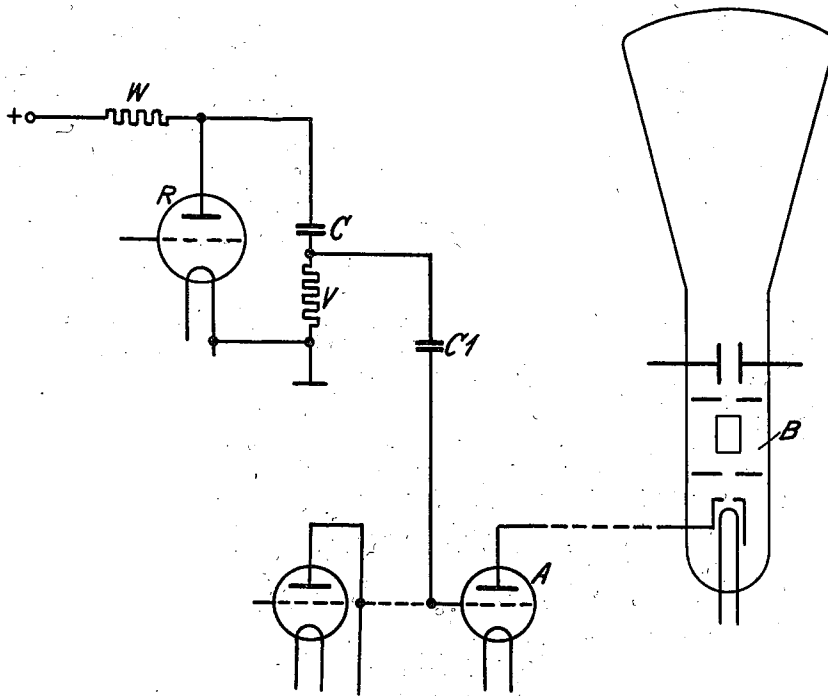


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TELEVISION RECEIVER
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TELEVISION RECEIVER

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5 Claims. (Cl. 250—27)

Television systems are known in which the current transmitted to the receiver or reproducing station is periodically reduced, and preferably reduced to zero, in order that at the receiver the well-known traversing action of the cathode ray or beam shall be caused to synchronize with the well-known scanning action at the transmitter. This method is the so-called gap synchronization.

In the receivers of these television systems it often occurs that the period of time necessary for accomplishing the return movement of the beam is longer than the duration of the synchronizing gap. In such event the return movement of the beam will not be controlled to dark right to the end, that is to say, the beam will not be invisible throughout the period of its return movement. As a result, unwelcome bright zones may happen to appear in the image.

In arrangements wherein no gap synchronization is used but in which, for example, the usual graphic representation shows the synchronizing impulses as surmounting the curve of the picture modulation, no control to dark is ensured at all.

In order in any case to attain that the Braun tube, i. e. the cathode ray tube, is controlled to dark during the entire period of the return movement of its beam, it is proposed by the invention to block up during this period the receiver by which the intensity control of the Braun tube is effected. This blocking action is performed by means of a voltage derived from the well-known generator of relaxation oscillations, that is, oscillations whose graphic representation is saw-tooth shaped.

The drawing is a diagrammatic representation of an example of the novel arrangement.

The generator of relaxation oscillations comprises a charge condenser C which is charged over a resistance W and is discharged over an electron tube R that represents the so-called relaxation tube. The condenser C is charged over a longer period of time from a battery with the positive pole of which it is connected through resistance W than the period of the discharge, whereby the well-known sawtooth-shaped voltage variations are produced. Included in the discharge circuit, that is, in the anode circuit of the tube R, is a resistance V low as compared to W and from which in accordance with the invention a voltage is derived and conveyed over a condenser C' to the grid of an amplifier tube A of the image receiver. This constitutes a blocking potential shunt for the ray return. Additional amplifier tubes may be connected to this

tube A. The picture currents arriving from tube A act to accomplish the intensity control of the Braun tube B.

The circuit arrangement here shown ensures that owing to the discharge of the condenser C, that is to say, during the entire period of the return movement of the cathode ray of the tube B, the tube A and thus the receiver is blocked up and tube B controlled to dark in this way. The potential set up in the resistance V is applied to the tube A over the coupling condenser C'. During the charging period a comparatively weak current flows, the resulting potential drop being rather low, and during the instantaneous discharge heavy current flow takes place in the reversed direction. This heavy current causes considerable potential drop across resistance 9, and this potential is utilized for blocking the tube A to prevent the flow of plate current. The control electrode of the Braun tube will be blocked by the potential applied from the usual biasing battery. Therefore the return movement of the cathode ray will not be visible.

The arrangement by which the generator of relaxation oscillations and the system that serves to deflect the cathode ray are interconnected is not shown, as such arrangement is immaterial to the idea of the invention.

The invention not only presents the advantage that each return movement of the beam is invisible, such movements being visible in prior arrangements from any cause, but in a general manner has the advantage that the screen on which the image is reproduced is controlled to dark whenever the beam starts on the return movement, this mode being much more pleasant than if the bright screen shows itself.

What is claimed is:

1. In a television receiver, a cathode ray tube adapted to move its beam of electrons to and fro, a generator of electric relaxation oscillations having an output circuit, an electron tube amplifier for supplying intensity control current to said beam of electrons, a condenser and a discharge resistance in series in said output circuit, a path connected to said output circuit between said condenser and resistance to derive a voltage from said resistance throughout the period of each return movement of the beam, and means for applying the derived voltage to said amplifier to block up said cathode ray tube thus to control the intensity of said beam to dark.

2. Apparatus for controlling the production of a cathode ray beam during its deflection in a definite direction comprising a cathode ray tube

including means for developing, modulating, and deflecting a cathode ray beam, electrical energy storage means, means including a resistive member for linearly storing energy in said electrical energy storage means, said member and said electrical energy storage means being serially connected, a unidirectional conductor having a space discharge path for discharging the stored energy, said unidirectional conductor having the space discharge path thereof connected substantially in parallel with the electrical energy storage means and a resistance in series, and means connecting the modulating electrode of the cathode ray tube to the common terminal of the electrical energy storage means and said resistance connected serially therewith, the other terminal of said resistance being connected to the cathode of the cathode ray tube.

3. Apparatus in accordance with above claim wherein said unidirectional conductor comprises a thermionic vacuum tube having the anode-cathode path thereof connected substantially in parallel with the serially connected electrical energy storage means and the resistance serially connected thereto.

4. Apparatus for controlling the production of a cathode ray beam during one direction of its

deflection comprising a cathode ray tube including means for developing, modulating, and deflecting a cathode ray beam, a capacity, a pair of resistive members connected serially with said capacity, means for linearly charging said capacity through said resistive members, a thermionic vacuum tube having anode, cathode and at least one control electrode, said capacity and one of said resistive members being connected substantially in shunt with the anode-cathode path of said thermionic tube, means for impressing variations in the charge stored on said capacity onto the deflecting electrodes of said cathode ray tube, and means connecting the common terminal of the capacity and the resistive member which are connected in shunt with the anode-cathode circuit of the tube to the modulating means of the cathode ray beam, the other terminal of said resistance being connected to the cathode of the cathode ray tube.

5. Apparatus in accordance with above claim wherein there is provided in addition means for impressing re-current signals from an external source onto the control electrode-cathode circuit of said thermionic tube.

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