

THE WORLD OF RADIO

Navy Liberal With Licenses

More Consideration to Be Given to Experimenters Than Radio Sellers.

Washington, Dec. 26.—Practically every applicant for license to manufacture radio sets under the Von Bronk-Schloemann patent who owns a patent under which a cross-license can be granted to the Navy Department will receive one.

It is the plan of the navy to pursue a very liberal course in granting licenses under the radio patents. It is estimated that in the neighborhood of 115 applications have been received by the navy for licenses.

One of the factors to be taken into consideration in granting licenses is the extent of experimental work being done by the applicant. In other words, an applicant who maintains a laboratory and is actively engaged in promoting the art will receive more consideration than one who is merely engaged in manufacturing and selling sets for profit.

There are two outstanding facts in connection with the applications for licenses under the navy radio patents. One is that within a very short time a large number of new short sets may appear on the market. The other is that there is a tendency on the part of automobile manufacturers to enter the radio field. Several applications have been received from this class stating a desire to manufacture radio sets.

It is believed that a month or two will be required before licenses are granted.

Protector for Tubes.

To protect expensive vacuum tubes from burning out place a 15 or 20-watt electric lamp of the common 110-volt type in series with the "B" battery, so that the current must pass through the lamp before going to the set. This will protect the tubes in case of a short circuit.

Loop Turn Spacer.

A hardrubber comb if mounted at the ends of the loop frame makes an excellent wire spacer and holder. If only a few turns are to be used then place the wire in every other slot, to give the loop as large a surface as possible.

Proper Method of Soldering.

The proper way to use old solder is to first make the joint as tight as possible and then use a minimum of solder to hold the joint together.

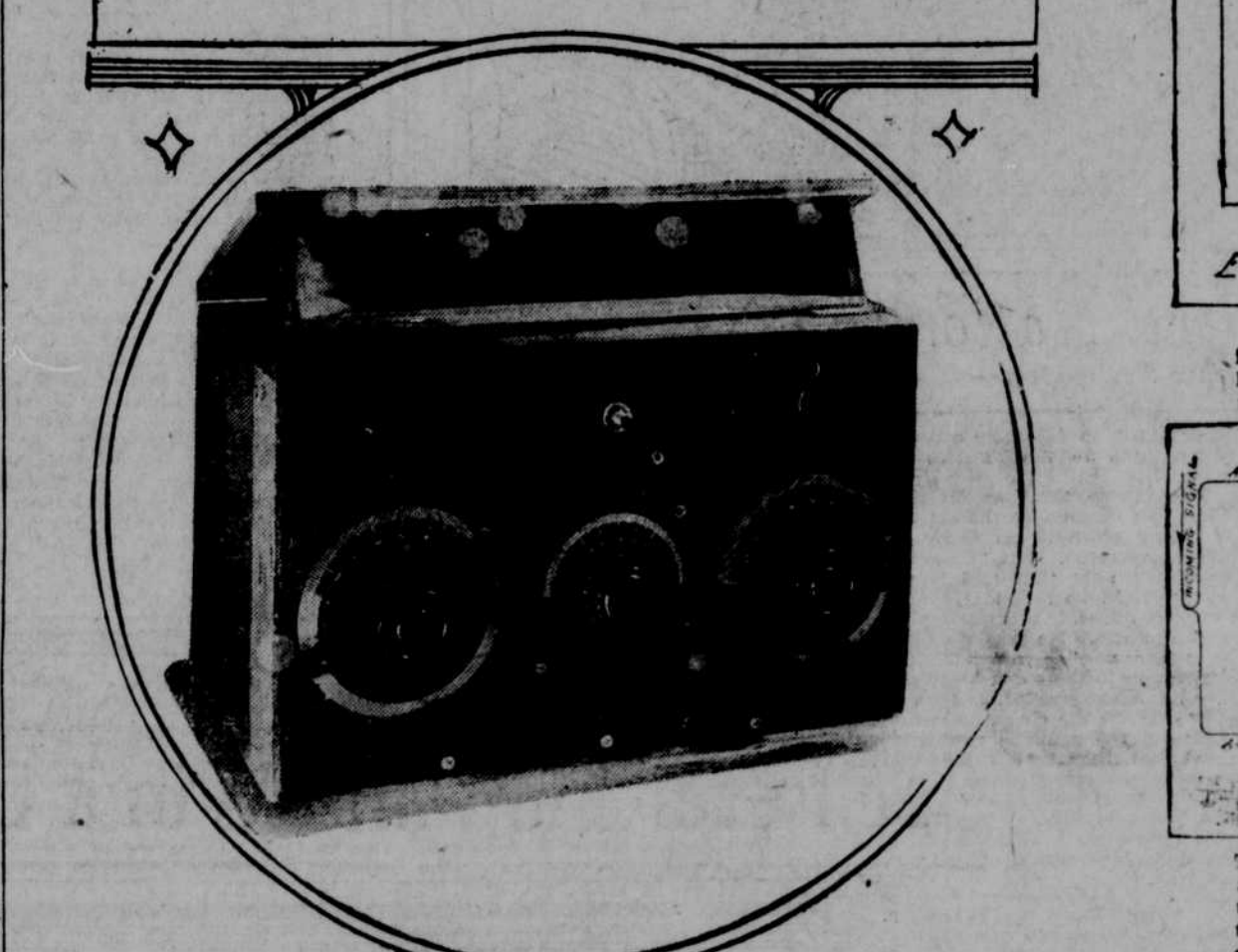
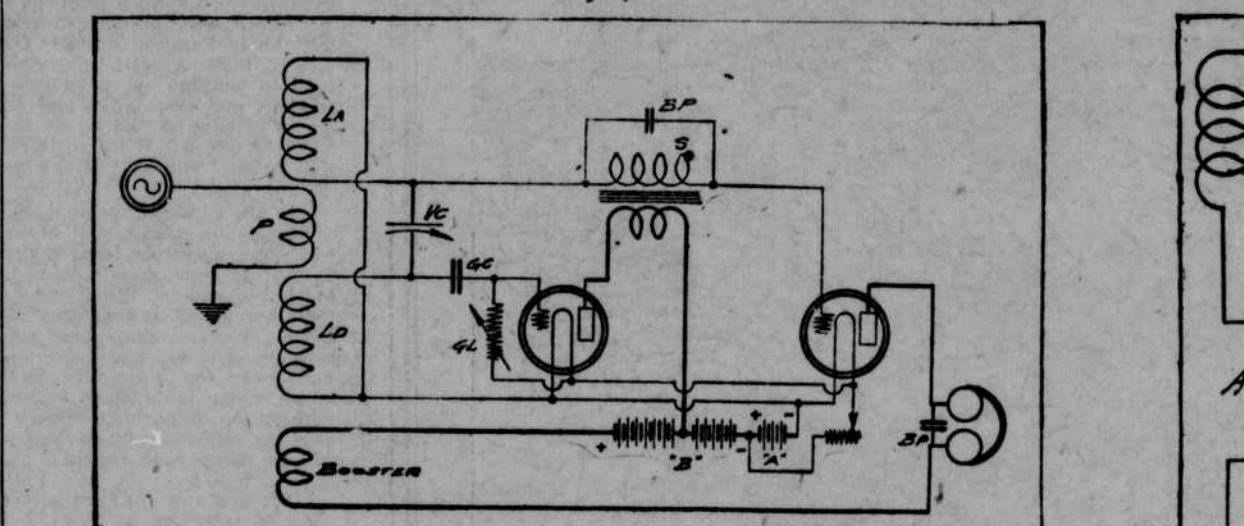
WOAW PROGRAM

- Saturday, December 27.
- 4 P. M.—Stories for children by the original radio "Peter Pan" Miss Norma Mach, who appears in character in the program in the phonograph production of John M. Barrie's "Peter Pan" at the Grand theater the week of December 25.
 - 5:15 P.—Dinner program. Ask Struts orchestra of the Empress Hotel.
 - 6 P. M.—Under auspices of the Omaha Printing Company. Supply the following program arranged by Clifton R. Miller.
 - Allegro on brio (from quartet in G) Haydn
 - Recess
 - Mrs. Evelyn Reese, first violin.
 - Frieda Faustler, second violin.
 - Miss Reese, viola.
 - Mrs. Marie Donlon, cello.
 - Finno solo.
 - J. T. Wrath.
 - Finno solo, "Rising of the Spring."
 - Gertrude Lawless.
 - (From studio of Helen Macklin)
 - Soprano solo.
 - J. T. Wrath.
 - Marie Brady, accompanist.
 - Violin solo, "Taranella" (1871).
 - Sammy Cannella, age 11.
 - (From studio of Evelyn Reese.)
 - Tenor solo.
 - John J. Gillin.
 - Minuet (from quartet in G Major) Haydn
 - Recess
 - Soprano solo.
 - Mrs. E. B. McQuillen.
 - Violin solo, "Air and Variation" Dancla
 - Benny Stein, age 7.
 - (From studio of Helen Macklin)
 - Vocal duet.
 - Marie Brady, J. T. Wrath.
 - Piano solo, "Pastoral" Scarlatti
 - (a)
 - "Butterfly" Denmore
 - Obetha Kinder.
 - (From studio of Helen Macklin)
 - Soprano solo.
 - Kathryn Ralston.
 - Elizabeth Ralston, accompanist.
 - Adagio cantabile sostenuto (from quartet in G Major) Haydn
 - Recess
 - Baritone solo.
 - Dr. Matthew Severin.
 - Finale presto (from quartet in G Major) Haydn
 - Recess
 - Soprano solo.
 - Mrs. E. B. McQuillen.
 - Contralto solo.
 - Dorothy Minturn.
 - "Music of the Night" Rubenstein
 - Recess
 - Vocal duet.
 - Ralston sisters.
 - Piano solo.
 - Dr. Matthew Severin.
 - Soprano solo.
 - Kathryn Ralston.
 - Elizabeth Ralston, accompanist.
 - Intermission.
 - 11:15 P.—"Woolly Bear" by Frank Hodes, Jr. and his Omaha Nightingales, transmitted from Woolly bear at Roseland garden.

Hoyt's System of Signal Augmentation Graphically Explained; All Necessary Accessories Contained

By A. J. FARAOON.

All who are familiar with Armstrong's system of regeneration know that there are several methods of accomplishing this result: for illustration, by the tickler feed back arrangement, or by the well known tuned plate circuit, employing a variometer or tuned impedance in the plate circuit of the tube. This same condition applies to the augmentation of the a. m. degree have been attained. A careful study of this figure, which has been made in schematic form to facilitate ease of analysis, will be of value to those who are either interested in this circuit from a technical point of view or to those who contemplate building and experimenting with the circuit when the turn ratios and various circuit constants are explained simultaneously.



A commercial application of the two-tube augmentor circuit, with all necessary accessories self-contained. The schematic diagram of this receiver is incorporated in the layout at the top.

There are several methods of accomplishing the desired result. This must not be taken to mean, however, that the plate circuit can be tuned or that a variometer may be employed. The statement implies that there are other methods by which augmentation may be secured through circuit arrangements differing from the fundamental circuit of last week. These circuit arrangements constitute the basis of one of the patent applications on signal augmentation as developed by Mr. Hoyt, and will be explained in next week's issue.

Commercial Adaptation.
The fundamental circuit shown in last week's issue of this paper, while constituting the basis of all of the augmentation circuits, is only the stepping stone to wider and more economical applications of this principle.

The two tubes employed in the fundamental circuit afforded the equipment of a detector and a radio frequency amplifier (although more efficient than the conventional stage of radio frequency amplification). The circuit which is about to be shown and described goes the circuit of last week one better, in that the radio frequency or augmentation tube is now the first stage of audio frequency as well. This may be taken to be reflexing—perhaps it is—but here again there is something to analyze, and, above all else, certainly food for thought.

By the circuit arrangement illustrated in Fig. 3 efficiency and economy to

exists. This is due to the fact that commercial grid condensers have a certain inherent leak value, that is, they have a certain definite unavoidable ohmic resistance. This is seen from the fact that any receiver will work (to a greater or lesser degree) with the grid leak removed. If the grid condenser did not have direct leakage resistance it would be impossible for the receiver to function, as there would be no path for the accumulated electrons on the grid of the tube to leak off to the filament and the grid would be maintained at a negative potential as a result. Now, since commercial grid condensers do possess a leak value, we must con-

junction is, therefore, made to the negative side of the filament and supplies the right bias for the operation of the augmentation tube, while the grid leak is connected from the positive side of the filament to the grid of the tube, between the grid terminal and the grid condenser. In this way the grid leak acts as leak and biasing means simultaneously.

From the foregoing paragraph it will be seen that complications set in, and an explanation of the theory involved will perhaps not be amiss at this time. It has been said above that the detecting qualities of the average tube are about twice as good as when a positive bias is applied to the grid; this comes as a result of the grid-voltage-grid-current curve of the vacuum tube, that is, as a result of the shape of this curve.

Correct Grid Values.
Some one has said that the correct values for the grid condenser and grid leak with modern tubes comes with the product of the capacitance in micromicrofarads and the resistance in millions of ohms equals approximately 200. This statement seems to be about right in practice, while an examination of the scientific theory of a vacuum tube shows that it is desirable to use as high a value of each as possible.

As was said before, in the augmentation circuit a peculiar condition

sequently have a bias applied to the grid of the tube through this condenser resistance. This brings us to the situation where we have a pair of resistances in parallel, as will be seen from Fig. 4. In addition we have two biasing sources to the detector tube grid, one positive and the other negative. This is not a serious condition by any means, but one which requires attention.

Variable Leak Necessary.
The manufacturer of sets employing this circuit can readily select the proper grid leak value for any given set, and for this value a fixed leak may be employed. But in the case of the experimenter and the individual constructor it is highly desirable that a variable grid leak (an accurate one) of at least six megohms range be used with this circuit. Various grid leaks were used in early experimentation on this receiver and leak values of varying magnitude tried. The final

OCEAN LINER HAS PASSENGER RADIO

The Canadian Pacific liner Montclare is the first steamer to be fitted up with a ship's orchestral repeater which will enable music played in a salon to be heard in other parts of the ship. On its last trip out from Liverpool the Montclare had installed a microphone transmitter, and music played in the lounge was successfully transmitted to other common rooms in various parts of the ship. With the aid of the transmitter ocean travel can be made much more pleasant for all types of passengers, as orchestral music, concerts and addresses occurring in the cabin lounge and cabin dining salon can be relayed to the third class lounge and third class dining salon.

RADIO DIFFER SEASON TO SEASON

A receiving set will not act precisely the same on any two days or nights. Messages are received better after dark than in the daytime, because radio waves do not travel so strongly by daylight as they do by dark. In general, better reception occurred during cooler months than during the warmer ones. This is because atmospheric conditions peculiar to the seasons have a marked effect upon radio waves. It is constant variation in atmospheric conditions that make radio reception also vary from night to night. The more favorable the atmospheric conditions the better the reception.

JAPS REMOVE BAN ON BROADCASTING

Announcement has been made by the Japanese government that the ban on radio broadcasting had been lifted, and that radio programs are now permitted on the part of the general public without government interference after that date.

Radio Cheers Long Day at Dawson, Alaska

Residents of Dawson, Yukon Territory, Alaska, find the long pole days less irksome when radio programs are received.

RADIO ASSISTS WEATHER BUREAU

Quicker distribution of weather forecasts and warnings, due to radio development and increased efficiency and economy in service, are described as the outstanding achievements of the weather bureau in a review of its activities during the last fiscal year.

Chicago Radio Program Is Heard Underground

Underground reception of a Chicago radio station by a radio fan of California was revealed in a letter received by Edgar L. Bill, director of WLS, Chicago. The communication was from A. F. Twitchett, 415 Moultrie street, San Francisco, Cal. It said: "I listened to a program from WLS, at Chicago, on a 58-foot underground antenna six inches under the soil on a Neutrodyne set. Have you ever heard of this kind of reception before? The concluding number on the program was 'Home, Sweet Home.'"

Recharging Dry Cells.

Dead dry cells can sometimes be recharged by boring two holes in the top of the cell, on opposite side of the center connections, each one-quarter inch in diameter and three inches deep. Fill these holes with cider vinegar or a 20 per cent solution of sulphuric acid and water, then plug up the holes with paraffin wax to prevent evaporation.

The Emery—Dust!

Variable condensers, tube sockets, audio frequency transformers and binding posts on a panel should be kept free from dust. A soft rag can be used to wipe away the grime on the outside of the instrument and ordinary pipe cleaners for the dust between the plates.

Causes of Whistling.

Whistling is a common fault with tube sets, and is sometimes caused by the lead-in being too close to metal and not properly insulated. A wire connecting the frame of the condenser to ground lead will ground condensers.

Beatrice.—Nearly 200 boys and girls were given Christmas treats yesterday in the firemen's hall, City Commissioner Ellis distributing the good things.

K. C. N. W. Taxes for 1924 Paid

Pawnee City, Dec. 26.—Payment in full of the 1924 taxes assessed against the defunct K. C. N. W. railroad by the receiver of the road is bringing heart to residents of the southwest part of Pawnee county. For many years the road has not been used. In tendering the check of \$2,231.41 to the county treasurer, the representative of the company stated that conditions appeared bright, and that probably with a federal loan the road might again operate. Tax claims by Wyandotte county, Kan., are being argued by the officials, and their settlement has not yet been announced.

Southern Nebraska Railroad Abandoned in War Time May Be Operated Again.

The K. C. N. W. at one time operated from Kansas City to Virginia, Neb., traversing the southwest part of this county. During war times the road was abandoned, and tax claims against the company have attracted much attention. Part settlement of the taxes has been made, and the payment of the full assessment for this year is considered a favorable indication. Summerfield, Kan., at the south edge of this county, was left without train connection by the abandonment of the road, and has served its stores ever since by trucking overland.

CHESS MATCH IS PLAYED BY RADIO

Haverford, Pa., Dec. 26.—For five and one-half hours a group of students at Haverford college recently sat before several tables moving chess men in accordance with the instructions shouted at them by a radio operator in the next room. At the same time, another group of students of Oxford university, England, 3,000 miles distant, were making the identical moves and discussing the same point.

CANTATAS TO BE GIVEN BY PUPILS

Pupils of the Temple Israel and of the City Sunday school will present Chanuka cantatas Sunday. The program for Temple Israel commencing at 2:30 p. m. follows:

Chanuka service, Justin Robert Wolf, Alfred Fiedler, Herman Rosenblatt, Louise Ziegler and Helen Beson. The lighting of the eight candles. Arnold Gilinsky, Ira Rosenstock, Rose Malashock, Jean Pepper, Myron Cohen, Sylvia Ross, Charles Bornstein and Nadine Naken. Invocation, Robert Steffer. Violin solo, Leon Katz; piano solo, Vivian Ross; recitations, Herbert Kaplan and Frances Kott.

The program of the City Sunday school will commence at 10:30 a. m. at the B'Nai Israel synagogue under the direction of Miss Matyve Weinstein.

Business Men Support Demands of Beet Growers

Gering, Dec. 26.—Forty representatives of eight towns in the North Platte valley gathered at the regular monthly meeting of the Associated Chambers of Commerce and voted to support the beet growers in their efforts to secure a better contract from the Great Western Sugar company for 1925. The town of Yoder, Wyo., that has stood aloof from the organization since its birth, made application for membership and was admitted. The chambers also voted to send a representative to the Denver conference regarding operation of the new relief reclamation law.

Beet Want Ads are the best business good things.

STEINITE Gives Distance On Crystal Sets!

RESULTS truly amazing. Everyone is astonished by STEINITE. The best Crystal Set for Crystal Sets. For any standard home S. C. Co. set, use Steinite. It gives you the most distant KDKA - WLS - WOAW - WCAP and WLS. School-only 50¢ set included. See Dealer or Write: STEINITE LABORATORIES, 36 Radio Bldg., ATCHISON, KANSAS.

For those who doubt completion of long distance reception, we have a special offer. Buy a Steinite set and we will give you a Steinite set of the same value as yours and there isn't a Steinite set in the world that will give you more than this.

My Money-Back GUARANTEE. I unreservedly guarantee STEINITE to give better results than you ever thought possible on your crystal set. If you are not satisfied, we will give you a Steinite set of the same value as yours and there isn't a Steinite set in the world that will give you more than this.

Special Offer. Two STEINITE sets for \$1.00. STEINITE is an ordinary receiver. It's an ordinary receiver. It's an ordinary receiver. STEINITE CRYSTALS are being included. See Dealer or Write: STEINITE LABORATORIES, 36 Radio Bldg., ATCHISON, KANSAS.

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STEINITE LABORATORIES, 36 Radio Bldg., ATCHISON, KANSAS.

In the World of Radio

- (Courtesy of Radio Digest.)
- L.H.A.A. Iowa City (484); 3 p. m. familiar hymns.
 - K.P.N. Shonandoh (284); 3 p. m. services. M. 30, songs.
 - W.B. Atlanta Journal (425); 8-9 p. M. and Grace McConnell; 10:45, hired help jubilee.
 - W.C.R. Buffalo (318); 6, music.
 - K.T.V. Chicago (328); 6:30, Uncle Bob; 7, concert; 8, musical; 9, Youth's Companion; 9:30, classical; 10, jazz.
 - N.Y.H.W. New York (425); 8, organ; 8:30, concert; 9, classical; 10, jazz.
 - W.S. Chicago (345); 8, entertainers; 8:15, organ; 8:30, classical; 9, dancers; 9:15, jazz.
 - W.M.A. Chicago News (425); 8, organ; 8:15, jazz; 8:30, classical; 9, jazz; 9:15, jazz.
 - W.P.A. Dallas News (476); 8:30, basso; 9:15, jazz; 9:30, jazz; 10:15, jazz.
 - W.P.A. Dayton (425); 8, organ; 8:15, jazz; 8:30, jazz; 9, jazz; 9:15, jazz; 9:30, jazz; 10:15, jazz.
 - W.P.A. Fort Worth Star Telegram (476); 8, religious; 8:15, jazz; 8:30, jazz; 9, jazz; 9:15, jazz; 9:30, jazz; 10:15, jazz.
 - W.P.A. Kansas City Star (411); 8-7, organ; 8:15, jazz; 8:30, jazz; 9, jazz; 9:15, jazz; 9:30, jazz; 10:15, jazz.
 - W.P.A. Los Angeles Times (380); 8, jazz; 8:15, jazz; 8:30, jazz; 9, jazz; 9:15, jazz; 9:30, jazz; 10:15, jazz.
 - talk; 10, Y. M. C. A. program; 12, orchestra.
 - W.L.A. Louisville Times (400); 7:30, concert; 8:30, concert; 9:30, concert.
 - W.C. Memphis Commercial Appeal (321); 8, lecture; 8:30, concert.
 - W.C.O. Minneapolis-St. Paul (417); 8:30, orchestra; 9, program; 11:15, music.
 - W.C.A. Montreal (425); 8:30, ensemble; 7:30, concert; 8:30, orchestra.
 - W.C.I. St. Louis (279); 7:15, orchestra; 7:45, jazz; 8:15, jazz; 8:45, jazz; 9:15, jazz; 9:45, jazz; 10:15, jazz.
 - W.C.Y. New York (525); 8:30, chateau; 9:15, jazz; 9:45, jazz; 10:15, jazz.
 - W.H.A. New York (425); 8:30, boys; 7, harmony hour; 7:30, orchestra society; 8, orchestra.
 - W.P. New York (455); 8, orchestra; 7, soprano; 7:30, concert; 8:30, dance; 9, jazz; 9:15, jazz; 9:45, jazz; 10:15, jazz.
 - W.C.A. Pittsburgh (425); 8, program; 8:45, orchestra; 9, program; 11:15, music.
 - W.P.A. Philadelphia (395); 6:30, talk; 7, Philadelphia (395); 6, talk; 7, talk; 7:15, concert; 8:15, talk; 8:45, Pittsburgh (326); 6:30, children; 7:30, concert.
 - W.C.A. St. Louis (425); 8, jazz; 8:15, jazz; 8:45, jazz; 9:15, jazz; 9:45, jazz; 10:15, jazz.
 - W.P.A. St. Louis Post-Dispatch (444); 8, symphony orchestra; 11:30, orchestra; 8:15, music; 7:15, Bible talk; 7:30, recital; 8:30, orchestra; 10:15, organ.

"Seeing" by Radio Now Possible, Inventor Says



J. L. Baird and the machine which, he says, makes it possible to "see" by radio.

London, Dec. 26.—A British inventor, J. L. Baird, is said to give a public demonstration of a device which, he declares, makes it possible to "see" by radio.

What the machine really does, it is gathered from descriptions of it, is transmit pictures of moving objects. Still photos of various personages were recently flashed across the Atlantic by radio by means of a device created by another inventor.

In the Baird machine, light from every part of the scene being transmitted, is in succession projected onto a colloidal (fluid) light-sensitive cell by means of shutter-lenses. The fluid cell changes its resistance according to the light falling upon it. The varying current from this cell controls a beam of light which traverses a screen in unison to the passage of the image over the fluid cell, in a dark portion of the scene, or picture, the light is dim, etc. So rapidly does it traverse the screen that the object appears instantaneously to the eye, Baird explains.

The inventor predicts that in time the device can be so adapted as to be fitted to radio telephones, making it possible to talk by wireless to a person in Moscow or Tokio or New York and "see" the person you are talking to.