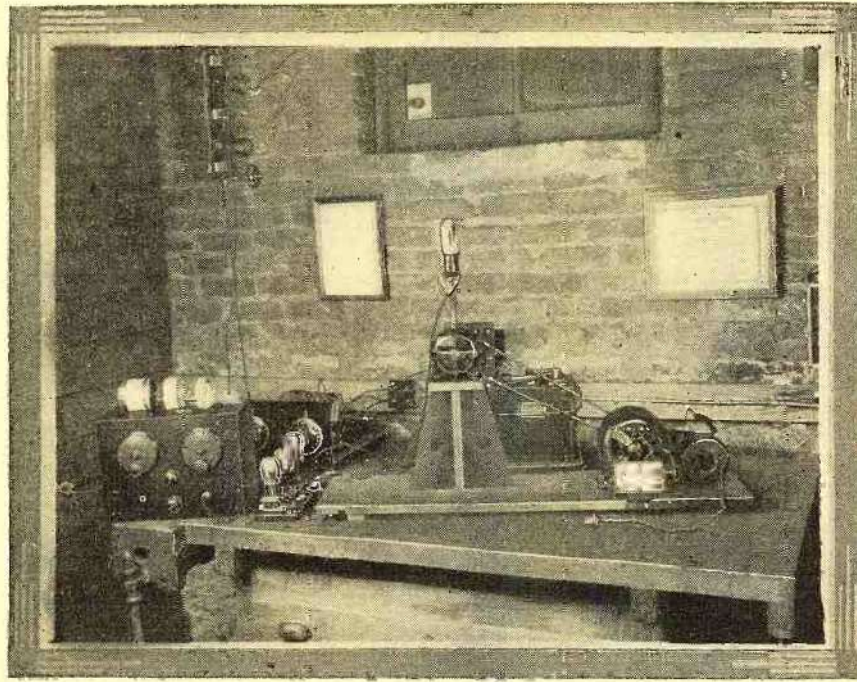


A "ham's" station, with receivers, transmitter and, latest of all, a television receiver in working order. The disc removed for this photo will be seen in that on page 942.



Anton Demikis, Jr., of Chicago, is the owner of this equipment. Among the ideas he is trying out is that of a coil of adjustable high impedance as a speed regulator on the television receiver.

Successful Television Experiments in the Home and Workshop

THE television apparatus illustrated in the photographs reproduced on this page is that constructed by Anton Demikis, Jr., a Chicago amateur (W9EYK) and operated by him with some success. A point of novelty will be found in the control of disc speed; the motor, which is not of the synchronous type, is coupled to a reactance coil (instead of a condenser, as in some models used for television).

Two receivers have been used in this work, to detect the transmissions from station WCFL, Chicago, and on W3XK, the Jenkins Laboratories in Washington. At the distance of the latter, however, fading was conspicuous on the 45-meter wavelength and, with signals at R-3 (new standard), satisfactory images were not obtained with a three-stage resistance-coupled amplifier. The local television, however, was received with good quality on a variety of receivers and with several types of amplification.

A high-quality six-tube commercial receiver, with two transformer-coupled audio stages, did not give an image equal to that obtained with three of resistance coupling and a short-wave receiver. This set, shown at the left in these views, was fitted with a plug-in coil for the broadcast band in order to bring in WCFL at 309 meters. (Behind it will be seen Mr. Demikis' short-wave transmitter.)

The circuit diagram of the apparatus (omitting the standard "B" power unit) is given. The output stage comprises a CX-310 with 450 to 500 volts maximum available from the unit; its output, and the consequent illumination of the neon television-lamp, are controlled by varying the grid bias, which may be as high as 80 volts. Phones are used to enable the operator to tune the receiver to best signal strength, as well as follow announcements made at the station in the interval between image broadcasts.

SYNCHRONIZING THE DISC

With the motor, which operates from the light line, loaded by the reactance coil, the voltage across it is 102; giving 920 revolutions per minute. With an iron plunger inserted into the center of the coil, the voltage may be reduced until the revolutions fall to 890. However, this method is still experimental, as it is difficult to obtain a plunger to work smoothly.

On the other hand, by friction it has been found possible to maintain an image "in frame" for a good period; pressure is applied lightly to the edge of the disc, whose speed is known to be slightly above standard. As the friction becomes more pronounced, the image will be seen to take form and move rapidly downward in its frame. A very slight increase of pressure, now applied, will fix the synchronism. If the image is divided, it may be restored

(Continued on page 942)

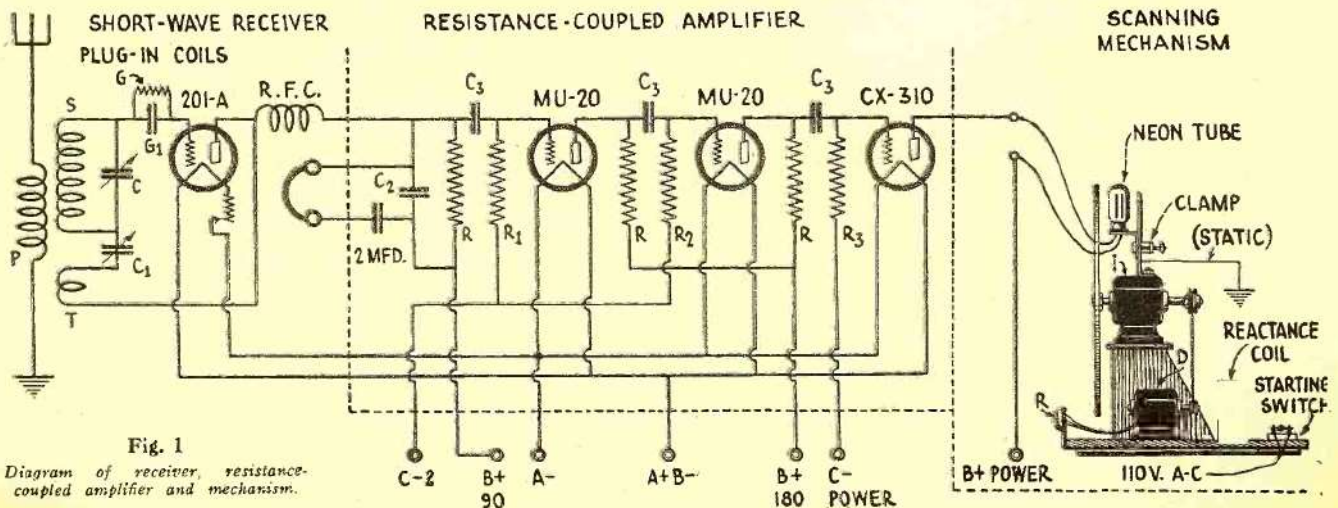


Fig. 1
Diagram of receiver, resistance-coupled amplifier and mechanism.

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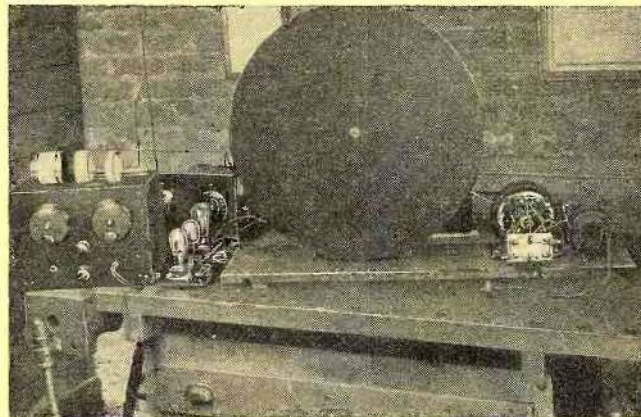
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Successful Home Television

(Continued from page 923)

readily. Decrease the friction, and the image will rise if the speed is too great, or descend if it is not sufficient; in either case, it will be quickly brought to adjustment.

Mr. Demikis, whose station is at 3128 Warren Avenue, Chicago, gives the following figures for the constants of his apparatus, diagrammed herewith (Fig. 1): Coils for short-wave set, primary 8 turns No. 18, S.C.C.; secondary 40 turns, 6 turns No. 18, 80 meters 13 turns, broadcast range 70 turns No. 24 S.C.C.; tickler 6 to 10 turns



Other stations are under construction, or awaiting a final assignment of frequency and hours, like WRNY-W2XAL and WCFL-W9XAA. In these cases the short-wave transmissions had been made simultaneously with those on the broadcast band. By the time that this issue reaches the

A glimpse at Mr. Demikis' television assembled for operation. The constructional data are given in the text.

No. 24 S.C.C.; grid leak, 3-megohm; grid condenser .00025-mf.; variables, C 170-mmf., C1 300-mmf.; choke coil RFC, 150 turns No. 28 D.C.C. on a one-inch tube; C2, .001-mf.; C3, .01-mf.; R, 0.1-meg.; R1, 1-meg.; R2, 0.5-meg.; R3, 0.25-meg. In sketch, I is an idle motor used as a bearing, D the driving motor of the disc, and R the reversing switch.

The reactance coil used, whose dimensions are given, is wound with No. 13 S.C.C. wire.

reader, it is probable that greater activity will be under way in television broadcasting.

The Radio Corporation of America has been authorized to operate at New York a 5-kilowatt transmitter on 20 meters, under the call W2XBW. The short-wave transmitter W4XA of station WREC, Memphis, is on 122.5 meters; that of W6XC, Los Angeles, on 66 meters. (As television channels for short-wave work run up to 100 kilocycles, they are much wider than speech transmission in their tuning.)

TELEVISION SCHEDULES

RADIO NEWS will be glad to hear from other experimenters who have had good results with picking up television signals, and who have found changes or adjustments in the apparatus effective. While

The connections of the regulating mechanism. A plunger iron, by increasing the reactance of the coil, slows the motor accordingly.

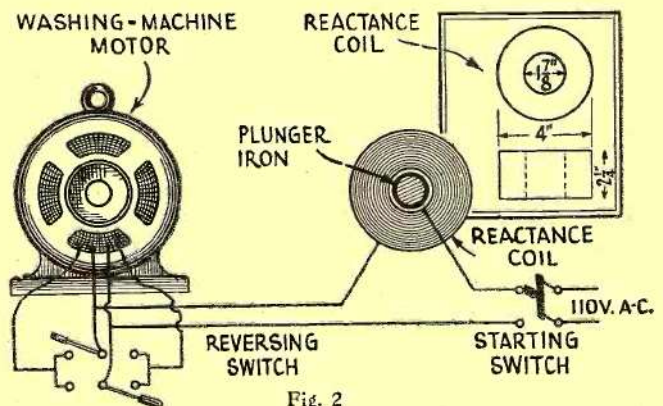


Fig. 2

there has been some delay in the progress of television broadcasting on the longer waves, because of the restrictions placed on this work by the rulings of the Radio Commission, it is still continuing on short waves. Some of the more or less regular schedules reported are:

W1XAY, Lexington, Mass., 62 meters (just below KDKA); "standard" scanning—48 lines, 15 frames a second—3 to 4 p. m. and 7:30 to 8 p. m., E.S.T. Power 300 watts.

W8XAV (KDKA) 62.5 meters, 60-line, 20 frame; largely motion-picture work. 5:10

Experimental visual broadcast channels between 130.36 and 149.76, and between 101.63 and 109.03 meters have also been indicated by the Commission; and for the amateurs, the lower part of the uppermost band (150--175 meters) and the 5.00-5.35-meter range. The latter, however, is highly experimental for even the most advanced amateurs.

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Another experimenter who has been receiving the "radio-movie" transmissions over

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a considerable distance is Bernard Bierhals, of Fond du Lac, Wisconsin, which is nearly 700 miles airline from Washington. He writes: "I have been receiving these for the past several weeks, and have received some good images, though I have been bothered a lot with fading. On January 11

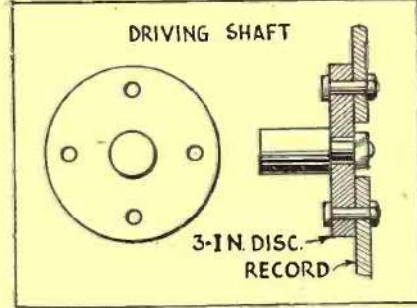


Fig. 3
 The taking up of screws on one side or the other corrects warping of a record disc.

I was able to see the movements of the little girl with the ball very plainly for about ten minutes.

"I am using a detector and five stages of resistance coupling; the scanning disc is a 12-inch phonograph record drilled with 48 apertures, 1/32-inch. Several images appear at the same time, but I am able to maintain better synchronization. I use a 6-volt auto-horn motor, which drives the disc nicely, because I have no electric light.

"As all discs wobble, I mount my disc by the following method, which may be of interest to other experimenters; a 3-inch disc is cut from a piece of hard rubber. A hole is drilled in the center and four around the edge; the record is then drilled to match. Four 6/32 screws are run through disc and

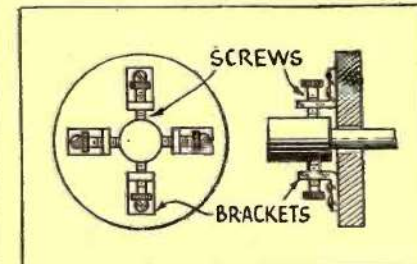


Fig. 4
 The screw method indicated is to center the phonograph record used as the scanning disc.

record, and by adjusting them the record may be made to run very smoothly. In case there is a slight eccentricity, brackets may be mounted as shown (Fig. 2) and by adjusting these it may be removed." (Note: The high speed of revolution of a television disc renders it highly desirable to know that its fastenings are strong enough to withstand any strain which may be put upon them, even though the disc be of light material.—Emron.)

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