June 6, 1939. M. MESSNER 2,161,305

TELEVISION ARRANGEMENT

Filed July 27, 1935

Fig. 1

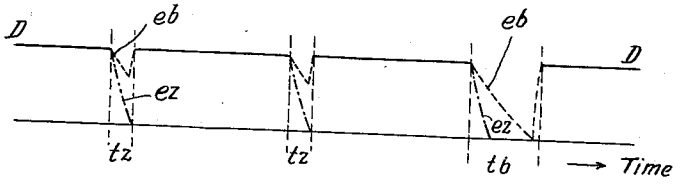
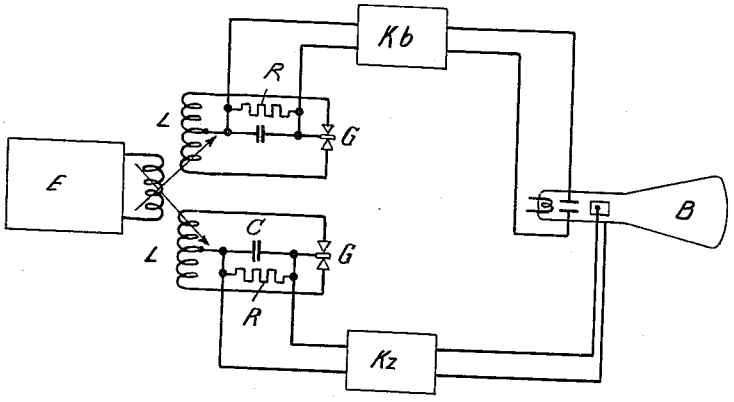


Fig. 2



Inventor:
Maximilian Messner
by R. C. Hopgood
Attorney

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TELEVISION ARRANGEMENT

Maximilian Messner, Berlin-Westend, Germany, assignor to C. Lorenz Aktiengesellschaft, Berlin-Tempelhof, Germany, a company

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2 Claims. (Cl. 178—7.5)

In order to deviate the cathode ray of a Braun tube by means of the line- or picture-frequency, so-called tripping devices or sawtooth generators are employed on the receiving side. A feature common to the customary tripping devices is that input circuits tuned to the line- or picture frequency are employed in connection therewith. The other details of such devices are not of interest here.

The invention proposes to control the tripping devices not by means of tuned circuits but by circuits which in conformity with the differences of the line-impulses or picture-impulses differ from each other as to the time constants. An arrangement of this kind is especially adapted for the method known as interstice synchronization, is however adapted also for use with the other methods of synchronization, if it is modified accordingly.

The invention is explained hereafter as applied to the interstice synchronization, reference being had to the accompanying drawing in which:

Fig. 1 is a diagram relating to the mode of operation of receiving arrangements constructed according to the invention, Fig. 2 is a diagrammatic representation of an example of these arrangements.

Fig. 1 shows the transmitter amplitude as plotted with respect to time. With the method of interstice synchronization, about 25% of the maximum transmitter amplitude are radiated. This steady state value of the transmitter energy is indicated by the line D. The picture impulses, i. e., the signals which compose the picture by producing the different intensities of brightness, are with respect to line D plotted upward. In order to effect synchronization the steady state value D is interrupted at the end of the line or picture so as to reduce the transmitter energy to zero, as will be seen from Fig. 1. The interstices thus produced are made short at the end of the lines, the interstices for the picture-change being made essentially longer than the former. In Fig. 1 merely the synchronization control is illustrated. The control effected by the picture signals is not shown, as it is immaterial to the idea of invention. The line-interstice is designated *tz*, the picture-interstice designated *tb*.

The receiving arrangement represented in Fig. 2 has a receiver and amplifier E which serves to control the two tripping devices Kz and Kb intended respectively for the line- and picture-deviation. The other means necessary for controlling the intensity of the Braun tube are not shown as they are immaterial to the idea of invention. In the input circuit of each tripping generator a self-induction coil L is included which is coupled to the output circuit of the receiver E. The arriving voltage is led to two rectifiers G which may be arranged in a two-way connection, as shown. Connected in circuit with each rectifier G are a condenser C and a resistance R connected in parallel with this condenser. From the resistances R the voltage for controlling the tripping devices Kz, Kb is derived. The grid bias of the tripping devices, which may be thyratrons, for example, is so adjusted that the back tripping begins when the control voltage becomes zero. The time constants of the rectifier circuits are different from each other and in such a manner that the tripping device Kz has the smallest time constant, the control occurring during the time *tz*; the time constant for the tripping device Kb is accordingly greater.

The two circuits are controlled in the same manner by the receiver. The discharge curve in the input circuit of the tripping device Kz is in Fig. 1 denoted by *ez*, while that of the tripping device Kb is designated *eb*. It will be seen from Fig. 1 that during the time *tz* the value *ez* becomes zero, the device Kz being operated thereby, whilst the value *eb* during the same time decreases to a less degree so that there will be no back tripping as regards the device Kb. During the time *tb*, however, *eb* likewise becomes zero, the device Kb thus getting controlled. During the time *tb* also the device Kz is controlled, since the line deviation too has to be succeeded by the retrograde movement.

As long as there is no standardization of the synchronizing impulses the arrangement is preferably such that the time constant may be changed at will by varying the means C and R, the time constant depending upon these.

The control voltage for the tripping devices need not be derived from the entire resistance R, but it will sometimes be sufficient to derive only part of the voltage. This is advantageous especially if the same tripping device serves for operations involving self-reliant tripping discharge as well as operations with which the tripping discharge is synchronized forcibly, being controlled by the transmitter. In the latter case the tripping device does not vibrate independently but is controlled solely by the transmitter pulses. This requires the voltages to be greater than in the former case. If, however, self-

reliant tripping is involved and the tripping action is merely synchronized then the required control voltages are smaller than in the former case.

What is claimed is:

1. A television arrangement comprising a Braun tube, a saw tooth generator for deflecting the scanning beam in one direction, a saw tooth generator for deflecting the scanning beam in another direction, a common source of received signals and a separate control circuit for each of said generators comprising an inductance coil for receiving signal currents from said common source, a full wave rectifier connected to the ends and center of said inductance coil, a condenser in series with the said connection from the center of the inductance coil to the rectifier, a resistance in parallel with said condenser and means for applying a voltage drop derived from said resistance to the associated saw tooth generator.

2. In a television arrangement a generator of saw tooth oscillations for the line frequency, a generator of saw tooth oscillations for the picture frequency and means for effecting a division of the synchronizing impulses between said generators comprising circuits for controlling these two generators, said circuits each containing a condenser and a resistance connected in parallel and a rectifier in series therewith, and differing from each other as to the time constants.

MAXIMILIAN MESSNER.