

April 23, 1940.

K. SCHLESINGER

2,197,900

FADING REGULATION IN TELEVISION RECEIVERS

Filed July 8, 1938

2 Sheets-Sheet 1

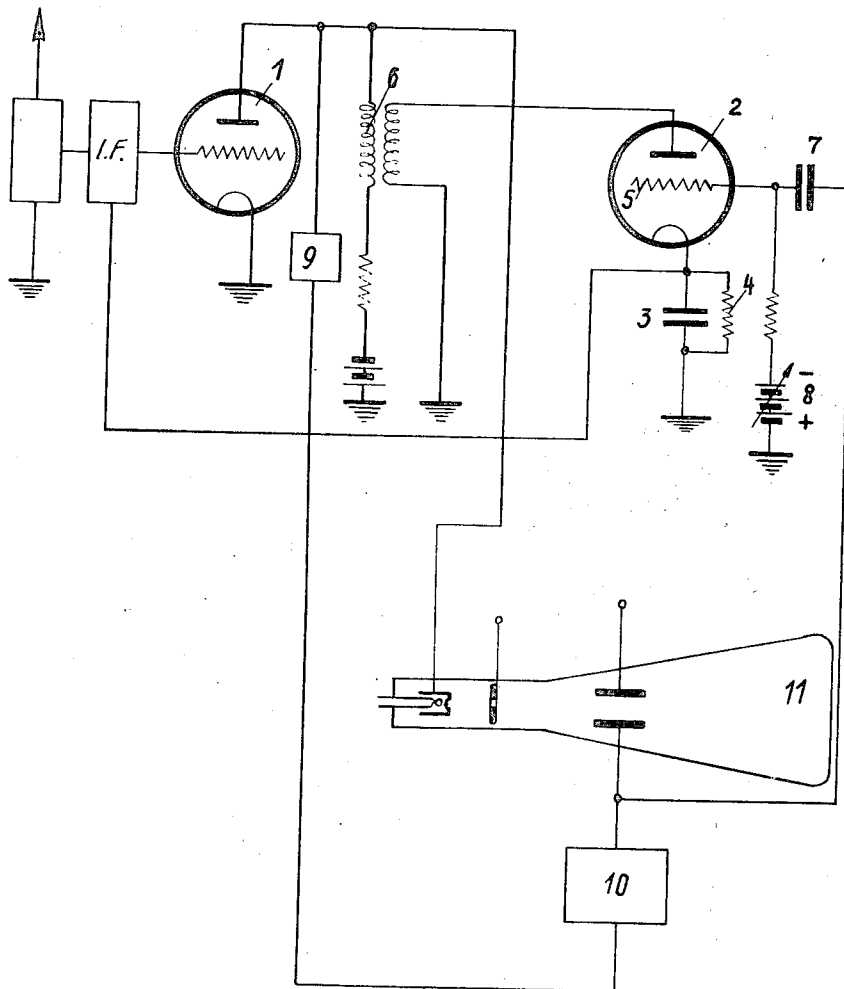


Fig.1

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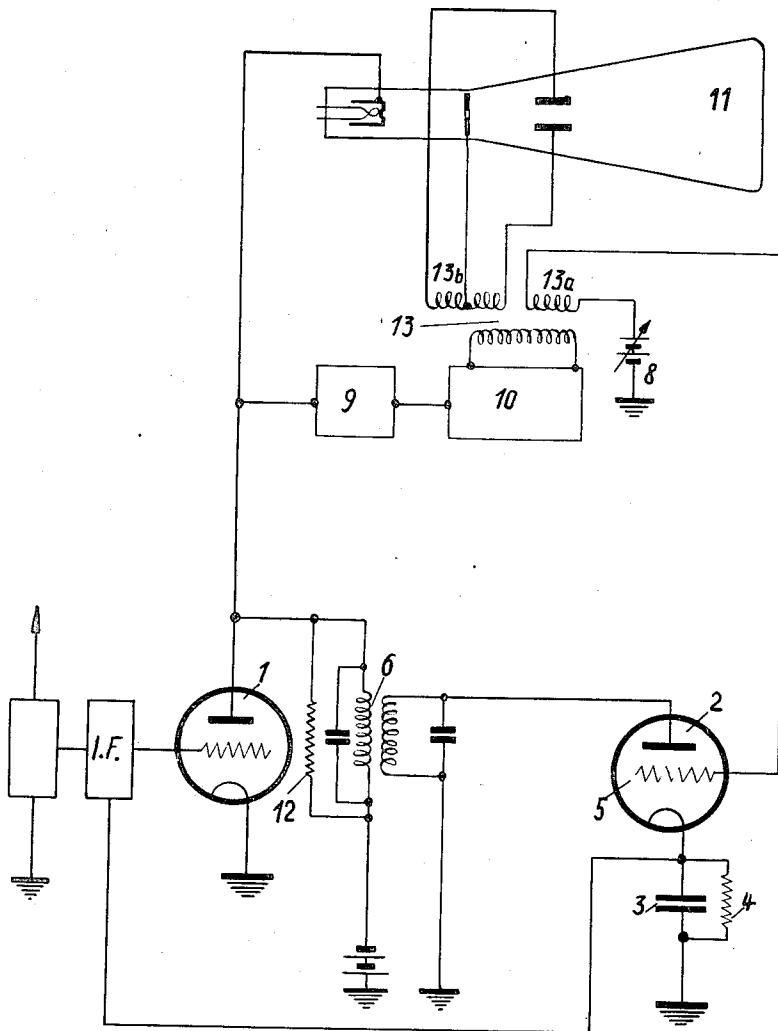


Fig. 2

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UNITED STATES PATENT OFFICE

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FADING REGULATION IN TELEVISION RECEIVERS

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mesne assignments, to Loewe Radio, Inc., a cor-
poration of New York

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In Germany August 30, 1937

4 Claims. (Cl. 178—7.5)

For regulating the sensitivity of reception in the case of television receivers methods are employed which differ considerably from those usual in the radio art. For example, it has been proposed by the applicant (application Ser No. 53,534) to obtain the regulating potential necessary for the fading compensation from the synchronisation signals. This method, as compared with other methods in which the regulating potential is obtained from the carrier frequency, possesses the advantage that the sensitivity of reception is dependent solely on the field intensity at the place of reception and is proportional to this field intensity, as the synchronisation signals are always of constant size during the entire transmission and accordingly also vary in the same proportion as the field intensity at the place of reception. The sensitivity of the reception is completely independent of the contents of the image itself.

It has been found that, in order to obtain a proper regulation of the sensitivity of reception, and accordingly a proper image, it is necessary to make the sensitivity of reception dependent solely on the synchronisation signals for the image change.

The object of the present invention is a voltage generating device for automatically fading compensating in a television receiver comprising an amplifier for amplifying the received signals and a relaxation oscillator for generating the frame deflecting voltage. According to the invention said voltage generating device is connected on the one hand to the output of said amplifier, and on the other hand to the output of said frame relaxation oscillator so that it is controlled by said amplifier and said oscillator in such a manner that the voltage generated by said device is dependent only on the amplitude of the frame synchronizing signals given from the transmitter.

Fig. 1 discloses one embodiment of my invention for obtaining automatic volume control from the frame synchronizing signals.

Fig. 2 discloses another embodiment of Fig. 1.

The operation of the method according to the invention will be described in a possible embodiment in conjunction with the drawings. The anode of the end tube 1 of the receiver output is connected in the known fashion with the control grid of the Braun tube 11.

The synchronisation impulses pass by way of a filter device 9 to the relaxation oscillation generator 10 for the image change, which is con-

nected with the deflecting element of the Braun tube.

According to the invention, there is included in the anode circuit of the end tube 1 the primary coil of a transformer 6 in parallel or in series to the anode resistance. To the secondary coil there is connected the generator for obtaining the regulating potential. This transformer is preferably tuned to the frequency of the image change signals. The potential tapped in the secondary coil charges by way of a triode 2 a condenser 3, with which there is connected in parallel a resistance 4. The time constant of the elements 3 and 4 is as large as any image point. The transformer should be poled that the negative impulses arrive at the cathode of the valve 2. The regulating potential is tapped at the terminals of the resistance 4 and is conducted, for example, to the amplifying tube or tubes of the intermediate-frequency amplifier. The transformer 6 can be replaced by high frequency condenser coupling.

To the grid 5 of the triode 2 there is applied on the one hand a preferably adjustable blocking potential 8 and on the other hand the relaxation potential for the image change. This arrangement is such and is so dimensioned that the blocking of the grid 5 is interrupted only at the image relaxation moment. The grid 5 is connected with the lead traversed by the image relaxation potential preferably by way of a condenser 7.

By means of the blocking potential 8 there can be adjusted the duration of the release of the tube 2 from the blocking effect and also the extent of the regulating potential.

The arrangement according to the invention can naturally also be employed in other fashion.

For example, it is possible to give inductively the relaxation oscillation at the grid 5 of the tube 2. In this case a transformer is used, which is combined preferably with a push-pull transformer to give the oscillation of relaxation generator at the deflecting elements. This transformer is tuned to the period of return to give the relaxation oscillation at the grid 5 of the said tube 2. The regulating potential is connected preferably with any of the stages of the intermediate frequency amplifier.

I claim:

1. In a television receiver for receiving image signals, line synchronizing signals and frame synchronizing signals, a voltage generating device for automatically fading compensating, an amplifier for amplifying the received signals,

and a relaxation oscillator for generating the frame deflecting voltage controlled by the frame synchronizing signals, said voltage generating device being connected to said amplifier and to

5 said relaxation oscillator in such a fashion that the voltage generated by said device is dependent only on the amplitude of the frame synchronizing signals.

2. In a television receiver for receiving image
10 signals, line synchronizing signals and frame synchronizing signals, a voltage generating device for automatically fading compensating, an amplifier for amplifying the received signals, and a relaxation oscillator for generating the frame
15 deflecting voltage controlled by the frame synchronizing signals, said voltage generating device consisting of condenser connected in series to a grid controlled tube and shunted by a resistance, the grid of said tube being coupled to
20 the output of said relaxation oscillator in such a fashion that the tube is conductive only when a frame synchronizing impulse arrives.

3. In a television receiver for receiving image
25 signals, line synchronizing signals and frame synchronizing signals, a voltage generating device for automatically fading compensating, an amplifier for amplifying the received signals, and a relaxation oscillator for generating the frame
30 deflecting voltage controlled by the frame synchronizing signals, said voltage generating de-

vice consisting of a condenser shunted by a resistance and connected in series to the discharge of a grid controlled tube, the anode of which being coupled to the output of said amplifier the
5 cathode of which being connected to said condenser and to the grid of said amplifier, the grid of said tube being coupled to the output of said relaxation oscillator in such a fashion that the tube is conductive only when a frame synchronizing impulse arrives.

4. In a television receiver for receiving image
10 signals, line synchronizing signals and frame synchronizing signals, a voltage generating device for automatically fading compensating, an amplifier for amplifying the received signals, and a relaxation oscillator for generating the
15 frame deflecting voltage controlled by the frame synchronizing signals, said voltage generating device consisting of a condenser shunted by a resistance and connected in series to the discharge
20 way of a grid controlled tube, the anode of which being coupled by a transformer to the output of said amplifier, the cathode of which being connected to said condenser and to the grid of said
25 amplifier, the grid of which being biased and coupled to the output of said relaxation oscillator in such a fashion that the tube is conducted only when a frame synchronizing impulse arrives.

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