model 5 A. K. breadboard sold in California for \$1,000. A model 5 breadboard was bought in the Eastern part of the United States for \$25,000.

During the Annual Radio Conference of the Antique Wireless Association at the Marriott Motor Inn in Washington D. C. on September 23, 1972, some prominent collectors rallied together to form the nation's newest organization designed to bring together collectors and others interested in early radio, according to the "Antique Radio Gazette," edited by John Drake of New Canaan, Connecticut.

The name of the new national organization is the Antique Radio Club of America.

John Caperton, an earnest worker

in acquiring an interesting collection and in helping other collectors, and historians, is president of the present board. Ralph Muchow of Elgin, Illinois is vice president and S. E. Hernandez of Essex, Connecticut is secretary-treasurer.

Nostalgia Inc., convened in Oklahoma City to review old radio shows and to exchange information.

The "Indiana Historical Radio" Society had a meeting of national consequence in 1972. Out of state members are welcome to join.

The Society of Wireless Pioneers under the direction of William Breniman gathered valuable information about early wireless and its pioneers. This society is for the old time commercial operator.

The De Forest Pioneers, a group of former employees or associates of Dr. Lee De Forest has been busy in preparing displays about Lee De Forest at the Space Science Center in California.

Electronic Digest with the ability of Bob Palmer produced many documented articles that are helpful to historians. Unfortunately, there was no November-December issue of 1972. Its future is unknown at this time.

John F. Rider was inducted into the Electronic Hall of Fame.

The Dallas Antique Radio Club lasted several months. Later under new leadership a club or chapter should flourish due to a more active interest in old radios.

The Houck Award at the AWA conference was given to Ed Raser for historical preservation. For historical documentation, Bruce Kelley was a recipient of the Houck Award. He is editor of the AWA News Journal, The Old Timer's Bulletin.

1915 BARBER OF SEVILLE RECORDS

BARBIERE DI SIVIGLIA (*Bahr-beau'-neh dee See-veel'yah*) (In Italian)

Barber of Seville, comic opera in two acts; text by Sterbini, a Roman poet; music by Rossini. Produced Rome, 1816; London, 1818; New York, 1825. First called "Almaviva" to distinguish it from Paisiello's "Barber."

The plot of *Barber* is very simple. Count Almaviva loves Rosina, the ward of Dr. Bartolo, a crusty old bachelor, who secretly wishes to marry her himself. Almaviva persuades the village barber, Figaro, to arrange a meeting for him, and gains entrance to the house disguised as a dragoon, but is arrested by the guardian. Not discouraged, he returns, pretending to be a substitute for Rosina's music teacher, who, he says, is ill. The appearance of the real music master, Don Basilio, spoils this plan, and the Count retreats for the second time, having, however, arranged a plan for elopement. Bartolo finally arouses Rosina's jealousy by pretending that the Count loves another, and she promises to forget him and marry her guardian. When the time for the elopement arrives she meets the Count, intending to reproach him, but he convinces her of the base plot of Bartolo, and the lovers are wedded by a notary, just as Bartolo arrives with officers to arrest the Count.



THE FAMOUS SITTING SCENE IN ACT II

ACT I—Scene I—A STREET IN SEVILLE

Overture—La Scala Orch and Don Pasquale—Overture—La Scala Orch	68010	12	1.25
Ecco fidente in cielo (Dawn, with Her Rosy Mantle)	De Lucia	76000	12 2.00
Largo al factotum (Room for the Factotum)	Titta Ruffo	88391	12 3.00
Largo al factotum (Room for the Factotum)	Pasquale Amato	88329	12 3.00
Largo al factotum (Room for the Factotum)	de Gogorza	88181	12 3.00
Largo al factotum (Room for the Factotum)	Titta Ruffo	92039	12 3.00
Il mio nome (My Name?)	Fernando de Lucia	66000	10 1.50

ACT I—Scene II—ROOM IN BARTOLO'S HOUSE

Una voce poco fa (A Little Voice I Hear)	Marcella Sembrich	88097	12 3.00
Una voce poco fa (A Little Voice I Hear)	Luisa Tetrazzini	88301	12 3.00
Una voce poco fa (A Little Voice I Hear)	Maria Galvany	87060	10 2.00
Una voce poco fa—Giuseppina Huguet and Manca un foglio—A. Rossi	68144	12 1.25	
La calunnia (Slander's Whisper)	Marcel Journet	74104	12 1.50
Dunque io son (What! I?)	Maria Galvany and Titta Ruffo	92501	12 4.00
Manca un foglio (Here's a Leaf Gone!)	Rossi and Una voce poco fa—Huguet	68144	12 1.25
Guarda Don Bartolo (Look at Don Bartolo!)	Huguet, Corsi, A. Pini-Corsi, G. Pini-Corsi and Badini and Fra Diavolo—Agnese la zitella—Lara	63171	10 .75

ACT II—ANOTHER APARTMENT IN BARTOLO'S HOUSE

Pace e gioia (Peace and Joy!) Pini-Corsi—Pera and Il vecchio—Zaccaria	62105	10	.75
Il vecchio cerca moglie—Zaccaria and Pace e gioia—A. Pini-Corsi and Pera	62105	10	.75
Selection—Pryor's Band and Prophete Fantaisie (Meurbeer) Pryor's Band	35125	12	1.25

Annie's Identification Scheme



Little Orphan Annie (Shirley Bell) is shown above with Joe Corn tassel inspecting one of the identification discs being distributed to youthful listeners to the program which is heard daily except Sunday at 5:45 p. m. (E.S.T.), over an NBC network. 1934

WANTED

The Horn Speaker wants pictures of your museum or collection.

The Horn Speaker wants articles written by collectors and historians. The Horn Speaker reserves the right to accept or reject the material and to edit it. The payment for manuscripts is the results of encouraging others to

contribute additional information on the subject. By request, The Horn Speaker will print the address as well as the name of the writer, making him a direct recipient of additional information.

Again, of course, The Horn Speaker always wants information and pictures of you and your collection.



"And now folks you will hear a half hour of dining music by Dr. Kinbury's health tonic trio. . .if you could only see them."

off the Record

IT HAPPENED IN 1972.

At an auction 80 phonographs sold for \$6,500 in California. Edison machines went for about \$90,000 per machine at the same auction. A Hexaphone sold for \$250,000. A Kalamozoo Duplex raised only about \$175,000. A Victor VI in beautiful condition sold for \$225,000. The source of this information, Al Seff, president of the American Phonograph Collecting Society, P. O. Box 5046 Berkeley, California 94705, said that over 200 persons filled the seating hall to capacity.

Arthur Wilmoth announced that he believed he had a complete collection of the Gold Center Long Play discs which consist of eight 10" called the 24-minute records and six 12" called the 40-minute records. The Edison Company announced these long playing records in 1926.

Al Tonini, who is a member of the American Phonograph Collecting Society announced in the Newsletter that he was trying to collect a complete set of The New Phonogram in order to make reprints. Many collectors are eager to buy these reprints.

Record Research, the magazine of record statistics produced an article about Flexo of exploratory research by Dave Cotter. Flexo was a record label for an unbreakable record produced during the 20's. Any Flexo buffs who missed this article should get it. Write to Record Research, 65 Grand Avenue, Brooklyn, New York 11205.

WANTED to buy all types of phonographs Edison, Victor, Columbia, etc. Also we are interested in one item or complete collections. Please send photo, description, and price wanted first letter to: G. W. MacKinnon, 453 Stando Avenue, Charlotte, North Carolina 28206.

FOR SALE: 2 & 4 minute Edison Phonograph cylinders, \$5.00 ea. D. E. Cole, P. O. Drawer 520, Channelview, Tx 77530.

OLD TUBES for sale, write for list. S.A.S.E. please. J.W.F. Puett, 3008 Abston, Mesquite, Texas 75149

OL' TIME RADIO PROGRAMS..... BY THE HUNDREDS..... ON 'REEL TO REEL' or INSTANT LOAD CASSETTE!



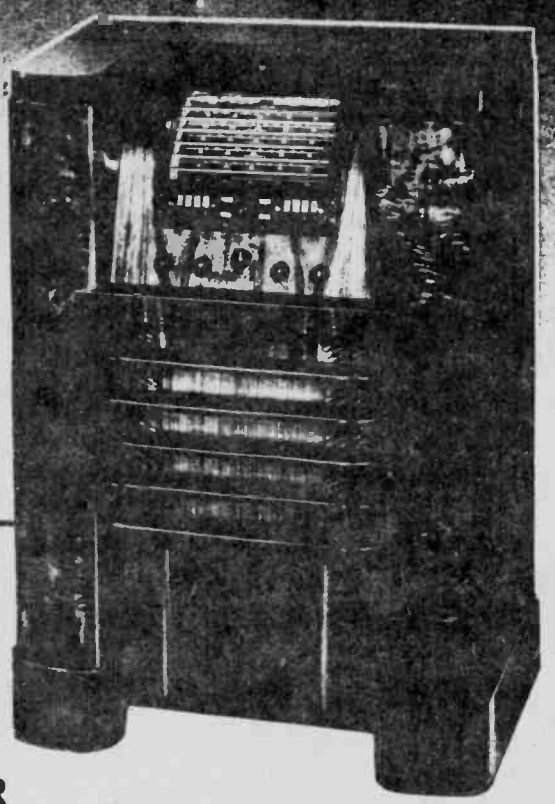
REMEMBER RADIO, INC. P. O. BOX 2513 NORMAN, OKLA. 73069



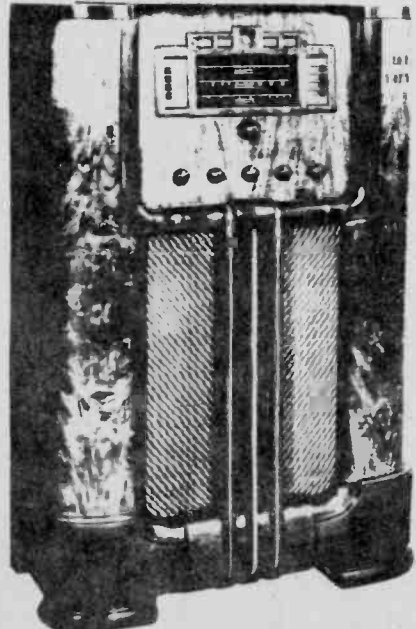
RCA Victor ELECTRIC TUNING Models

Many radio collectors are becoming interested in special interest radios. Many of the late 1930 models represent interesting concepts of design and engineering.

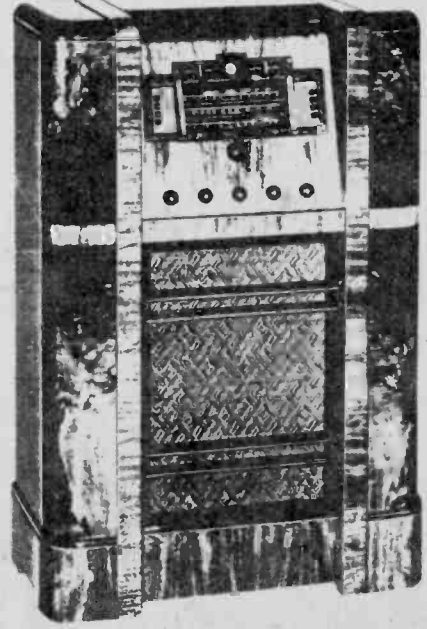
RCA Victor presented the ELECTRIC TUNING models in 1938. Although to restore or service one of these models requires good mechanical as well as electronic servicing, they make a good example of a classical addition to a radio collection and to entertain with a good reproduction of sound. These radios were built during an important period of radio progress.



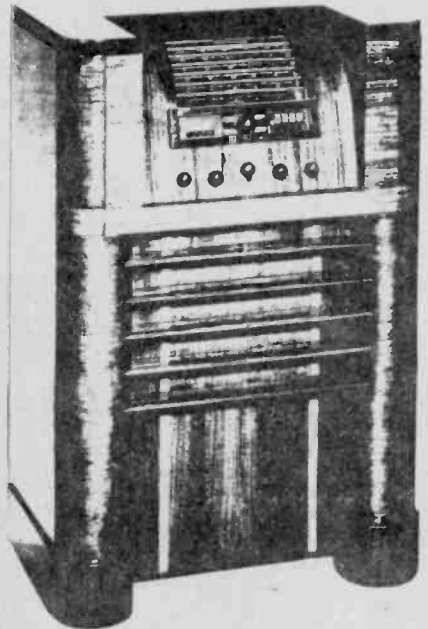
TUNE FROM YOUR ARMCHAIR



RCA VICTOR ELECTRIC TUNING MODEL #11K
—Electrically tunes to any of 8 pre-selected standard broadcast stations, changeable at will. Provides easier reception on 49, 31, 25, 19, 16 and 13-meter international entertainment bands, with newly designed, Straight-line Dial, Improved Magic Brain, Magic Eye and Sonic-Arc Magic Voice, with 11 powerful RCA Tubes. Beautiful console model of modern design. H 42", W 28 1/2", D 15".

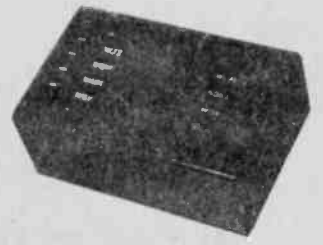


RCA VICTOR ELECTRIC TUNING MODEL #17K
—Incorporates Electric Tuning with Automatic Frequency Control on standard broadcast band—operates from control panel or through armchair control attachment. Easier tuning on international entertainment bands with new Straight-line Dial, Improved Magic Brain, Magic Eye, Sonic-Arc Magic Voice, new 12" Super-Sensitive Speaker, Continuously Variable Tone Control, Illuminated Band Indicator, Music-Speech Control. H 42", W 28 1/2", D 15".



RCA VICTOR ELECTRIC TUNING MODEL #13K
—Marvel of RCA Victor engineering genius. Features: Electric Tuning with Automatic Frequency Control, Overseas Dial with individual tuning bands for 49, 31, 25 and 19 meters, with super Band-Spreader scales individually lighted as tuned. Higher Fidelity Control, 20 watts output. A thrilling 13-tube radio in an ultra-modern cabinet that will be a constant source of pride to its owner. H 43", W 30 1/2", D 17 1/2".

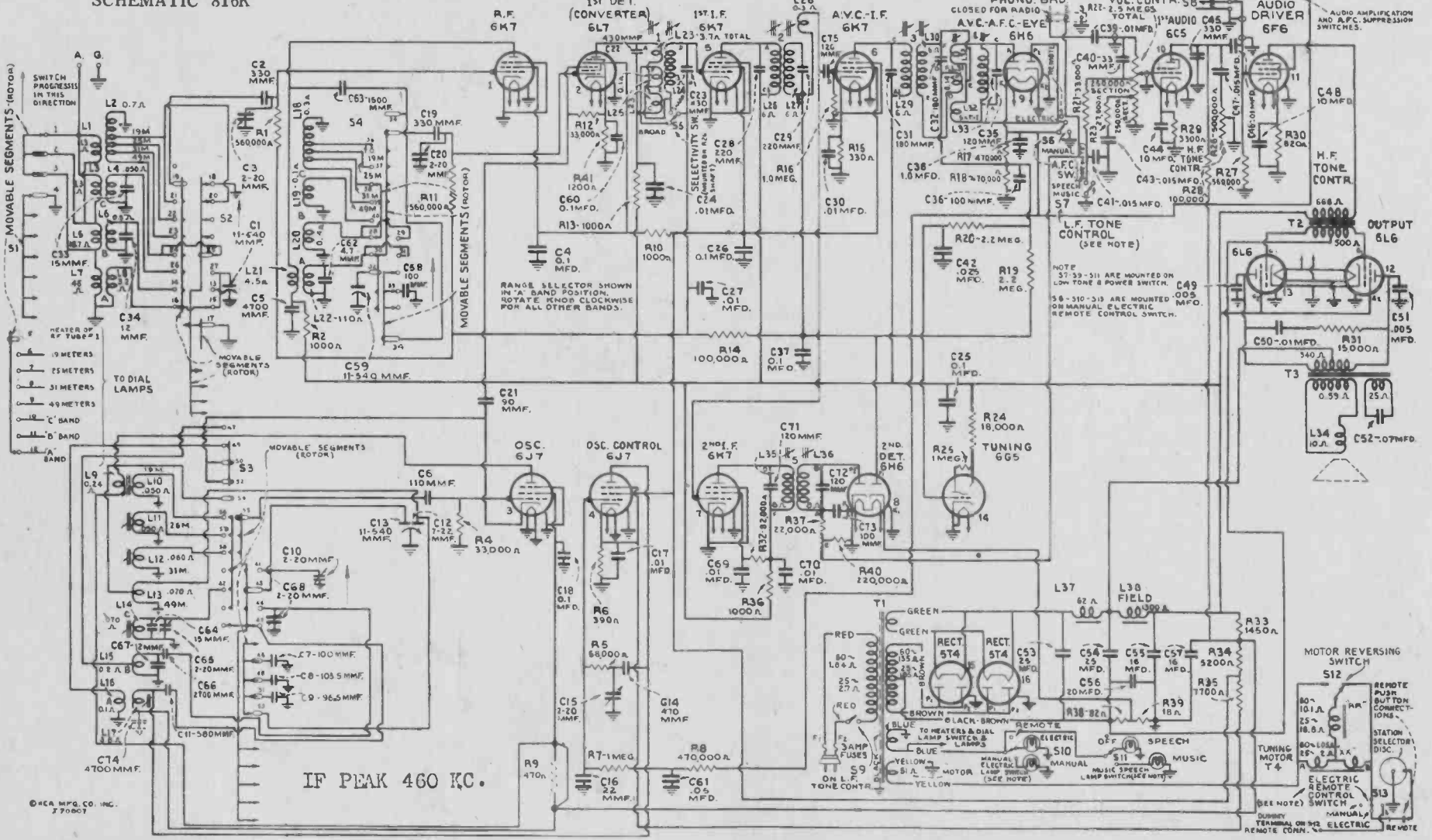
RCA VICTOR ELECTRIC TUNING MODEL #16K—A luxurious 16-tube model of RCA Victor Electric Tuning magic. Automatic Frequency Control on standard broadcast band. Gives complete coverage from 530 to 99,000 kcs. with Super Band-Spreading on the 49, 31, 25 and 19-meter bands. New Overseas Dial covers international entertainment bands plus police, aviation and amateur calls. Improved Magic Brain; Magic Eye; Sonic-Arc Magic Voice; RCA Metal Tubes; Continuously Variable Tone Control; Music-Speech Control; Higher-Fidelity Control; big 12" Super-Sensitive Speaker; Automatic Volume Control; Automatic Tone Compensation; 30 watts output; Illuminated Band Indicator. Magnificent cabinet of rare matched woods. H 43", W 30 1/2", D 17 1/2".



RCA VICTOR ARMCHAIR CONTROL
—Tune your radio electrically from your armchair. Can be attached to any RCA Victor radio with Electric Tuning at small cost. Compact control unit, in Bakelite case, can be placed on the arm of your favorite easy chair or an end table. Inconspicuous, ribbon-like electric cable connects control box to radio and lies flat, under the rug.



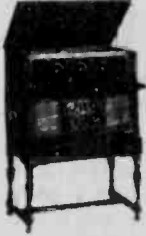
SCHEMATIC #16K



This receiver employs a sixteen-tube, seven-band, "Magic Brain" superheterodyne circuit. Features of design include "Electric Tuning" with push-button operation; automatic frequency control; spread-band "Overseas" dial; "cumulative-wound" antenna and detector "A" band coils; tuned r-f amplifier; magnetite-core adjusted i-f transformers and low-frequency "A" and "C" oscillator tracking; two-stage signal i-f amplifier; parallel a-v-c., a-f-c., and "Magic Eye" i-f ampli-

fier; phonograph terminal board; "Magic Eye" tuning tube; twelve-inch electrodynamic loudspeaker; plunger-type, air-dielectric trimming capacitors; temperature-stabilized capacitors; two-point aural-compensated volume control; "Fidelity" control; "Music-Speech" control; and a driven push-pull power output stage. In addition, this model has a cabinet incorporating the "Sonic Arc" Magic Voice.

THE DIRECTORY of Antique Radio Collectors will be available after January 1, 1973. Write to: James Fred, R. 1, Cutler, In. 46920 for details.



TRADE NAME: "A-C Dayton XL-5."
MODEL: Console.
TYPE: Tuned radio frequency with control for balancing.
TUBES: Five.
BATTERIES: Storage battery or dry cells.
CONTROLS: Three.
AERIAL: Outdoor or indoor.
PRICE: \$250.00 with built-in loud speaker.
MANUFACTURER'S NAME: A-C Electrical Mfg. Co.



TRADE NAME: Adaunit.
MODEL: Portable, built-in loud speaker.
TYPE: Non-regenerative.
TUBES: Three.
BATTERIES: Dry cells used throughout, space provided in cabinet.
CONTROLS: Two.
AERIAL: Outdoor or indoor.
PRICE: \$87.50 without accessories.
MANUFACTURER'S NAME: Auto Indicator Co.



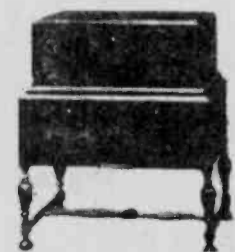
TRADE NAME: Adler-Royal Neutrodyne.
MODEL: Table type No. 199.
TYPE: Neutrodyne.
TUBES: Five UV-199.
BATTERIES: Dry cells contained in cabinet.
CONTROLS: Three.
AERIAL: Indoor, outdoor.
PRICE: \$165 without accessories; \$205 with accessories.
MANUFACTURER'S NAME: Adler Mfg. Co.



TRADE NAME: "A-C Dayton XL-5."
MODEL: Standard.
TYPE: Tuned radio frequency with control for balancing.
TUBES: Five.
BATTERIES: Storage battery or dry cells.
CONTROLS: Three.
AERIAL: Outside or inside.
PRICE: \$115.00 without accessories.
MANUFACTURER'S NAME: A-C Electrical Mfg. Co.

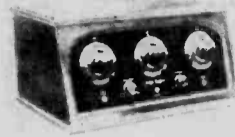


TRADE NAME: Adler-Royal Neutrodyne.
MODEL: Table type No. 201A.
TYPE: Neutrodyne.
TUBES: Five.
BATTERIES: "B" batteries in cabinet.
CONTROLS: Three.
AERIAL: Indoor, outdoor.
PRICE: \$160 without accessories; \$215 with accessories.
MANUFACTURER'S NAME: Adler Mfg. Co.



TRADE NAME: Adler-Royal Neutrodyne.
MODEL: Floor type No. 1 Elizabethan.
TYPE: Neutrodyne.
TUBES: Five.
BATTERIES: Contained in cabinet.
AERIAL: Indoor, outdoor.
CONTROLS: Three.
PRICE: \$350 including loud speaker.
MANUFACTURER'S NAME: Adler Mfg. Co.

TRADE NAME: "Ambler-Holman Receiver."
TYPE: Neutrodyne.
TUBES: Five.
BATTERIES: "B" and "C"; batteries may be contained in cabinet.
CONTROLS: Three.
AERIAL: Indoor or outdoor.
PRICE: \$75.00 without accessories.
MANUFACTURER'S NAME: Ambler-Holman Co.



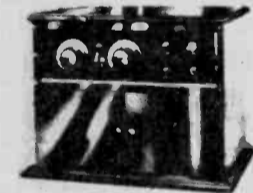
TRADE NAME: "Amrad."
MODEL: Neutrodyne.
TYPE: One tuned radio, detector and three audio.
TUBES: Five.
BATTERIES: "A" and "B" needed.
CONTROLS: Two.
AERIAL: Outside or inside.
PRICE: \$85.00.
MANUFACTURER'S NAME: American Radio and Research Corporation.



TRADE NAME: "Amrad."
MODEL: Cabinet; built-in loud speaker.
TYPE: One radio, detector and two audio.
TUBES: Four.
BATTERIES: "A" and "B" needed.
CONTROLS: Two.
PRICE: \$180.00 without accessories.
AERIAL: Outside or inside.
MANUFACTURER'S NAME: American Radio and Research Corporation.



TRADE NAME: "Amrad."
MODEL: Inductrolo.
TYPE: One radio, detector and two audio.
TUBES: Four.
BATTERIES: "A" and "B" needed.
CONTROLS: Two.
AERIAL: Outside or inside.
PRICE: \$100.00 without accessories.
MANUFACTURER'S NAME: American Radio and Research Corporation.



TRADE NAME: "Apex Super."
TYPE: Two tuned radio, detector and two audio.
TUBES: Five.
BATTERIES: None furnished.
CONTROLS: Three.
AERIAL: Outside or inside.
PRICE: \$95.00 without accessories.
MANUFACTURER'S NAME: Apex Electric Manufacturing Company.



TRADE NAME: "Atwater-Kent."
MODEL: 20.
TYPE: Two radio, detector and two audio.
TUBES: Five 201A type.
BATTERIES: Storage "A" and 90-volt "B."
CONTROLS: Four.
AERIAL: Indoor or outdoor.
PRICE: \$100.00 without accessories.
MANUFACTURER'S NAME: Atwater-Kent Mfg. Company.
NOTE: DeLuxe cabinet, \$120.00 without accessories.



TRADE NAME: "Atwater-Kent."
MODEL: 9.
TYPE: One radio, detector and two audio.
TUBES: Four 201A type.
BATTERIES: Storage "A" and 90-volt "B."
CONTROLS: Two.
AERIAL: Outside or inside.
PRICE: \$65.00 without accessories.
MANUFACTURER'S NAME: Atwater-Kent Mfg. Company.



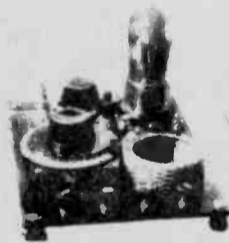
TRADE NAME: "Atwater-Kent."
MODEL: 10.
TYPE: Two radio, detector and two audio.
TUBES: Five 201A type.
BATTERIES: Storage "A" and 90-volt "B."
CONTROLS: Three.
AERIAL: Inside or outside.
PRICE: \$85.00 without accessories.
MANUFACTURER'S NAME: Atwater-Kent Mfg. Company.



TRADE NAME: "Atwater-Kent."
MODEL: 12.
TYPE: Two radio, detector and two audio.
TUBES: Six 201A type.
BATTERIES: 6-volt storage "A" and 90-volt "B."
CONTROLS: Three.
AERIAL: Inside or outside.
PRICE: \$105.00 without accessories.
MANUFACTURER'S NAME: Atwater-Kent Mfg. Company.



TRADE NAME: "Atwater-Kent."
MODEL: 19.
TYPE: One-stage tuned radio, detector and two audio.
TUBES: Four 201A type.
BATTERIES: 6-volt storage "A" and 90-volt "B."
CONTROLS: Two.
AERIAL: Outdoor.
PRICE: \$85.00 without accessories.
MANUFACTURER'S NAME: Atwater-Kent Mfg. Company.



TRADE NAME: Babydyne.
TYPE: Regenerative.
TUBES: One.
BATTERIES: "A" and "B" required.
CONTROLS: One.
AERIAL: Outside.
PRICE: \$10 without accessories.
MANUFACTURER'S NAME: A. & T. Radio Co.

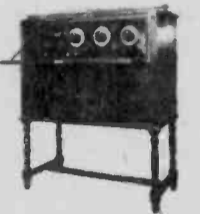


TRADE NAME: "Balanced Amplifier."
MODEL: To be used with Radiola III.
TYPE: Two stages of audio frequency amplification.
TUBES: Two WD-11.
BATTERIES: Dry cells.
PRICE: \$30.00 without accessories.
MANUFACTURER'S NAME: Radio Corp. of America.

TRADE NAME: "Belleclair."
MODEL: Standard.
TYPE: Two radio frequency, detector and two audio.
TUBES: Five.
BATTERIES: "A" and "B" needed.
CONTROLS: Four.
AERIAL: Inside or outside.
PRICE: \$165.00 without accessories.
MANUFACTURER'S NAME: R. B. Radio Company.



TRADE NAME: "Belleclair."
MODEL: Console cabinet.
TYPE: Two radio, detector and two audio.
TUBES: Five.
BATTERIES: "A" and "B" needed.
CONTROLS: Four.
AERIAL: Inside or outside.
PRICE: \$250.00 without accessories.
MANUFACTURER'S NAME: R. B. Radio Company.



TRADE NAME: "Belleclair."
MODEL: Knickerbocker with Amplion built-in loud speaker.
TYPE: Two radio, detector and two audio.
TUBES: Five.
BATTERIES: "A" and "B" needed.
CONTROLS: Four.
AERIAL: Inside or outside.
PRICE: \$350.00 without accessories.
MANUFACTURER'S NAME: R. B. Radio Company.



TRADE NAME: Bestone.
MODEL: V-60.
TYPE: Two stages tuned radio frequency, detector and two audio frequency.
TUBES: Five.
BATTERIES: None furnished.
CONTROLS: Two.
AERIAL: Inside or outside.
PRICE: \$100.00.
MANUFACTURER'S NAME: Henry Hyman & Co.



TRADE NAME: Bestone.
MODEL: V-60.
TYPE: Tuned radio frequency, detector and two audio frequency with built-in loud speaker.
TUBES: Five.
BATTERIES: None furnished.
CONTROLS: Two.
AERIAL: Outside or inside.
PRICE: \$150.00.
MANUFACTURER'S NAME: Henry Hyman & Co.



TRADE NAME: "Biltmore Radio Receiver."
MODEL: T-5.
TYPE: Two stages of radio frequency amplification, detector and two stages of audio frequency amplification.
TUBES: Five.
BATTERIES: Not furnished.
CONTROLS: Three.
AERIAL: Indoor or outdoor.
PRICE: \$65.00 without accessories.
MANUFACTURER'S NAME: Biltmore Radio Company.

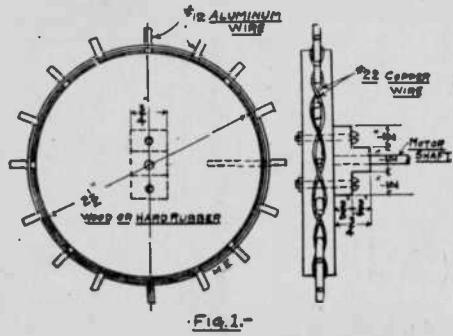


FOR YOUR COLLECTION OR MUSEUM

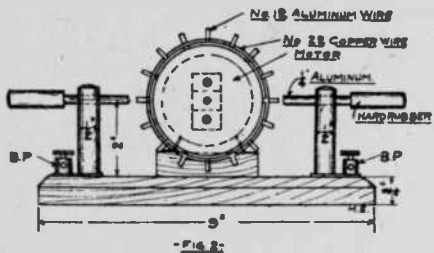
The Construction of a Rotary Spark Gap

By HALLAM ANDERSON.

FIRST take a piece of hard wood or hard rubber, about 3/8 in. thick and 2 1/2 in. in diameter. (The end of a magnet wire spool will do very well.) Then take a bit about the size of No.



10 or No. 12 wire and drill 16 holes, about an inch deep, at equal distances around the circumference. Then cut from No. 10 or 12 aluminium wire 16 pieces about 1 1/2 in. long and force these pieces into the 16 holes. Then take some bare copper wire, about No. 22, and interwind it between the 16 pieces of wire about 4 times around. (See Fig. 1.)



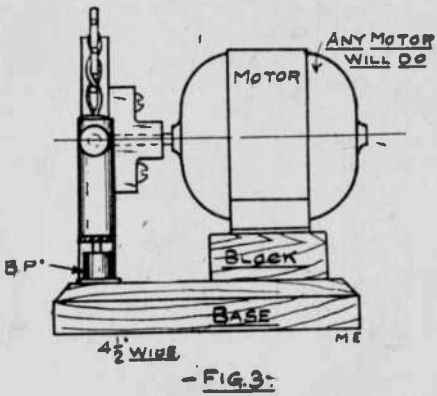
Now take a piece of hard rubber or fibre and cut it 3/4 in. x 1 1/2 in. x 1 1/2 in., and then cut out two corners 3/8 in. x 1/2 in. (See Fig. 1.) then bore two holes in the fibre and wheel as shown and bolt together with 8-32 bolts and nuts. Then, in the exact centre of the wheel and fibre, bore a hole just large enough to fit axle of the motor to be used so it will go in very hard and the wheel will be tight on the axle.

From some hard wood, cut a base about 4 1/2 in. x 9 in. and 3/4 in. thick. Bevel the edges to improve the appearance. Then take the battery motor with the gap wheel on the axle and find out how thick a block will have to be made to go under the base of the motor so as

to give the wheel about 1/4 in. clearance above the base. Cut this block and screw it to the base and then screw the motor on the block so as to bring the wheel into the position shown in Figs. 2 and 3. (This will make the axle of the motor 2 inches above the base board.)

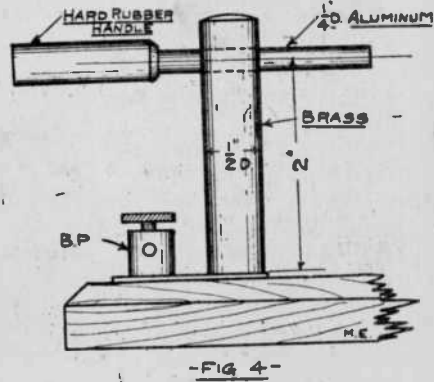
Then make two stationary electrodes as shown in Fig. 4.

Now mount the gaps as shown in



Figs. 2 and 3, and connect these to binding posts. Set the gaps as close to the wheel as possible (generally about 1/8 in.) and see that when the wheel turns, the spokes do not hit the gaps.

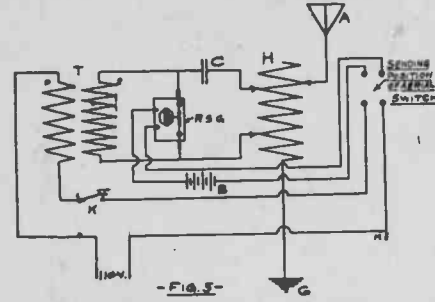
Connect the two secondaries to the binding posts and connect the motor to about 4 dry cells and fix a suitable contact on the aerial switch to close the motor circuit when the switch is set for



sending. If a break key is used, a separate knife switch may be used.

Start the motor up and send, and the result will be a very high frequency

spark. I have experimented with this gap for about three months and I find that it will put about 20% more amperes into the aerial than with a stationary gap, and that the high frequency spark is very easy to read through static or interference. *Caution.* Do not use 110



on the motor unless it is belted to the gap as the high tension secondary current will jump to the 110 which is connected to the primary of the transformer. These dimensions are only approximate and will have to be changed to suit different kinds of motors.

1925 ad

Pedigree of the AMPLION

In 1887—Mr. Alfred Graham demonstrated the first practical loud speaker which the world had ever heard.

In 1893—Graham Loud Speakers commercially produced.

In 1894—Graham Loud Speakers first used in the British Navy. Graham transmitters applied to phonographs for loud speaking reproduction.

In 1896—Graham loud speaking naval telephones adopted by the British Admiralty.

In 1898—Graham Watertight Loud Speakers patented. Placed on many warships and mercantile vessels throughout world.

In 1902—Complete Graham Loud Speaker installations on central battery plan, erected on warships as the sole means of communication aboard ship.

In 1906—The most extensive loud speaker naval installation to date, made by Graham, including a Graham exchange system fitted to British warship "Broadnought".

Onwards—Graham Loud Speakers applied to all sorts and conditions of service in many countries and on many seas.

By 1913—No less than 12,000 Graham loud speaking installations in operation on ships alone.

In 1920—(Long before other loud speakers were thought of) "AMPLION" Loud Speakers produced for wireless by Alfred Graham & Co. "AMPLION" trade mark registered.

In 1922—AMPLIONS adopted as standard equipment by leading makers of radio sets abroad.

In 1923—AMPLIONS introduced into the United States, Canada and remaining portions of the world.

In 1924—Impossibility of importing AMPLIONS fast enough to supply demand made it necessary to form The Amplion Corporation of America to market and manufacture AMPLIONS on this side.



AMPLION
The World's Standard Loud Speaker

The new Amplion "Dragon" Model AR-15, stands 20 1/2 inches high. The beautifully curved, parallel horn is of wood, hand-crafted and finished in mahogany. The acoustically correct, exclusive "dragon shape" of the sound conduit provides—in compact space—exceptionally long tone travel with gradual amplification. Also, this conduit is non-resonating, being rubber-insulated at both ends. Crystalline enamel on both sound conduit and unit adds further beauty to appearance. The weighted metal-plated base is hinged to permit tilting the horn to any angle. The Amplion "Floating Diaphragm" unit may be removed and with proper adaptor attached to a phonograph whenever desired. No battery or power amplifier required. Price \$42.50.

favorite of the world's music lovers!

SHOULD NOT the world's oldest makers of loud speakers rightly be expected to create the world's finest loud speakers?

The Amplion is their development. * You have only to see it, to hear it in comparison, to understand why it has become the largest selling loud speaker—the favorite of music lovers in all quarters of the globe

For sensitivity, clarity and natural tone throughout the entire musical range—for volume without distortion—the Amplion is supreme. As your ears will testify. You will never know the true merit of your set until you hear it over an Amplion. A treat awaits you. Visit your dealer's store for a comparison. Literature on request.

THE AMPLION CORPORATION OF AMERICA
Executive Offices: 280 Madison Avenue, New York City
Canadian Distributors: Burndopt of Canada, Ltd., 178 King St. West, Toronto
* Alfred Graham & Co., London, England, patentees



Amplion "Junior Deluxe" AR-14, \$27.50



Amplion "Junior" AR-11, \$24.00



Amplion Phonograph Units, \$19.50



Amplion "Dragon" AR-102, \$15.50

Price slightly higher in the far west.

THE EDISON PHONOGRAPH

of the phonograph is rotated regularly by an electric motor in the base of the machine, which is driven by a current from one or two cells of battery. The motor is provided with a sensitive governor which causes it to maintain a very uniform speed. Motion is transmitted from the motor to the spindle by beveled friction wheels. The arm which carries the diaphragm is provided with a turning tool for smoothing the wax cylinder preparatory to receiving the sound record.

The first operation in the use of the machine is to bring the turning tool into action and cause it to traverse the cylinder. The turning tool is then thrown out, the carriage bearing the diaphragm is returned to the position of starting, the receiving diaphragm is placed in the position of use, and as the wax cylinder revolves, the diaphragm is vibrated by the sound waves, thus moving the needle so as to cause it to cut into the wax cylinder and produce indentations which correspond to the movements of the diaphragm. After the record is made, the carriage is again returned to the point of starting, the receiving diaphragm is replaced by the speaking diaphragm, and the carriage is again moved forward by the screw, as the cylinder

revolves, causing the point of the speaking diaphragm to traverse the path made by the recording needle. As the point of the curved wire attached to the diaphragm follows the indentations of the wax cylinder, the speaking diaphragm is made to vibrate in a manner similar to that of the receiving diaphragm, thereby faithfully reproducing the sounds uttered into the receiving mouthpiece.

A crucial test of the capabilities of this machine was recently made in our presence, at Edison's laboratory, near Llewellyn Park, Orange, N. J. A paragraph from the morning newspaper was read to the machine in our absence, and when upon our return to the instrument it was reproduced phonographically, every

NEWS

The Horn Speaker is running a contest on the most unusual place that a collector has unearthed a rare collectible item.

For the new collector The Horn Speaker is planning articles with illustrations about restoring "oldies" to their original sales condition.

RADIOS FOR SALE



Crosley Trirdyn Special, 1923, good tubes, fair condition, \$35.00; Crosley battery eliminator, \$25.00; schematics and voltage charts, \$1.00 ea.; new and used tubes, write needs: Cecil Bounds, Pine Springs Rte., Carlsbad, New Mexico, 88220

Radiola Regenoflex, 1924; Crosley X, missing knobs; both \$85.00; Frank R. Jones, Box 73, Hwy. 25, Cottonwood, Tenn. 37048; Ph. 615-325-4209

word was distinctly understood, although the names, localities, and the circumstances mentioned in the article were entirely new and strange to us. Another test of the perfection of the machine was the perfect reproduction of whistling and whispering, all the imperfections of tone, the half tones and modulations even, being faithfully reproduced. The perfect performance of the new instrument depends upon its mechanical perfection—upon the regularity of its speed, the susceptibility of the wax cylinder to the impressions of the needle, and to the delicacy of the speaking diaphragm. No attempt is made in this instrument to secure loud speaking—distinct articulation and perfect intonation have been the principal ends sought.

FOR SALE: A-K 55, T.R.F. All parts original, push-pull 45 output; Bill

Hatfield, 6946 Forest Lane, Dallas, TX 75230

BOOKS

EDISON PHONOGRAPHS 1912-13 (Cylinder Models), illustrated 5 x 8" catalog reprint. \$3.00 ppd. Satisfaction guaranteed.

NEW Vintage Radio Book 1887 to 1927, 240 pages of photos & data on wireless & radio equipment. Only complete historical guide book known. Money back guarantee. \$4.95 ppd.

TELEGRAPH BOOK. "History, Theory & Practice of the Electric Telegraph." The orig. copy of this book was first printed in 1860 by George Prescott, Supt. of Electric Telegraph lines. Over 500 pps. of information on the telegraph & many illus. of early telegraph equipment. Reprints of this book \$7.50 ea., ppd.

THE HORN SPEAKER

Box 12 Kleberg, Texas 75145

1973 AD

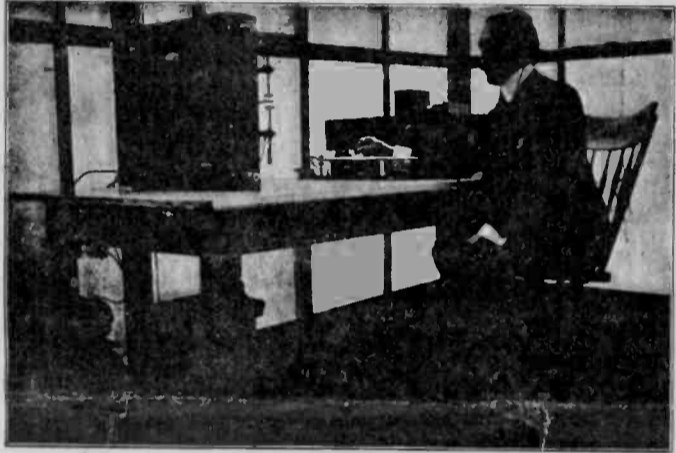
DeForest



mercial practicability attained, together with the complete theoretical study of the action involved, represents years of the closest, most painstaking work on the part of the inventors. The United States Patent Office has granted them very broad claims on the principles involved, and upon the issuance of the papers one will expect highly interesting contributions to the science.

During the past year Dr. De Forest has greatly increased the sensitiveness of the responder, while maintaining its great simplicity. For example, the receiver will respond with absolute certainty and regularity to a spark of one sixty-fourth inch length from a small coil forty feet distant, driven by one cell of storage battery with a two-foot antenna at receiver and coil, and without ground connection.

The De Forest transmitter does away with induction coils, all interrupters, and make-and-break devices, as it has been found that a large per cent of uncertainties and failures in wireless messages is due to the imperfections and irregularities of these devices. A special key very like the ordinary Morse key has been devised with a view especially to high speed work. The make-and-break is under oil and the operator is fully protected from contact with high voltage wires. By virtue of the automatic quality of the responder it is possible to use a telephone in circuit with the device, and the employment of a relay is rendered unnecessary. By this means a speed of forty words a minute can be obtained, and under ordinary circumstances a speed of twenty-five to thirty words is regularly accomplished. One hears in the telephone as it were the sound of the sending spark, be this a high or low fre-



INTERIOR OF A NEW YORK CITY DE FOREST STATION.

quency, in dots and dashes. An ordinary Morse operator can learn to read with the new apparatus with a few days' practice. The sending requires no special knack other than a firm touch, with dashes clean cut.

Although, as the illustration shows, the operator reads from the head telephone, a relay or recording device can be substituted therefor; only there is always this condition, that, inasmuch as the responder, unlike the coherer, is a *quantitative* device and the telephone and ear the most sensitive signaling device known, at the extreme range messages can be clearly read which are altogether too weak to operate any relay. Thus, through the extreme sensitiveness of the responder, an operator with head telephone can receive messages many miles further than a coherer (all other arrangements at transmitter and receiver being the same) can record them. In proof of this it is interesting to cite the test of February 22, when signals from the "Etruria" were heard at the Jersey City station, from a mast but thirty feet above the roof, when the steamer was fully ninety miles distant. This was without any "jigger" or transforming device whatever at the receiving end, and represents an astonishing degree of sensitiveness in this new "responder."

By virtue of the automatic quality of the receiver, whereby the sound impulses as heard are identical in frequency with that of the transmitter spark, the relay or "call" in use employs a reed attuned to a certain frequency per second. Thus only when the calling station uses a frequency of spark in tune with this reed will the "call" respond and summon the listening operator. The opportunity this feature gives to the system for a *mechanical* or acoustic syntony, in distinction from and in addition to the electrical syntony is highly significant.

During the last month a regular station and school for operators has been opened by the De Forest Company on the roof of the Cheeseborough Building, 17 State Street, New York. Here, as shown in the illustration, is a house built of glass over an iron frame, and fully equipped with sending and receiving apparatus. The antenna here is sixty feet in height. The companion station is located at Hotel Castleton, Staten Island, the first hotel in the world, by the way, to be equipped with a wireless plant.

The most important land station yet established by the De Forest Company is that at Steeplechase Park, Coney Island. This enjoys the distinction

of having the tallest mast in America, a fine stick of four pieces, standing 210 feet high. This station is supplied with 60-cycle alternating current, at 110 volts, from the Edison mains. This is stepped up in two transformations to 25,000 or 50,000 volts, as desired, and applied direct to the spark terminals. These latter are of special construction and connected with the condensers give a spark of exceptional clearness and power.

On June 14, the first day the Coney Island station was operated, the first communication with a vessel equipped with the De Forest system was also established. On the Ward Liner "Morro Castle," bound for Havana, a moderately high (60-foot) antenna had been rigged, and transmitter and receiver installed, and messages to and from ship and shore were exchanged, until the vessel was fifty miles from port. The Staten Island station kept up a lively exchange of messages until the boat reached the Narrows, when she called off, and the Coney Island station picked her up.

The De Forest Company has secured desirable land near the government light-house at Montauk Point, and proposes erecting a station there at once, as well as others at important points along the coast.

During the last week two operators of the De Forest

Wireless Telegraph Company accomplished a feat which, while new in the annals of wireless telegraphy, is only significant of the possibilities before the "responder" or automatic receiver in combination with the telephone.

At the 17 State Street station, this city, two messages were received and read simultaneously by the two operators, listening in on two separate telephone receivers, attached to one and the same responder, and without any special attuning or syntony device in circuit. One message was from the Staten Island station and was sent quite rapidly, thirty words per minute, with a high-frequency spark (120 per second). The other was from some foreign station, probably a Marconi installation. The speed was about ten words per minute, sent with a low-frequency interrupter.

Scientific American, December 15, 1902

TELEGRAPH

anvil contact is pivoted the circuit-closing lever, and the key and sounder is placed in the circuit by inserting wires in the binding posts at the rear, being operated in the usual way.

connections of the instrument underneath. The standard is in the form of an arch in the lower part of which are journaled the trunnions of the key, and between its trunnions and the anvil contact, as shown in the sectional view, Fig. 2, the key is apertured to receive a stud screwed into the base. On the threaded lower end of the stud, above the base, is a nut on which rests a spiral spring, whose upper end is received in a cavity in the under side of the key, while on the stud are nuts to adjust the lift of the key, a top jam nut preventing accidental loosening. At the side of the

SHIP

able for them. They put on great coats and wraps, and take to the decks. Before they begin to walk about, however, they think of their families ashore, their wives, husbands, children, sweethearts. They go to one of the rooms on the ship and write messages of affection and good cheer. They ring a bell. A servant comes and the messages are handed to him. They are carried to the clerk in charge of the wireless telegraph. The passengers begin to walk about the liner and to enjoy themselves.

In his little room the operator of the wireless telegraph sits before his machine. On the table in front of him are the messages of passengers, a pile of crowded papers. It is the business of the clerk to send those messages. He flips an A, B, C into the ether, and somehow or another those letters are received on shore. They travel without wings, without wires; they arrive.

A fog descends upon the sea; the engines are slowed; the foghorn begins to sound.

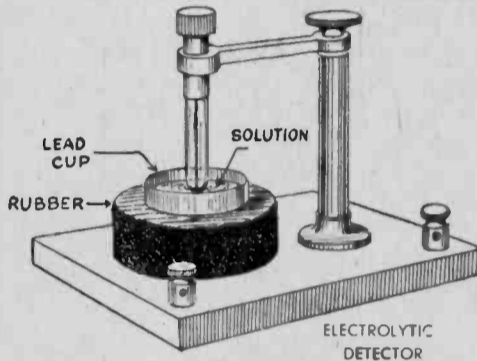
Tap, tap, says the operator, earning his daily bread.

Crash!

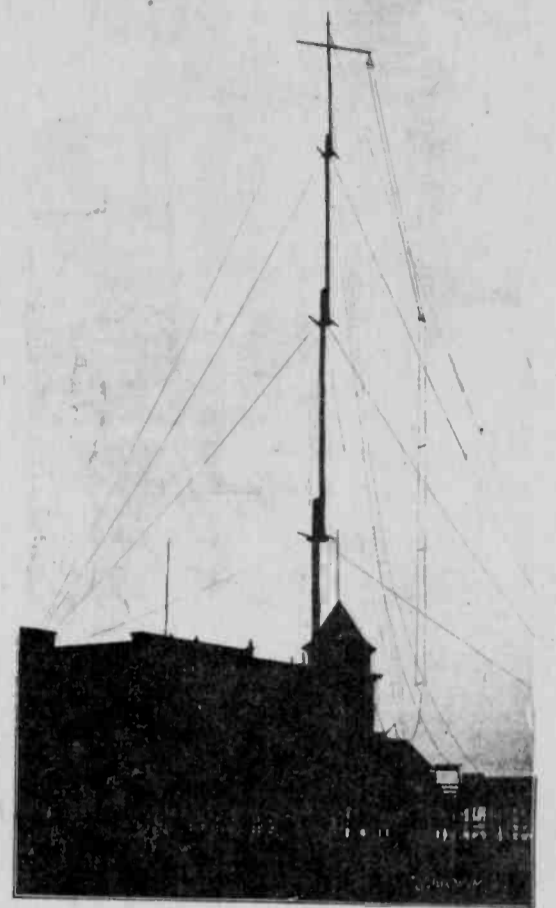
A noise like thunder. A shock that sends everything flying. A tearing

A fine platinum wire was flattened into foil and sealed into a small glass tube. Then the end of the tube was broken off and ground down so that only a small edge of the platinum foil was exposed to the acid.

W. B. Arvin



This proved to be a very reliable type of electrolytic rectifier, based on the original discovery in 1899 by Prof. Pupin.

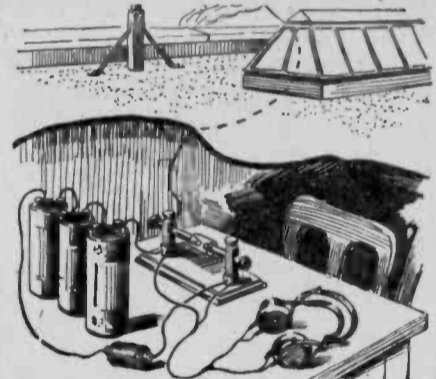


CONEY ISLAND STATION OF THE DE FOREST WIRELESS TELEGRAPH. HEIGHT OF MAST 210 FEET.

At the time of the following article the De Forest Wireless Telegraph Company had just been formed under Maine's laws in February 1902, DeForest had originally formed by another name the Wireless Telegraph Company in 1901. De Forest was vice president and scientific director of the new company. Abraham Schwartz, a promoter who later changed his name to White in 1906 was president. The new company had a stock of 3-million dollars in February 1902.

The responder mentioned in this Scientific American article of August 16, 1902, was judged in 1906 to be an infringement of Fessenden's electrolytic detector patent of 1900. At the time of the court's decision in 1906 the company was named American De Forest Wireless Telegraph Company, which was the largest wireless company in the United States. After the De Forest responder was judged an infringement, De Forest left the company.

Soon, De Forest destined himself to invent a great milestone of electronics, the vacuum tube.



The receiver, the large antenna and the faithful Spender with battery and telephones used in his first public test.

Copyright 1924 by E. P. Co.

Drawings and captions from Radio News, 1925

and rending and splintering of timbers. A dull, thudding crumple of steel plates. The roar of water rushing in. The staggering shudder of the whole ship. Shrieks and cries of people from every quarter. Voices shouting through the fog—loud voices of command. And darkness. Every electric light goes out.

The operator interrupts a sweetheart's message, and taps out the letters C, Q, D, or S, O, S. Through the cries of the passengers, above the shouts of command, piercing the black fog and winging wireless over the ocean, those invisible letters strike on the "receiver" ashore, and on numerous "receivers" aboard other ships, almost at the moment when the operator sets them free. They mean to those who receive them: "Come quick, danger" or "save our ship."

What has happened? The steamer *Florida* has rammed the great White Star liner *Republic*. The water pours in, the crowd of panic-stricken humanity waits for death.

Through it all the operator sits amid the ruin of his office, tapping, tapping, tapping his messages into space.

On another vessel, in another little office, another clerk sits tapping away at the ether. The telegraph operator

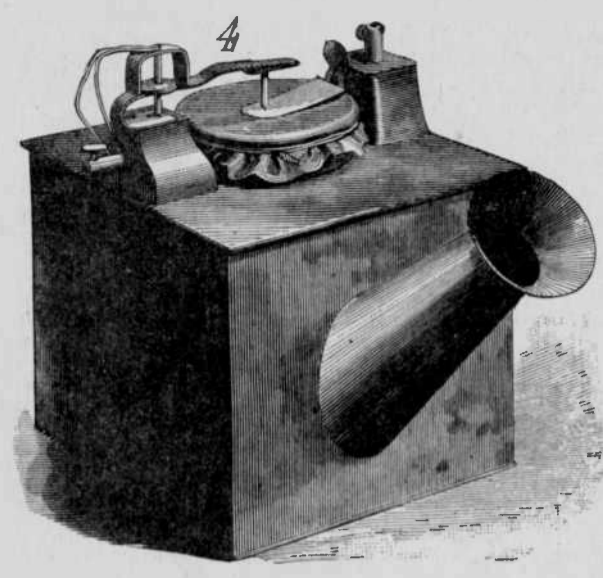
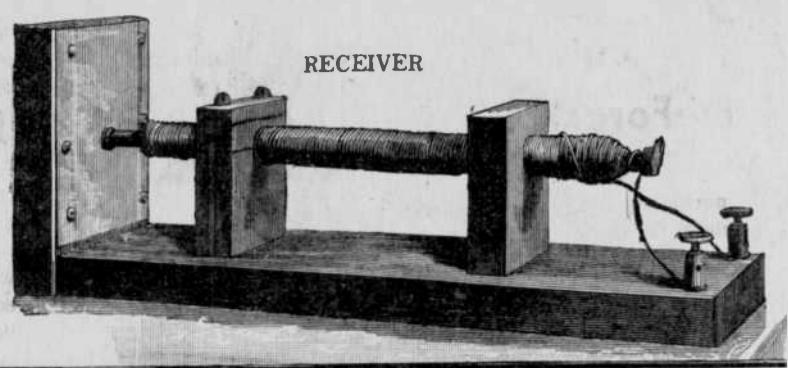
on the *Baltic* was sending his passengers' messages home when his receiver recorded the distress call from the *Republic*. The sinking ship was sixty miles away, drifting in a dense fog, and the *Baltic* changed its course and set out to find it. From half-past seven in the morning till half-past six at night the *Baltic* scoured the sea, talking all day long to the ship that was sinking with a thousand lives. All day long on the sinking ship sat the telegraph operator, tapping into space a signal of distress. Let us try to imagine the scene. Two ships are in peril in a thick fog. Two thousand men, women, and children prepare to die. In a little room on one of them, a man is tapping at a keyboard, tapping into space a bitter cry for help. The air-waves, set in motion by his tapping, travel sixty miles until they find, on another ship, a sympathetic disk on which they register themselves; and thus the ships' distress is made known.

Only a few years ago the *Republic* must have been completely lost, and that catastrophe was saved for the first time in the history of the world, by wireless telegraphy, a power which no man understands.

The Human Interest Library, Midland Press, 1914, P. 237

1861 TELEPHONE

The Reis Telephone was first exhibited at a seance of the Physical Society of Frankfurt in 1861. Reis was convinced that his telephone could transmit spoken words. Information was spread by him that he had shown the world a road to a great discovery, but left the idea to others to follow it up. He died in 1874. Scientific American on July 25, 1896, said "All that was wanted to make his telephone a success was the substitution of carbon for one or both of the metallic contact points which he employed."



TRANSMITTER

1880 LIGHT BULB

EDISON'S LATEST ELECTRIC LIGHT.

It is somewhat strange that carbon, the only substance of any value for the contact surfaces of telephone transmitters, should also prove to be the only substance suited to the light-giving portion of electric lamps. The production of an electric light by the incandescence of platinum is, for the present at least, laid aside by Mr. Edison for the more promising and more satisfactory carbon. Not the carbon so familiarly known in connection with electric lighting, but a new article having different qualities, and remarkable both for the simplicity of the process by which it is made, and its efficiency as a light-giving body when raised to incandescence by the passage of an electrical current.

The discovery of this new form of carbon was partly accidental, but more the result of Mr. Edison's faculty of seizing upon the slightest suggestion and following it as long as it invites investigation.

The first carbon prepared by Mr. Edison for this purpose was formed of a thread enveloped in a paste made of lampblack and tar, and carbonized at a high temperature. This carbon thread, although not remarkably successful, gave sufficient encouragement to warrant further investigation in the same direction. After the trial of a number of other substances it was determined that the best of all was paper, simple plain paper, without lampblack or other applications. In making these carbons the quality of cardboard or paper known as Bristol-board is used.

The completed carbon is shown full size in Fig. 1; the blank from which it is made is shown full size in Fig. 2. It will be observed, by comparing Fig. 1 with Fig. 2, that the paper shrinks enormously during the process of carbonization.

The manufacture of these little carbon "horseshoes," as they are called at Mr. Edison's laboratory, is very simple. The paper blanks, after being cut by dies in the form shown in Fig. 2, are subjected to heat sufficiently strong to drive off by destructive distillation all volatile matters. The paper horseshoes thus prepared are placed with alternate layers of tissue paper in shallow iron boxes, and weighted down with thin plates of ordinary carbon. These boxes are closed by tight-fitting covers, and placed in a muffle, when they are raised to a high temperature, which is maintained for a considerable time. The only index of the completion of the process is the crackling of the oxide formed on the exterior of the iron boxes. After cooling the carbons are removed from the iron boxes and placed between the jaws of small platinum vises, *a a*, which are supported on thin platinum wires blown in the glass base and forming the electrodes. A portion of the glass base and the carbon and its supports are inclosed by a glass bulb, from which the air is so completely exhausted by means of a Sprengel pump that only a millionth part of the original volume remains.

Mr. Edison has improved the Sprengel pump so that high vacua may be produced in 25 minutes instead of the 45 hours consumed in the operation by some of our physicists. The vacuum is so nearly perfect that none of the tests to which the lamps have been subjected so far, indicate the presence of the slightest trace of air.

For making his Sprengel pumps and other vacuum apparatus, Mr. Edison fortunately secured the services of an ex-

pert glass worker, who was formerly engaged in the laboratory of the famous Geissler, of Bohn.

The electrical resistance of the slender carbon horseshoe is 100 ohms, and, while the lamp shown in Fig. 3 is intended to afford a light equivalent to a single four foot gas jet, it may be forced to give a light equal to that of 8 or 10 such jets. We saw a single lamp of this kind giving a light that enabled us to read the SCIENTIFIC AMERICAN 100 feet away. This was certainly an extraordinary performance for a piece of carbon having a surface no larger than that shown in Fig. 1.

One of the most remarkable experiments connected with the exhibition of these lamps was that of connecting one of them with the main electrodes by means of a yard of No. 36 copper wire, no larger than a horse hair. The light was maintained without heating this very small conductor. Of course a wire of this size is too small to use in regular practice, but it strikingly exhibits the advantage of having a light-giving body of high resistance.

The carbon is very tough and flexible, and not liable to be broken or injured by jars. We saw one of the carbon horseshoes nearly straightened before it broke. The carbon

does not make the slightest difference, so far as the lamps are concerned, whether one or fifty of them are in use; it does make a difference, however, in the power consumed at the generator. The regulation of the current is reduced to the simple matter of varying the intensity of the magnetic field in which the armature of the generator revolves.

The entire lighting apparatus of a house, store, office, or factory, consists in the lamps and a few wires. There are no regulators, no complicated switches, no resistance coils to replace the lamps when the latter are not in use. The lamp, in its present form, is as simple as a candle, and, candle-like, it may be taken from its socket and replaced. This may be done while the current is on.

The construction of the socket which supports the lamp will be understood by reference to Fig. 4.

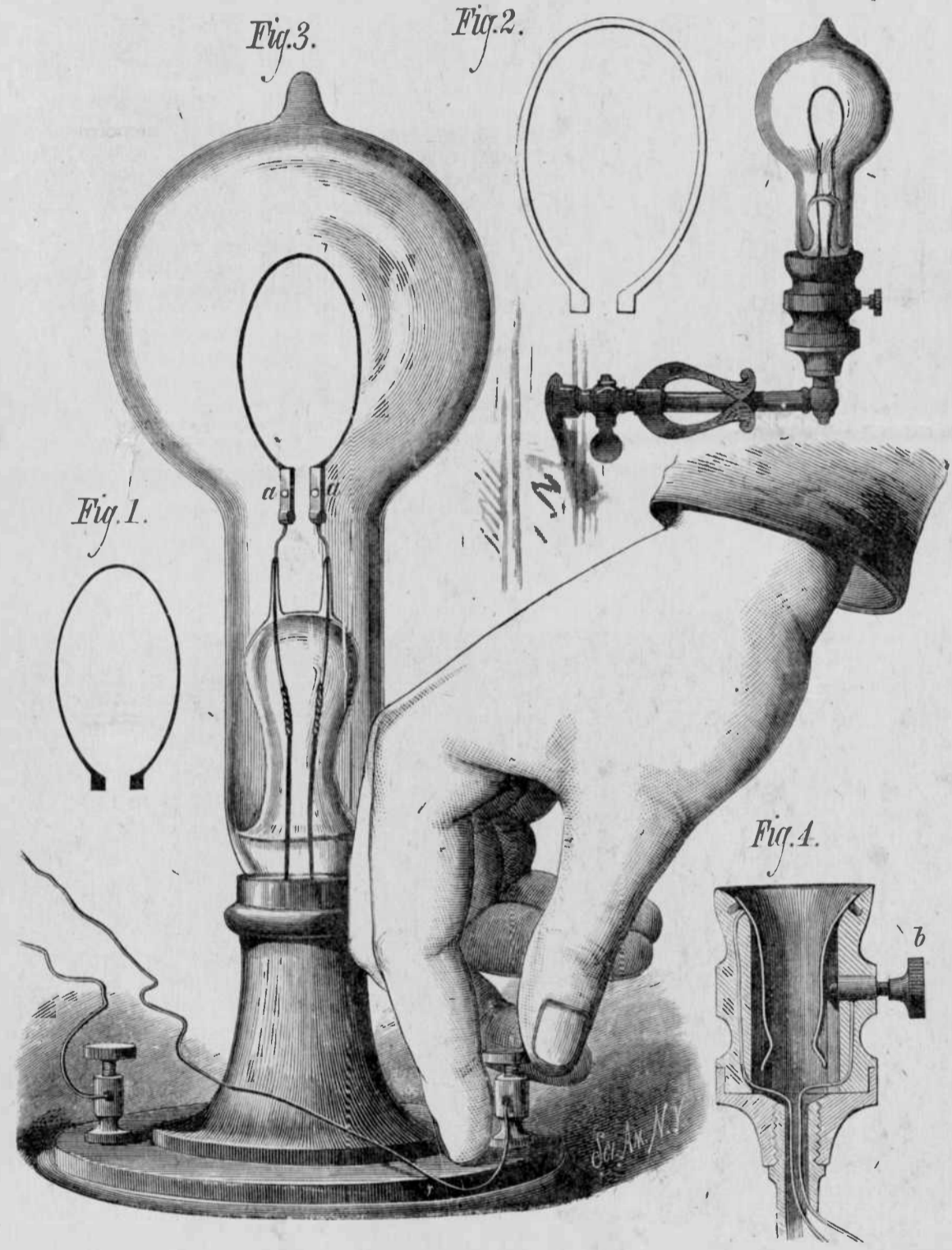
The lamp has attached to its electrodes slips of copper, which are bent upward against the sides of the glass, and touch two springs at opposite sides of the socket. One of these springs is connected with one of the electrical conductors; the other spring merely touches the copper strip, and does not form a part of the electrical conductor until it is touched by the thumb screw, *b*, this screw being connected with the second electrical conducting wire.

To start the light it is only necessary to turn the screw, *b*, until it touches the spring. To stop the light the screw is turned in the reverse direction. From this it will be seen that the electric lamp is managed easier than a gas burner, as it requires neither lighting nor regulating.

On the evening of our visit to Mr. Edison's laboratory, he had more than thirty of these simple little lamps in operation, the current being supplied from one of his machines. Each lamp gives a clear, soft light equal to that of a four foot gas burner. These lamps had already been in continued operation for more than 48 hours, and they had seen altogether as much use as they would in 30 days of ordinary domestic or business service. The light certainly leaves nothing to be desired so far as its efficiency is concerned, and we are assured by Mr. Edison that, on the score of cheapness or economy, his system of illumination is far in advance of any other, not excepting gas at the cheapest rates. It seems that the subject of general electric lighting is now reduced to a mere question of time. If Mr. Edison's lamps withstand the test of time, he has unquestionably solved the vexed question and has produced what the world has long waited for; that is, an economical and practical system of electric lighting adapted to the wants of the masses.

The details given above were obtained by us direct from Mr. Edison and his assistants during a recent visit to the Menlo Park laboratory.

Scientific American, January 10, 1880



EDISON'S LATEST ELECTRIC LAMP.

not only withstands rough mechanical usage; it is also proof against injury by the sudden turning on and off of the electric current. One of these carbons has been subjected to the severe test of applying and removing the electric current a number of times equivalent to 86 years of actual daily use, and yet the carbon is not in the least impaired.

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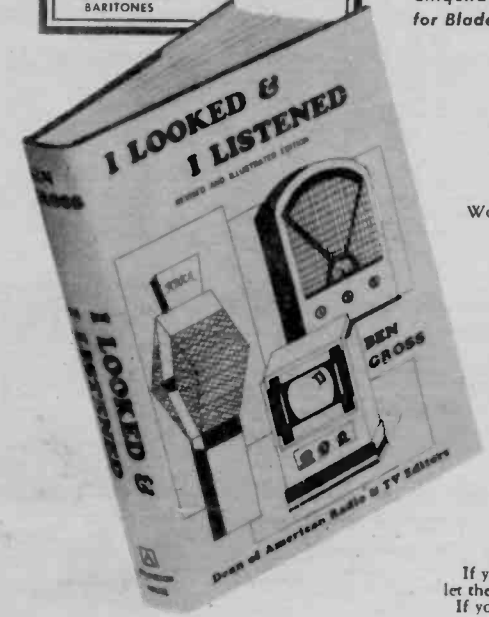
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