Sept. 27, 1938. M. VON ARDENNE 2,131,203

TELEVISION METHOD

Filed May 16, 1932

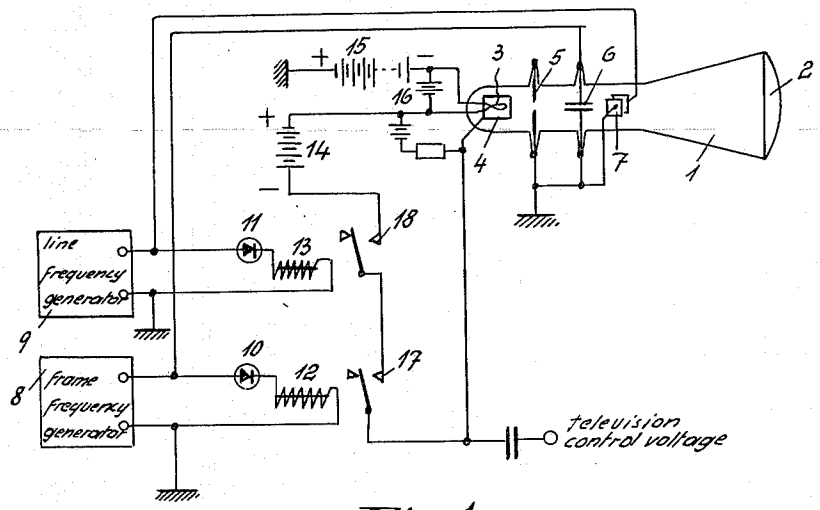


Fig. 1

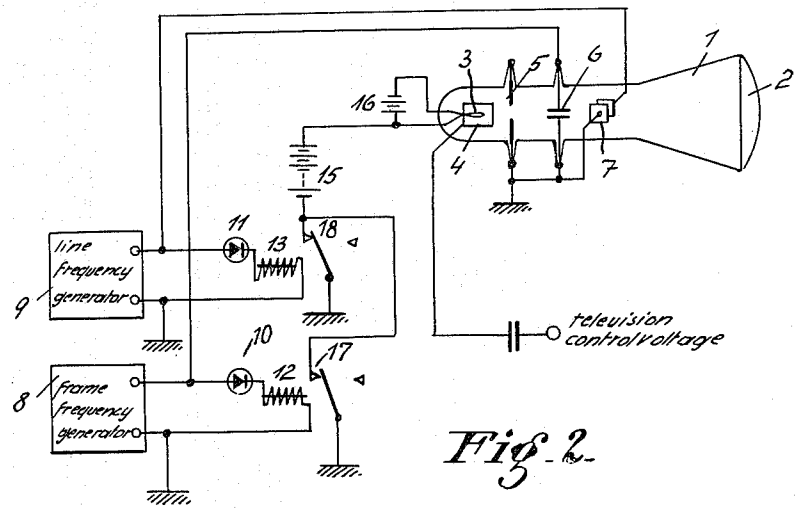


Fig. 2

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TELEVISION METHOD

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1 Claim. (Cl. 178—6.8)

In the television art there is frequently made use of cathode ray tubes for transmitting images or optical occurrences as well as for reproducing in the receiver the transmitted images.

In both cases the cathode ray produced in the tube is deflected by means of deflecting systems which may consist of deflecting plates or of deflecting coils. The deflection of the ray is effected by applying to the deflecting systems deflecting voltages of an apt wave form as to scan the fluorescent screen of the tube. The cathode ray which is projected onto the screen in the form of a luminous spot scans an area, which with correctly selected deflecting voltages appears in the form of an evenly luminous rectangle on the fluorescent screen of the tube.

An extraordinary improvement was obtained by the introduction of the new thin, very even and extremely sensitive screen. It was possible with the new screen, with an anode potential amounting to 2300 volts and a current of 0.87 milliampere to obtain on the outside of the tube a point brightness of approximately 1.2 candle power.

But there exists the difficulty that the sensitive screen may be damaged by the cathode ray at any point where the cathode ray remains stationary, which is the case when a cathode ray impinges on the luminous screen and the deflecting voltages are failing.

The present invention, now, is based on the following considerations:

In order to prevent burning of the sensitive screen material it is of great importance for avoiding this difficulty to provide means which prevent the beam from occasionally remaining stationary.

Generally speaking, this invention accordingly has for its object to provide to cut off the cathode ray when the deflecting voltages fail.

In most cases the danger of a portion of the screen being damaged will be eliminated by taking care that at least one of the deflecting oscillations is maintained as long as a cathode ray is allowed to impinge on the fluorescent screen, or in other words, that the ray is prevented from impinging on the screen as soon as both deflecting oscillations cease.

This may be accomplished, for example, by means of a relay or the like, cutting off the anode potential, or applying to the Wehnelt cylinder a biasing potential of such nature that emission through the anode is not longer able to take place.

The novel features which are believed to be characteristic for the invention are set forth with particularity in the appended claim. The invention, however, may be best understood by reference to the following description taken in connection with the accompanying Figs. 1 and 2 which show exemplary schematic arrangements of the invention.

To Figs. 1 and 2 there is common a Braun tube 1 with a fluorescent screen 2, a cathode 3, a Wehnelt cylinder 4, an anode 5, a first pair of deflecting plates 6 connected to a frame frequency generator 8, a second pair of deflecting plates 7 connected to the line frequency generator 9, two rectifier devices 10 and 11, two relays arrangements 12 and 13, an anode battery 15 and a cathode heater battery 16. In particular in Fig. 1 there is provided a strong negative bias battery 14 which is lying between the cathode 3 and the Wehnelt cylinder 4 over the serially connected rest-contacts 17 and 18 of the relay. The windings of the relays are connected to the frame frequency generator 8 and the line frequency generator 9 respectively. When a generator is in operation, a direct current will flow via the respective rectifier and relay winding so that the respective contact is opened. Consequently, when both deflecting potential generators fail to operate, the negative bias of 14 is applied between cathode and Wehnelt cylinder, so that no cathode ray is allowed to pass through the anode aperture.

According to Fig. 2, relays and rectifiers are disposed like in Fig. 1, with the exception that the contacts open, when both deflecting generators are failing, so that the high anode potential 15 of the Braun tube is disconnected and no cathode ray is allowed to impinge the screen.

I claim:

In a television arrangement comprising a cathode ray tube having cathode, anode, deflecting system and a fluorescent screen, a source of high tension direct current connected to said cathode and anode producing the cathode ray, and a source of variable current connected to said deflecting system, a relay the primary side of which is connected to said source of variable current and the switch of which interrupts the high tension current so as to prevent the cathode ray to burn said fluorescent screen when said variable current ceases.

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