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A. McL. NICOLSON

2,114,500

TELEVISION TIME SYSTEM

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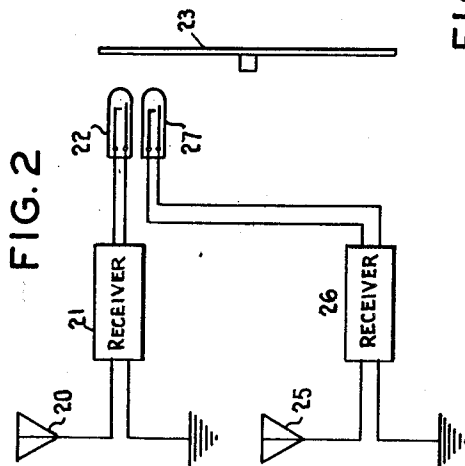


FIG. 3

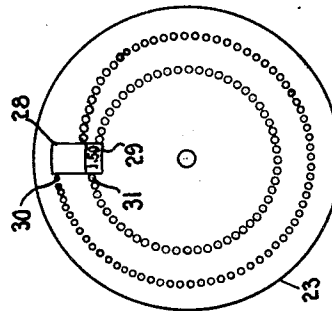


FIG. 5

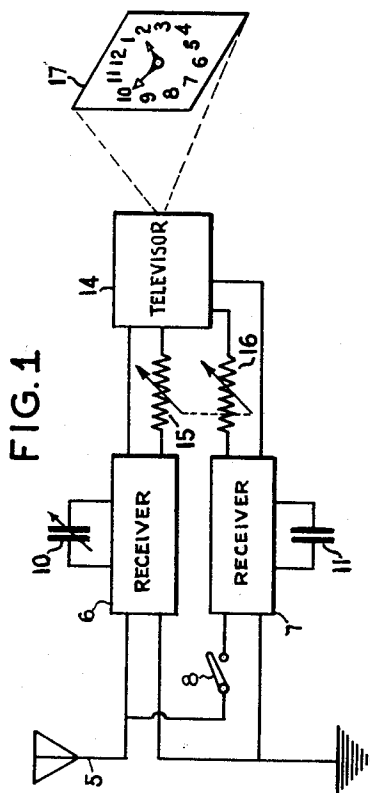
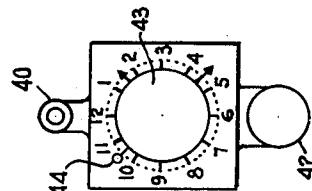
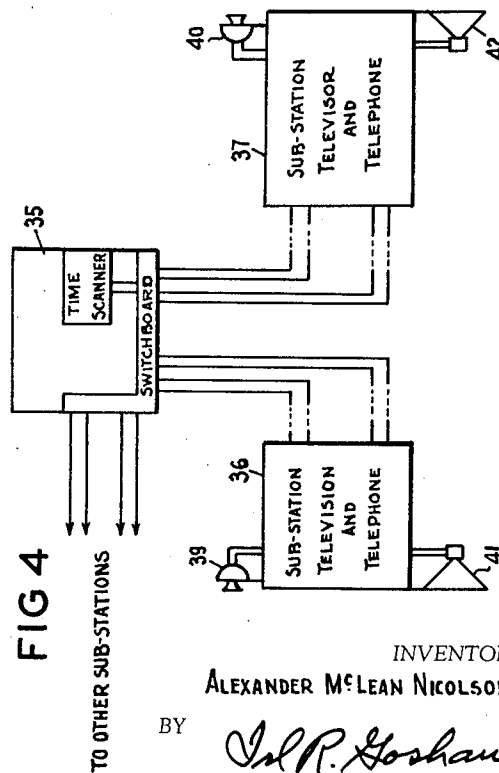


FIG. 4



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TELEVISION TIME SYSTEM

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5 Claims. (Cl. 178—6)

This invention relates to television systems both for general broadcasting and for two-way individual communication, and particularly to such systems wherein the time of day is indicated televisually either continuously or intermittently to an observer during the reception of images of other objects.

An object of the invention is to transmit to an observer of television images the time of day.

Another object of the invention is to transmit to users of a two-way telephonic-television system during operation, the time of day and the passage of time to permit the users to determine their period of use of the system.

A further object of the invention is to intermittently project time indicia on a television observation means at periodic intervals.

A still further object of the invention is to continuously provide time indicia on an auxiliary observation means at all times or during the reception of a television image.

In many types of sound radio systems, clocks and various types of time pieces are provided either as independent instruments or as portions or parts of the radio receiver itself, operating continuously from a spring or from the electrical source of supply for the radio receiver. The present invention provides a television system wherein are shown not only images of objects scanned at the transmission point, but an image of a clock face either periodically upon the same television screen as that upon which the picture is being observed or on an auxiliary screen adjacent the picture screen. Common projection apparatus is used in each case. The time impulses may be transmitted from the same station as that transmitting the pictures or from a standard time station, the time impulses having a carrier frequency of their own.

The invention also contemplates for use in commercial two-way communicating systems for voice and pictures in which a central station interconnects the various sub-stations, a time indication which will permit the user to realize the period of his use of the apparatus, as well as the time of day. This time transmitter is located at the central office and may be connected to the subscriber's line by the subscriber or by the operator when the subscriber so indicates. Thus the subscriber may obtain the time of day without making a voice call.

Other advantages and benefits to be derived from such a system will be realized and the invention more fully understood from the following

description read in conjunction with the accompanying drawing in which:

Fig. 1 is a diagrammatic drawing of one embodiment of a receiver for a broadcasting system:

Figs. 2 and 3 are diagrammatic drawings of a second receiver embodiment for a broadcasting system;

Fig. 4 is a diagrammatic drawing of a two-way commercial system; and

Fig. 5 is an elevational view of the screen for the system of Fig. 4.

Referring specifically to Fig. 1, an antenna 5 is connected to a variable receiver 6 and a fixed time receiver 7, the receiver 7 being adapted to be connected at will to the antenna 5 through a switch 8. A variable condenser 10 permits the reception of various stations by receiver 6, while a fixed condenser 11 indicates that receiver 7 is tuned to time signals which are transmitted on a constant wave length. Both receivers are connected to a televisior 14 which projects images on an observation screen 17. The screen in the drawing shows the image of clock indicia with the minute and hour hands of a time piece, it being understood that this image is projected so as not to interfere with the picture images on the same screen. The output from receiver 6 to the televisior may be varied by a control 15 and the output of the receiver 7 to the televisior by a control 16, both of which may be interconnected for unitary operation. Controls 15 and 16 are preferably connected so that the output of one receiver increases while the output of the other decreases and vice versa. This type of control permits fading of the images from the two receivers. The controls may also be operated independently, the switch 8 closed whenever the time is desired. Switch 8 can also be automatically closed periodically to indicate the time.

The televisior 14 may be of any of the usual types well known in the art wherein the picture is projected upon the screen, some of these types being the rotating lens disk or the Nicolson arc television systems, such as disclosed in United States Patent No. 1,779,747, issued October 28, 1930 or Reissue Patent No. 18,372, issued March 1, 1932. If the screen is of a fluorescent or phosphorescent material such as disclosed in my copending application Serial No. 716,508, filed March 20, 1934, and the time projector projects an invisible wave length, such as ultra violet, the two images may have a lag and a smooth fading effect from one to the other.

Referring now to Figs. 2 and 3, a separate antenna 20 is provided for a receiver 21, the output

of which is a glow lamp 22 positioned behind an apertured disk 23. This receiver may be for the general reception of images. A second antenna 25 is connected to a receiver 26, the output of which is impressed upon a second glow lamp 27 positioned below the lamp 22 behind the disk 23. In this arrangement as shown in Fig. 3, the picture section is provided at 28 and the time observation screen at 29, the portion 28 being obtained from the row of apertures 30, and the time image from the row of apertures 31. In this particular modification the time indication is in the form of numerals which require small space, and may be positioned as shown for continual observation. The broadcast for either intermittent showing or continuous showing may be made from the same station or from a separate time station. For the reception of time in any event it is only necessary to operate the time receiver for obtaining the time at any instant.

Perhaps the most useful application of this invention is shown in Figs. 4 and 5 wherein a central office 35 is shown with sub-stations 36 and 37, it being understood that other such stations may be connected with the central office. The central office may have the usual switchboard arrangement plus a time scanner. The substations are shown diagrammatically with microphones 39 and 40 and sound receivers 41 and 42 indicating the combination of audible and visible signals. These transmission systems may be any well known in the art, such as those shown in my co-pending applications Serial No. 733,705, filed July 5, 1934 or Serial No. 734,471, filed July 10, 1934. In such systems it is very desirable to have an indication at the time of use to show the period of time the user is communicating with the other party to permit him to limit his time within prescribed time zones. That is, when charges are made for certain periods of time, such as three minutes, over time being charged at the rate of a certain amount for each minute, the customer has control over the time of use by this invention. It is also desirable that the time of day be presented for use in making engagements.

As shown in Fig. 5, which represents the observation screen at a sub-station, a picture area 43 is shown positioned in the center of the screen, while clock indicia having minute and hour hands and a second hand 44 surrounds this central area. The scene shown on the picture area originates at the other sub-station connected thereto, while the time indicia may be transmitted from the central office 35. The time may be transmitted solely by the scanning of a clock having a blank section in the center and may be continuous during the 24 hours, thus providing the necessary means of acquainting any subscriber of the time. The transmitter at each sub-station may be synchronized with the central office transmitter to provide the proper positioning of the images. It is to be understood, of course, that the particular design of the observation screens for showing

both time and picture images may not follow the exact forms disclosed herein, but may be of various types without departing from the spirit of the invention.

What is claimed is:

1. In a television system, a plurality of television receivers adapted to operate independently for the reception of individual television signals, a common antenna for all of said receivers, means connecting said antenna to one of said receivers and adapted to disconnect said receiver from said antenna, individual output circuits for said receivers, variable impedance means in each of said output circuits, a common televisor connected with said output circuits and means associated with said impedances for increasing the output current in one output circuit while decreasing the output current in another of said output circuits.

2. The method of indicating to the user of a communication system the period of use thereof at any instant comprising connecting said user with a central office, connecting said user with a second user through said central office, transmitting images of said users to each other and simultaneously transmitting from said central office to said users visual indications of the chronological passage of time from the beginning of use of said system.

3. The method of indicating at a remote point the time of day over a communication system comprising calling a central station from a sub-station, particularly signaling said central station and transmitting from said central station to said calling sub-station visual indications of the chronological passing of the time for observation at said sub-station.

4. The method of indicating the length of time a communicating system for pictures and sound is in use to the user thereof comprising interconnecting said user through a central station with a called station, transmitting impulses representing images of said user to said called station through said central station, and transmitting electrical impulses from said central station to said user at the instant said connection is made between said user and said called station, said impulses being reproduced as images for observation by said user and indicating at every instant the length of time said system is in use after said connection is made.

5. The method of indicating to the user of a communication system the period of use thereof comprising transmitting signal impulses from a remote point to said point of use and translating said impulses into visual time indicia for observation by said user, said time indicia following the elapsed time from the beginning of use of said system by said user, and simultaneously transmitting to the user of said communication system images of another user thereof.

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