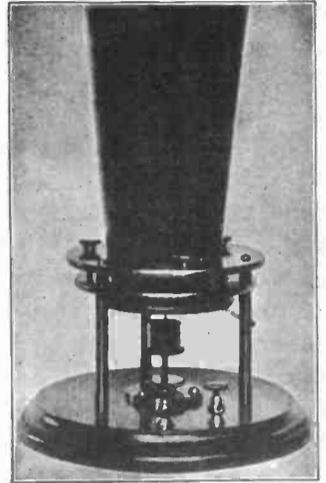


THE NEWSPAPER FOR THE HOBBYIST OF VINTAGE ELECTRONICS AND SOUND

TELEPHONE CENTENNIAL 1876 - 1976



# THE HORN SPEAKER

## Radio Threatening the Phonograph

By H. GERNSBACK

Radio News for June, 1922

WE take the following editorial from a musical trade journal, *The Music Trades*, on the date of March 4th.

"The radio concerts that have suddenly become popular have set many people to thinking, prophets to predicting, and, as usual, pessimists to foreboding disaster.

"One night last week one of these pessimists was holding forth to a group of acquaintances in which he prognosticated the early eclipse of the phonograph because of the advent of the radio.

"Who," he demanded, "will care to turn on a phonograph, which is limited to the records in the cabinet, when a whole world is beckoning? Why should anyone listen to a record of the 'Sextette' from 'Lucia,' for example, even though Galli-Curci be included, when they can be rigged up with the Metropolitan Opera House and hear the entire opera? No, this is the end of the phonograph—the beginning of the end. With the receiving horn of the radio in his library a man is *en rapport* with the cosmos. When he can hear the living voice, why should he turn to a dead record?"

"Thus the prophet of pessimism.

"We believe most earnestly that the musical industries must take into account this astonishing new device. The fact that Mr. Kreisler, for example, is no longer limited to the sitting capacity of an auditorium, but is enabled by this new miracle of science to transmit the thrilling tones of his instrument to a vast unnumbered audience, not alone in this country but even across the heaving seas, must be reckoned with as a new thing in music which will inevitably play its part in the future.

"That it will never displace, or even interfere with the phonograph, we do not consider even remotely probable, although one hears the expression frequently nowadays, and presently, in the radio magazines which are springing up, we may find it reiterated by its enthusiasts.

"The peculiar virtue of the sound reproducing instrument is that it fixes permanently, ready for instant use, something that we love. On the radio, though we may hear Kreisler playing the 'Devil's Trill' Sonata of Tartini or the Wieniawski Concerto, we are subject to the caprice of the artist's choice of program. But on the phonograph we have the selection of the pieces we desire. If we wish Kreisler to play his 'Caprice Viennois' we need but place the record on the turntable and his bow is at our bidding. If we want an encore he has no power to refuse. If we want his 'Old Refrain,' or the 'Grieg Nocturne,' or whatever he plays that we want, we need only to take the record from our cabinet and our wish is gratified.

"No radio can supplant such a satisfactory, obliging and complaisant companion.

Whatever the development of the radio may be in the home life of the nation—and certainly its possibilities seem to be Aladdin-like—we may be sure that the place of the phonograph is secure.—C. F. O."

This quasi apology, indeed, makes interesting reading and simply goes to show what Radio is doing to the phonograph. It is known notoriously throughout the phonograph trade that Radio has been making great inroads upon the phonograph business, and while we do not mean to maintain that Radio will drive the phonograph out of the field, still when you ask people why they are not using phonographs or buying phonographs, the reply invariably is that they are using the Radio at the present time.

Of course, radio is a new thing, and just now on the ascending scale. Its novelty has as yet not worn off, but even the phonograph people, if they are honest with them-

This is precisely what we are coming to. The machines of the future will serve the double purpose of record-music and radio. This will give the public a new incentive to buy phonographs, which incentive seems to be lacking at the present time. The more the two can be cemented together, the better it will be not only for radio,—which does not need any assistance today—but certainly for the phonograph.

### RADIO AND THE THEATRE

It is not only the phonograph business that is having nerves every time the word radio is mentioned, but the theatrical business is running the phonograph a close second, foolish as it seems.

From a recent issue of the *Billboard*, we have plucked the following choice morsels which we give to our readers for what they are worth.

### WANT PAY FOR RADIO CONCERTS

Actors' Equity Association Adopts Resolution Advising Members to Seek Compensation

Following the publication in *The Billboard* two weeks ago of a warning to the effect that the free concert broadcast by the radiophone companies were injuring show business, the Actors' Equity Association last week went on record as opposed to its members giving ethereal performances without proper compensation. A resolution to this effect, adopted by the council of the Actors' Equity, read:

RESOLVED: That the attention of our members be drawn to the fact that the radiophone is a profitable commercial enterprise, which also in a way enters into competition with the theatre, and that, therefore our members be advised to seek proper compensation for any services they may be invited to give to the radiophone companies.

In explaining the Equity stand in regard to what they term the "radiograph", Mr. Paul Dullzell, assistant executive secretary, says:

"The General Electric Company and the Westinghouse people have been getting in on a lot of good stuff for nothing. Also the general electrical appliance houses. The radio concerts are a money making scheme and the artists who make them possible should be compensated.

"Heretofore the understanding has been that the advertising afforded the actor and the singer is of great advantage to them. For instance, they are told impressively that an audience of 400,000 has its ears clamped to the receiving apparatus all over the land and sea.

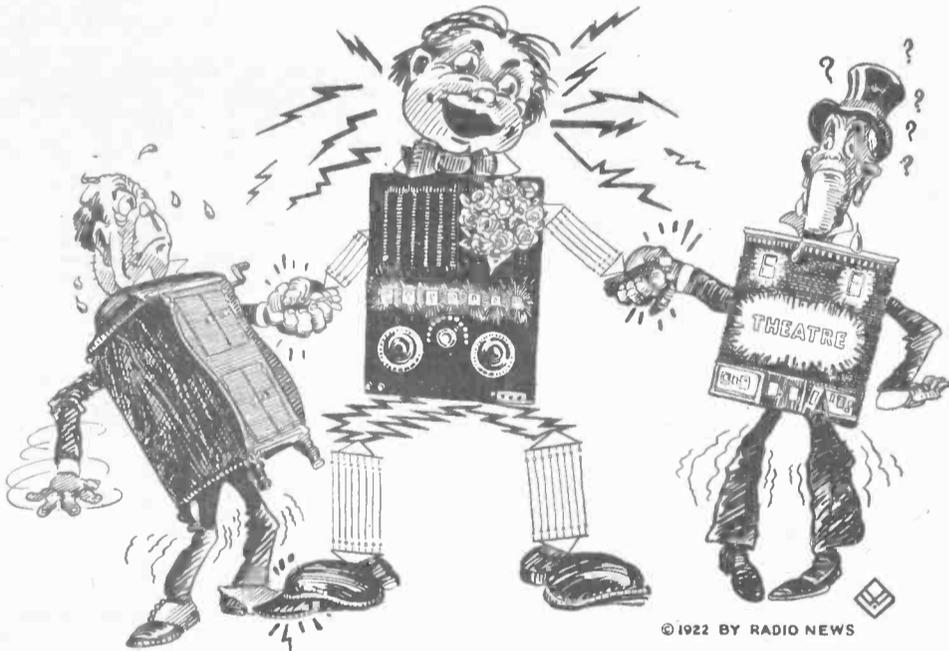
"I can see where the vaudeville managers already have just complaint. If this thing grows—and it bids fair to assume enormous proportions—there will soon be no incentive to go to the theatres. When audiences can hear everything in their own homes they won't have to go out to be entertained. What they will miss in stage settings and the personality of the actor will be made up by the novelty of the radiophone itself.

"We considered this a matter of such importance that at the meeting of the council last week it was resolved to suggest to our members that they seek compensation for ethereal performances."

E. F. Albee, head of the Keith Circuit, in an interview with a daily paper this week was quoted as saying that appearances for the radiophone by Keith artists was a violation of contract.

### THE RADIOGRAFT

The Radiograf is a wonderful invention and is enjoyed by hundreds of thousands of people. A good many prominent actors and actresses have



©1922 BY RADIO NEWS

Kid Radio is Not Old, But is Now Very Strong and it Seems That the Phonograph and the Theatre Are Somewhat Afraid of Him. Are Their Fears Justified?

selves, will not deny that radio is their great competitor. It costs money to buy phonograph records once you have the machine. It costs nothing to have all the music in the world which you desire, once you have a radio outfit. But there is no reason in the world why the two should not get along harmoniously even as conditions are now.

You will no doubt find, during the next two years, that every phonograph store will be selling radio appliances. In many cities throughout the east they are already doing this, having been driven to it by lack of business. The leading phonograph trade journal now has a radio section. The logical upshot of it all will be met when the phonograph interests instead of opposing radio open their arms and welcome it. One of the largest phonograph manufacturers already has seen the light after having seen the "handwriting upon the wall." *Beginning this fall, he will equip all his phonographs with radio.*

A representative from another large phonograph company came in to see the writer the latter part of March and wanted to know where he could buy 10,000 small crystal sets that were, as he put it, "absolutely fool-proof" and which outfits were to be placed in the company's phonographs. He wanted delivery in two weeks!!

been invited to speak into it and have done so without charge. But now we learn that it is entering into competition with the theatre, since citizens prefer to sit at home and be entertained for nothing rather than go out into the night and spend their good money for theatre tickets. In order to draw the attention of our members to this matter the Council has passed the following:

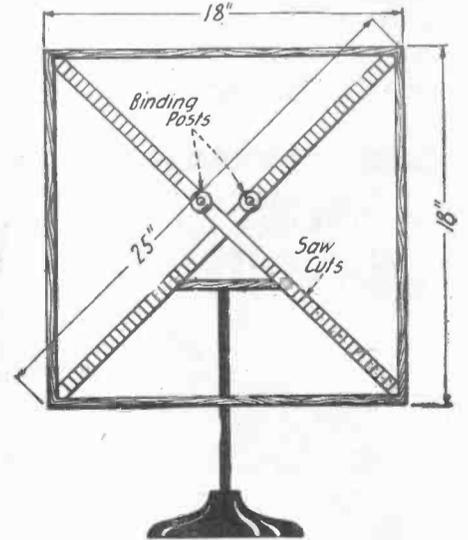
"Resolved, that the attention of our members be drawn to the fact that the Radiograph is a profitable commercial enterprise which also in a way enters into competition with the theatre and that therefore our members be advised to seek proper compensation for any services they may be invited to give to the Radiograph Company." The Radiograph Co.—FRANK GILLMORE, Executive Secy.

(By the way—what is a Radiograph?—Editor.)

Of course, anyone who thinks about the matter calmly must appreciate the fact that if anything, radio certainly gives the theatre, the actors, and the singers, the best possible advertising that they could ever think of having. Think of an audience of 300,000 people listening to a singer! What better advertising could there be. And some of these 300,000 people when they get to town, as they invariably do, will wish to see or hear that singer in person. The radio audience is not always a radio audience; it frequently becomes a theatre audience as well. To think that a radio man is shut in all year around is ludicrous.

Even the most ardent radio fan after listening in for five or six days in the week will wish to go to a show on the seventh day. One of these days the theatrical interests will wake up to the fact that in radio they have the greatest possible and the very cheapest advertising medium they ever dreamt of in their wildest dreams. We predict that within a year the waiting list of our broadcasting stations will be so great that it will take months for our great singers and actors to be accommodated.

Radio News for June, 1922



Good Results Will be Obtained at Short Distances With This Loop, Using One or More Tubes.

### HOW TO MAKE A LOOP ANTENNA.

Many amateurs living in apartment houses are handicapped in their erection of an an-

(Continued on page 6)

# LETTERS

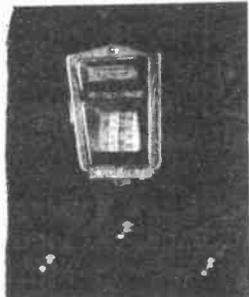
## EDITOR'S MAILBAG

Dear Jim:

Renew my subscription to The Horn Speaker for another year. I have collected a few more radios since I wrote you last year. They are listed as follows: Ware type-W - Garrod RAF-Parmax - Miraco Super-6, Tuska-305 and 228 - Murad MA 13 with loop and Western Electric 7A amplifier also have collected all Riders Manuals also the Radiotron Manual except Vol. 23. Not bad as I only started collecting radios as of Oct. 1973. That's all for now. Keep up your good work in your paper. Always glad to see The Horn Speaker come to my mail box.

Thank you,  
Julius H. Pilger  
K2KCB  
123-09 18th Ave.  
College Point NY 11356

TURN  
BACK THE  
DIAL



April 23, 1938

by Fred L. Davis

Favorite Children's Programs as reported by a RADIO GUIDE survey.

1. Singing Lady (Irene Wicker)
2. Coast To Coast On A Bus
3. Mickey Mouse Theater of the Air
4. Kaltenmyere's Kindergarten

### LEYDEN JARS



The Leyden Jar will intensify the spark of the transmitting coil.

Our Leyden Jars are of the very best quality in every respect. The glass is especially made for this purpose, and allows very little brush discharge. The covers of the jars are of polished oak, and the brass ball and rod are gold lacquered.

List No.	Price
486 1/4 Pint Leyden Jar.....	\$2.50
487 1 Pint Leyden Jar.....	3.00
488 1 Quart Leyden Jar.....	3.50
489 2 Quart Leyden Jar.....	4.00

List No. 486

Manhattan Electrical Supply Co., 1919

5. Let's Pretend
6. Little Orphan Annie
7. The Lone Ranger
8. Don Winslow of the Navy
9. Jack Armstrong
10. Our Barn
11. Malcolm Claire
12. Dick Tracy
13. Dear Teacher
14. Purv Pullen
15. Tom Mix

Notes on the above: Singing Lady was voted #1 for the third straight year. The #2 show "Coast To Coast on a Bus" had been #5 in 1936 and #4 in 1937. The Mickey Mouse Theater was a new show.

Several weeks ago, Colonel Stoopnagle and Budd decided to split up after being together for a number of years. They say that the reason for their parting is they were having a tough time getting a sponsor and felt they could each do better alone. The Colonel is now heard on a new show over WOR and the Yankee Network in the East every Sunday evening, and Budd is heard over the Mutual network on Friday evenings in a program called "What's My Name?"

## Club News

### SOUTHERN CALIFORNIA ANTIQUE RADIO SOCIETY

There's a new club, the Southern California Antique Radio Society. Had a great first meeting September 4. Grant Manning is President Pro Tem, and interested people can get information from Alan Smith, 6712 Bisby Lake Ave., San Diego CA 92119.

Looks like a real live bunch!

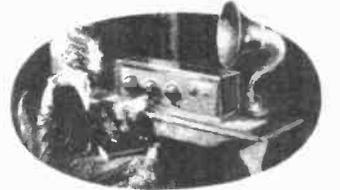
Thanks to Morgan McMahon for this information.

### THE BUCKEYE ANTIQUE RADIO AND PHONOGRAPH COLLECTORS' CLUB

The club is preparing to discuss plans for their upcoming Mall show (November 19, 20, 21) at Chapel Hill Mall. An address for the Club is: Ken & Barb Spriggels, 293 Sundale Rd., Akron, Ohio 44313.

## Old Radio Treasures

There's a rare old radio waiting for you somewhere. Here's how to have year-round fun discovering valuable old sets in your attic, local swap meet or antique barn. You'll enjoy McMahon's fascinating books, truly fine collector's references.



VINTAGE RADIO, 1887-1929: Pictorial story of pioneer days, 1,000 photos, 263 pages. \$10.95 hard-cover, \$8.95 soft.

A FLICK OF THE SWITCH, 1930-50: Fun picture reference of home, military, Ham, professional radio-TV-electronics, 312 pages. \$10.95 hard-cover, \$8.95 soft.

RADIO ENCYCLOPEDIA, Gernsback's 1927 classic beautifully recreated, 175 pages. \$14.95 hard-cover, \$10.95 soft.

RADIO COLLECTOR'S GUIDE, 1921-32: Data book with 50,000 facts on 9,000 models by 1,100 makers, 264 pages, \$6.95.

1926-38 RADIO DIAGRAMS: Beitman's classic of 600 models, 240 pages, \$7.00.



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 FREE! Age Guide with each order. FREE!

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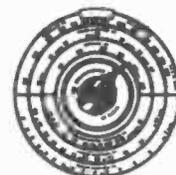


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1922 ad

1922 ad

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- 1920 The Wireless Experimenter's Manual By Elmer Bucher Brother book to above RARE design and construction (how to build) ALL MARCONI'S equipment from each component to his complete station, a step-by-step analysis to show Radio Amateurs Radio Communication (started here) 358 pages, 14 chapters, over 244 illustrations, RARE Marconi wiring diagrams, other early manufacturer's such as De Forest, Grebe, Weagant, Poulsen, (try and buy the originals) all in museums...most comprehensive manual printed...all details.....\$19.95.
- 1924 POPULAR RADIO HANDBOOK NO. 1. By Banning and Cookaday, All details How to construct and build crystal sets, one thru five tubers...all circuits, Book was the result of all their radio projects published in Popular Radio Magazine/newspapers, excellent for unknown kit radios, 100 pages.....\$6.95.
- 1923-1924 Electrical Research Laboratories Bulletin No. 17 and 18 ERIA Due-Reflex circuits/Scientific Audio Amplification, all design and construction plan of how to build these early radio stages, 20 pages.....\$2.95.
- 1924-25 Modern Radio Reception, By Charles R. Leutz A step by step detail analysis of all his works, How to build Regenerative, Super-hets, Pliodyne, Laboratory, transmitting data and equipment: He used parts from 17 major sources and made the first Classic Hets, Super Hets, Models C7, C,Palmar,Super L, C-10, S, J, type T22, Cunningham tubes all types, Rare Diagrams of Western Electric Equipment, Gen Electric and Radio, over 260 of the finest well illustrated diagrams test equipment, Complete Chapter on His law suit RCA, 345 pages...\$19.95
- 1924 Radio Reading Course with 5 Lecture Books, By Prof. J.H. Morecroft, We combined five books into one that covers Theory, Design, Construction, Operation, Maintenance, most authoritative on Radio Telephony, for gen. public to clear up misconceptions of radio experts during wartime and after, 188p...\$9.95
- 1927 RADIO KEY BOOK, By E.N. Rauland How to build models: All-American, All-Amax Jr., Sr., Browning Drake h-7, Roberts-5-tube, Toroid, Luxury, Raulands, and 25 other radios, well illustrated, all details...ONE OF THE BEST REF. WE USE, 50p \$3.95
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- 1932-33 EMRO RADIO Catalog, 100 8 1/2 x 11 well illustrated, Radios: EMRO cathedrals, Washington Batt.-types, Crosley Johnny Smoker, Air King, Supreme, Jewell, Monarch, Savoyette, Grebe MU-1, Globe, National, RCA, Superior, best selected types, 100p \$7.95
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- 1927-28 RCA Sales Booklet, By Strawn Merch. Co. Texas, RCA'S: 16, 18, 30-A, 51, 60, 62, 64, all later access., Spkrs: 100-A,103,106, tubes, 28 pages.....\$2.95

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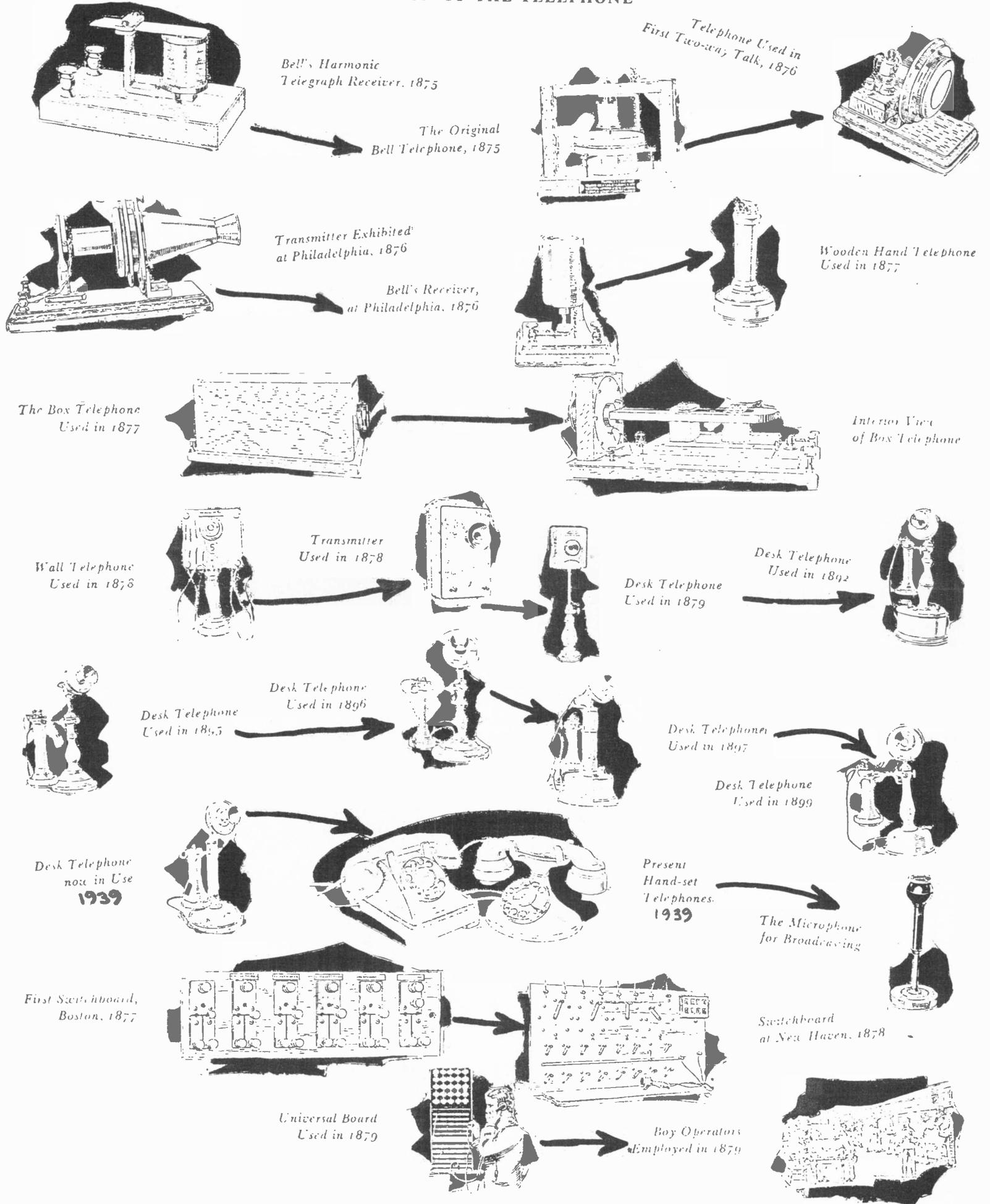
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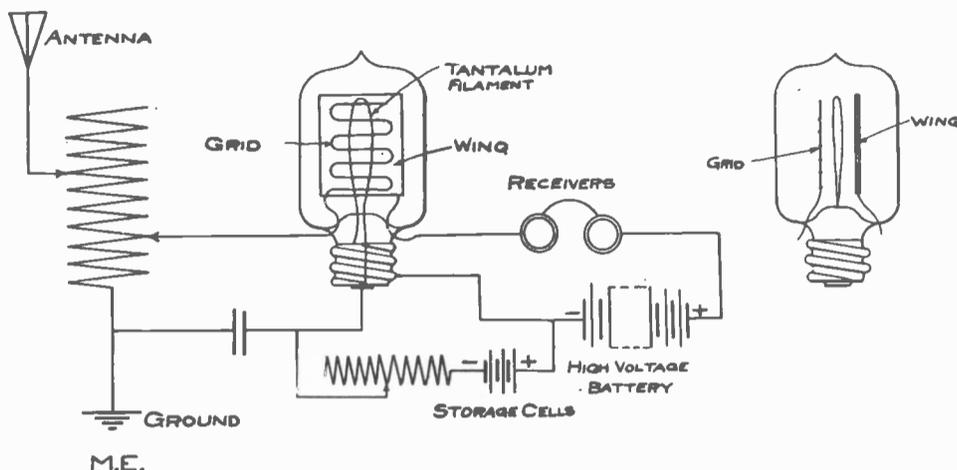
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By JOHN L. HOGAN, JR.



Two methods by which a sensitive column of conducting gas may be used as an oscillation responder have been considered in the Flame and in the direct current Arc\*.

It has been found that the gas column is a most delicate medium upon which to build the trigger action of a responsive device. But it has also been found that the conducting gas flame and the arc are unsteady—that their very sensitiveness operates against their practical efficiency because they respond emphatically not only to Hertzian waves, but to *air currents*. This of course makes them useless for commercial wireless.

The extreme delicacy of the gas detector of course renders it sensitive not only to complete starts and stoppages of received electric waves (as in wireless telegraphy), but also to slight *variations* in them. Therefore the apparatus may be believed highly suitable for aerophony, if it could be caused to respond to Hertz waves only, and kept from hissing and rattling in the telephones at every gust of wind.

It was found, over twenty-five years ago in Germany, that if a metallic plate and a filament were sealed side by side in an evacuated globe, a current could be passed from the filament to the plate while the filament was lighted, but not otherwise. After a long series of tests

it was discovered that the hot filament emitted a flow of ions which carried the current from filament to plate. This flow is exactly analogous to that in the gas flame and in the arc, but for a long time it was not considered that it could be used as a nearly ideal wave detector.

After several notable steps of development by different workers, the device now known as the Audion was produced. This has been modified and so changed in the course of its growth that there are now some six or more distinct varieties. In all these the operating principle is the shattering of a column of conducting gas by a received electrical impulse. But, unlike the flame and arc detectors, the gas column is protected from air currents by the globe of the Audion-lamp, so it is evident that the great difficulty mentioned above has been eliminated.

The most sensitive type so far designed is called the Grid Audion. This is usually a six-volt low candle-power incandescent lamp with a tantalum filament, having a small platinum plate (about 10x15 millimeters) fastened approximately three millimeters from the filament, and a "grid" bent from rather large (say number twenty-two) platinum wire placed nearly midway between the two. The filament is lighted by three small storage cells, whose output is varied by a rheostat having continuous smooth adjustment. From the positive terminal

of this storage battery a wire is led to the adjustable high voltage battery of the telephone circuit, as shown in the diagram. The two leads from the tuning apparatus are respectively connected to the grid and to the negative side of the storage cells.

It has been definitely stated that the Audion is a potential operated device. But on the same authority it is said that the Audion is dependent for its response upon the total energy received, so the class to which the apparatus really belongs is somewhat hazy.

It is undoubtedly true that the Audion, when in its best condition, is highly sensitive and that it is therefore well suited to aerophony. But unfortunately the sensitive condition is extremely difficult to find and still more difficult to maintain. Some Audion-tubes show an extraordinary sensitiveness at first, but quickly grow dull when in use. Other lamps are nearly worthless from the beginning, and none remain sensitive very long.

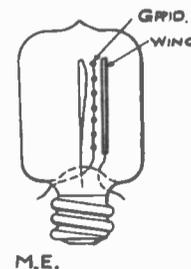
The Audion is capable of being developed into a really efficient detector, but in its present forms is quite unreliable and entirely too complex to be properly handled by the usual wireless operator. The principles involved are of the utmost importance, but their application is crude and irregular.

The Audion offers another fascinating field for investigation and improvement, and it is to be hoped that it will be taken up and the work so well begun carried to a satisfactory conclusion. For aerophony a detector is needed which will reproduce with fidelity the higher harmonics of the voice. The Audion, when carefully handled, is such a detector, but the best adjustment is so very critical that the manufacturers of aerophonic apparatus have found that almost no demand for the tubes exists, and are therefore supplying crystalline thermoelectric detectors with their outfits. This fact, together with the unsatisfactory results of tests made by the Government and by one of the foremost wireless companies in America, would seem to indicate that as yet the device is not to be absolutely depended upon and is therefore not to be used in the serious undertakings of aerophonic communication.

Modern Electrics, October 1908

## AUDION.

We hasten to correct two mistakes made in Mr. J. L. Hogan's article of the "audion" in the October issue. Our artist when showing a side view of the instrument made a slight mistake. The grid should be placed *between* the filament and wing as per our illustration herewith.



The last words of Mr. Hogan's article should read thus: "In the serious undertakings of radio-communication."

Modern Electrics, November 1908

## TELEPHONE

readily removing it from the mouth when not in use. A cloth band passes around the back of the head to hold the apparatus in its proper position. The compound magnet is covered with silk or other suitable material. This covering conceals the primary and secondary wires and protects them from injury.

The transmitter consists of a non-conducting mouthpiece, and a chambered hemispherical block containing two semicircular plates of carbon insulated from each other, and connected by a wire with the two metal pieces forming the yoke which supports the mouthpiece. A plane disk of carbon rests upon the two semicircular carbon plates and is free to vibrate upon them.

The primary current passes through the yoke and through the carbon disk and the two semicircular carbon plates. The variations of contact produced between the three carbon surfaces by the action of sound waves on the carbon disk disturb the primary current, inducing undulatory currents in the secondary wire of the induction coil.

The primary and secondary circuits differ little from the common practice. Mr. McDermott has dispensed with a special call bell magnet, using the magnet of the induction coil for the purpose of operating the bell hammer armature. This arrangement of telephone transmitter and receiver possesses many obvious advantages; for example, it would be very convenient in cases of writing by dictation, or of stenographers recording speeches. Persons may remain at home listening to public addresses, sermons, or concerts, sitting comfortably and listening without the slightest inconvenience.

This invention enables two persons to carry on a conversation as readily as if they were in each other's presence. As the entire apparatus weighs but a few ounces, its weight is not at all noticeable. It is unnecessary to point out the further advantages possessed by this novel arrangement, as they will be apparent to those understanding the requirements of telephonic communication.

Scientific American, November 27, 1880

tenna by lack of space. I have constructed a loop aerial as shown in the diagram and obtain very good results with one vacuum tube detector.

To construct this loop, two laths of wood 25 1/2 inches long should be obtained. A notch is cut in the center of each and they are joined together to form an "X". Four laths of wood each one-eighth inch long are nailed across the extremities of the cross supports to form a square. Commencing 3/4 inches from the center, saw-cuts 1/2 inch apart are made on both edges of the cross support beginning at the first or inner saw-cut. No. 22 D.C.C. wire is wound tightly in a clock-wise direction to the outer edge. The loop is then turned over and the wiring continued in an anti-clock-wise direction back to the first saw-cut on the opposite side. Two binding posts are fastened to the cross supports to which the ends of the wire are connected. A strip of wood is fastened across the two opposite legs of the cross supports. A hole is bored of corresponding size in the center of the bottom protecting piece and a dowel is inserted to permit the loop to revolve.

Contributed by CECIL GUYATT, Brooklyn, N. Y.

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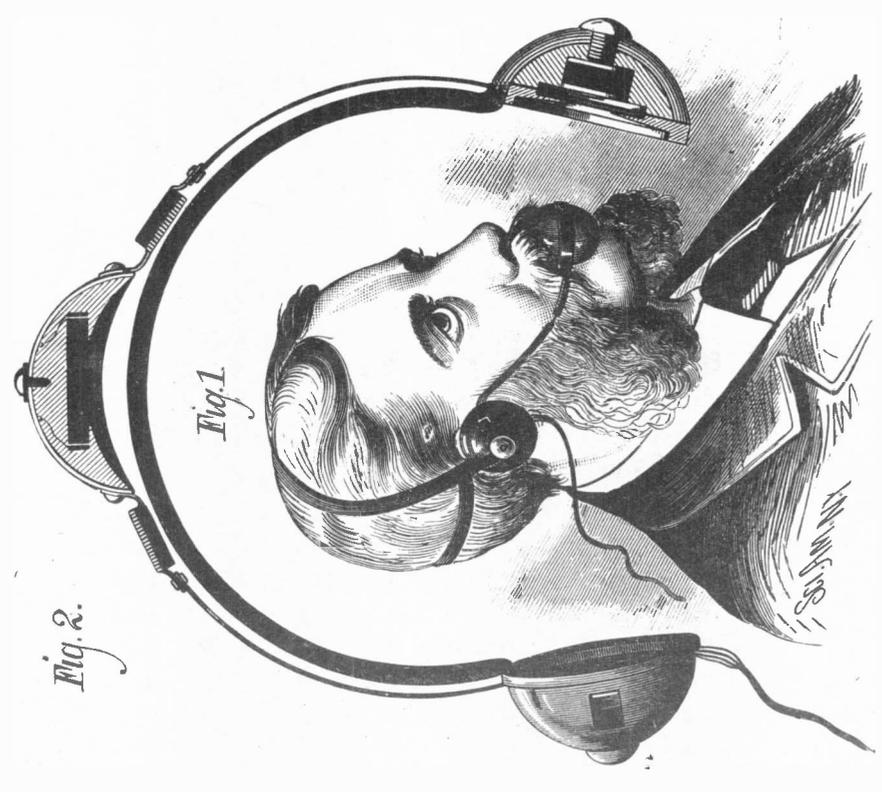
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**THE HORN SPEAKER**  
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McDERMOTT'S TELEPHONE.

TELEPHONE.  
The engraving shows an improved form of telephone receiver and transmitter, and a very convenient combination of the two instruments, lately patented by Mr. John P. McDermott, of Galveston, Texas.

The combined instrument is designed to be worn upon the head, as shown in Fig. 1, so that the user may hold telephonic conversation without regard to position, and listen without fatigue or inconvenience to lectures, concerts, etc. This arrangement possesses the advantage of excluding extraneous sounds and of preventing bystanders from hearing

what is said in the transmitter. The receiver magnet consists of thin strips of magnetized steel having a U-form and adapted to the head. The ends of the magnet are curved to receive the support for the diaphragms, mouthpieces, and bobbins. The iron cores of the bobbins are inserted in the curved portion of the magnet. The transmitter is attached to the receivers by a swinging elastic yoke, which renders it adjustable to the mouth of any user and admits of

6888 Commonwealth Blvd.  
Parma Heights, Ohio 44130

**The Horn Speaker**  
Box 12 Kleberg, Texas 75145

(Continued on page 5)