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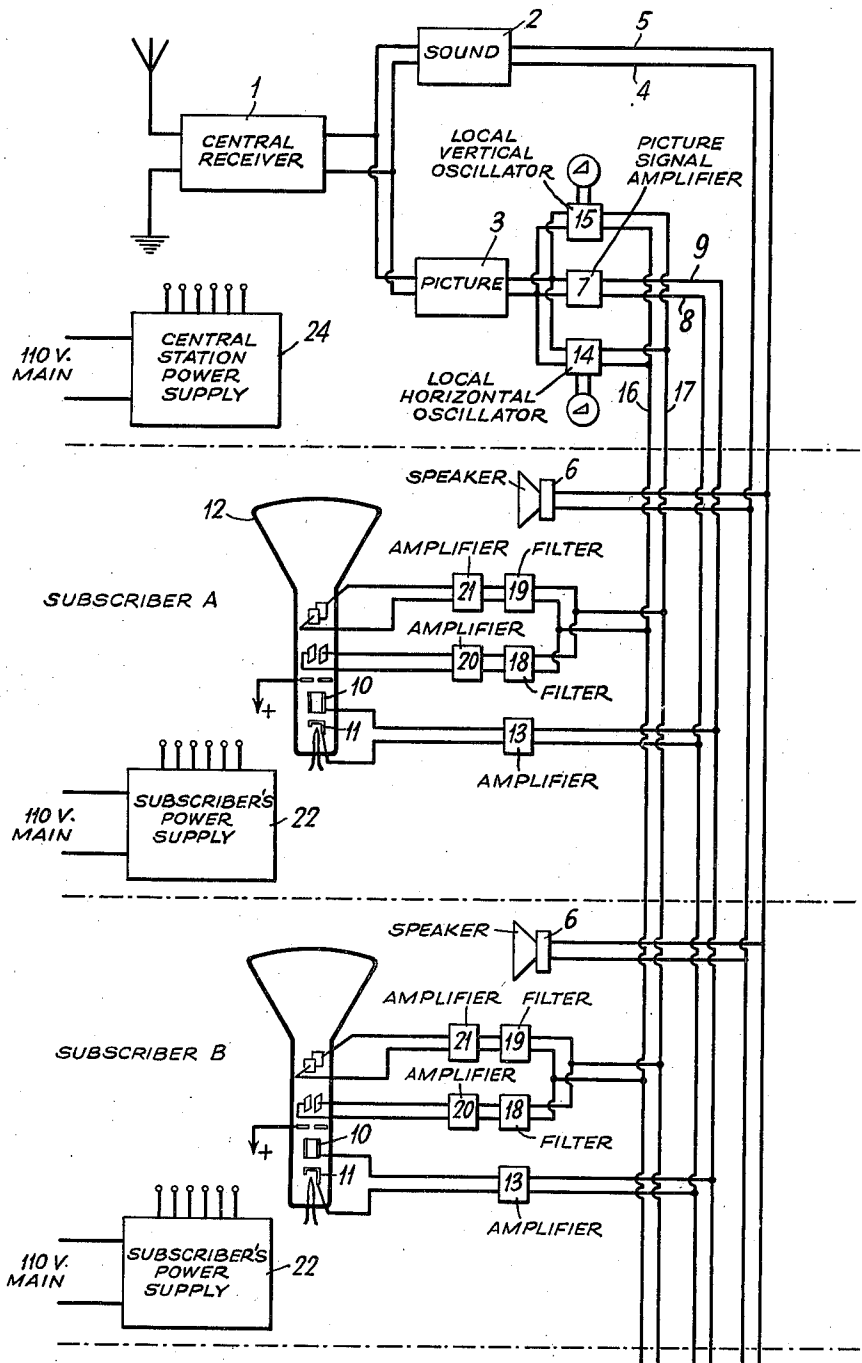
CENTRAL TELEVISION RECEIVING SYSTEM

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*relay*

*T500*

*Rm*



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## UNITED STATES PATENT OFFICE

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## CENTRAL TELEVISION RECEIVING SYSTEM

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1 Claim. (Cl. 178—5.8)

This invention has reference to a television receiving system in which cathode-ray tubes are used for reproduction and in which a plurality of subscribers which are provided with reproduction sets are supplied from a central point along conductors. The invention has for its object to arrange such a system so as to be as inexpensive as possible.

According to the invention, this object is achieved by arranging in a central receiver at least one device for generating current or voltage which serves for controlling the movement of the cathode-ray beam over the reproduction screen of the cathode ray tubes, said device or devices being controlled by the received synchronizing pulses, and by supplying the current or voltage thus generated to the reproduction sets along conductors.

In the case of most occurrence the image to be reproduced is obtained by effecting the movement of the cathode ray beam over a reproduction screen which is arranged in the cathode ray tube in two directions normal to each other, viz. in a direction parallel to the image lines (horizontal direction). In this case the central receiver comprises a device for controlling the horizontal movement and a device for controlling the vertical movement of the cathode ray beam over the reproduction screen which are controlled by the received line-and-frame pulses respectively, the output voltages or currents being supplied from the said devices to the reproduction sets along common conductors. It is also possible that the cathode ray tube in the reproduction set only serves for supplying the horizontal scanning movement and other, for instance mechanical, means are provided for bringing about the vertical scanning movement. In this case, the cathode ray beams in the reproduction sets only have the currents or voltages for controlling the horizontal movement of the cathode ray beams supplied to them from the central receiver along conductors which all of the reproducing sets have in common.

In order that the invention may be clearly understood and readily carried into effect one embodiment thereof will now be described more fully, by way of example, with reference to the accompanying drawing.

The single figure of the drawing shows a central receiver serving for the simultaneous reception of image and sound transmission and comprising a high- or intermediate-frequency amplifier 1. The output circuit of this amplifier is connected to devices 2 and 3 comprising selective

means or selective amplifiers which bring about the separation of the sound and image transmission respectively. These devices 2 and 3 may also comprise the rectifiers serving for demodulation.

The low-frequency sound oscillations, which in this case occur in the output circuit of the device 2, are supplied, along conductors 4 and 5, to loudspeakers 6 arranged with the subscribers. The picture currents and synchronizing pulses obtained in the output circuit of the device 3 after rectification are supplied to conductors 8 and 9, in some cases by way of a picture current amplifier 7, to which the control electrode 10 and the cathode 11 of the cathode ray tubes 12 of the reproduction sets arranged with the subscribers are connected. If desired, an amplifier 13 serving for amplifying picture currents and synchronizing pulses may be arranged with the subscribers. In the output circuit of the device 3 the line and frame pulses, after being separated from the picture currents, are supplied to the devices 14 and 15 respectively. Each of these devices serves for generating a saw-tooth voltage and is controlled by the said pulses. The saw-tooth voltages thus generated are fed to the reproduction sets along common conductors 16, 17. In the reproduction sets these conductors have filters 18 and 19 connected to them which serve for separating the saw-tooth voltages generated by the devices 14 and 15. The saw-tooth voltage occurring in the output circuit 18 is supplied, in some cases by way of an amplifier 20, to the horizontal deflection plates of the cathode ray tubes 12 of the reproduction sets and serves for controlling the horizontal movement of the cathode ray beam over the reproduction screen. Similarly, the saw-tooth voltage which occurs in the output circuit of the filter 19 is fed, in some cases by an amplifier 21, to the vertical deflection plates.

The supply voltages necessary for the supply of the cathode ray tubes 12 and the amplifiers 13, 20 and 21 which may be provided are supplied by a subscriber power supply 22 which is to be connected to the house lighting supply mains and whose connections to the parts of the reproduction set that are to be supplied are not shown in the drawing.

The supply voltages for the central station are likewise derived from a central station power supply 24, the connections from the power supply unit 24 to the apparatus at the central station not being shown in detail.

It is to be understood, of course, that the central power supply unit may be used to supply

the apparatus at each subscriber and to do so appropriate filament and high voltage conductors must be provided for connecting the subscriber's apparatus with the central power supply.

In the embodiment shown demodulated sound and picture currents are supplied to the reproduction sets along conductors. It is also possible to feed synchronizing pulses, by which a carrier oscillation is modulated, to the reproduction sets along conductors 4 and 5 or 8 and 9 respectively and in this case the reproduction sets comprise rectifiers for demodulating the said currents.

I claim:

A television system for receiving television signals which include picture signals, control synchronizing signals and related sound signals transmitted as modulations of at least one carrier frequency comprising a central station and a plurality of remotely located subscriber stations each selectively connected with the central station, means at the central station for receiving all of the transmitted signals, demodulating means at the central station for demodulating all of the received signals and isolating the sound signals from the picture and control synchronizing signals, a cathode ray image reproducing device located at each subscriber station for reproducing image representations under the control of signals received at the central station, a plurality of independent means at the central station for generating deflection wave energy under the control of received synchronizing signals for controlling the deflection of the cathode ray beam in each cathode ray image reproducing device located at each subscriber station, one of said central station generating means being controlled by the received synchronizing signals to generate deflection wave energy of a predeter-

mined frequency for deflecting the cathode ray beam of each of the plurality of cathode ray image reproducers of the subscriber stations in one plane and the other of said plurality of central station generating means being controlled by the received synchronizing signals to generate deflection wave energy of a different frequency for deflecting the cathode ray beam of each of the plurality of cathode ray image reproducers of the subscriber stations in a direction substantially normal to the first direction of deflection, a sound reproducing device at each subscriber station, independent signal channels connected between the central station and each subscriber station for transferring sound signal energy, picture signal energy, and the deflection wave energies from the central station to the several subscriber stations, the signal channel for transferring deflection wave energies being adapted to transfer each of said plurality of beam deflection wave energies developed at the central station to the several subscriber stations, filter means located at each subscriber station for separating the independent beam deflection wave energies one from the other to control the image reproduction in the cathode ray apparatus of the several subscriber stations, by the wave energy generated at the central station and these controlled by received synchronizing signals, means at each subscriber station for controlling the intensity of the image reproduction on the cathode ray image reproducing devices in accordance with signal energy supplied to the subscriber station over the signal channel connected with the central station, and means for operatively connecting the sound reproducing devices of the subscriber stations with the central station.

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