

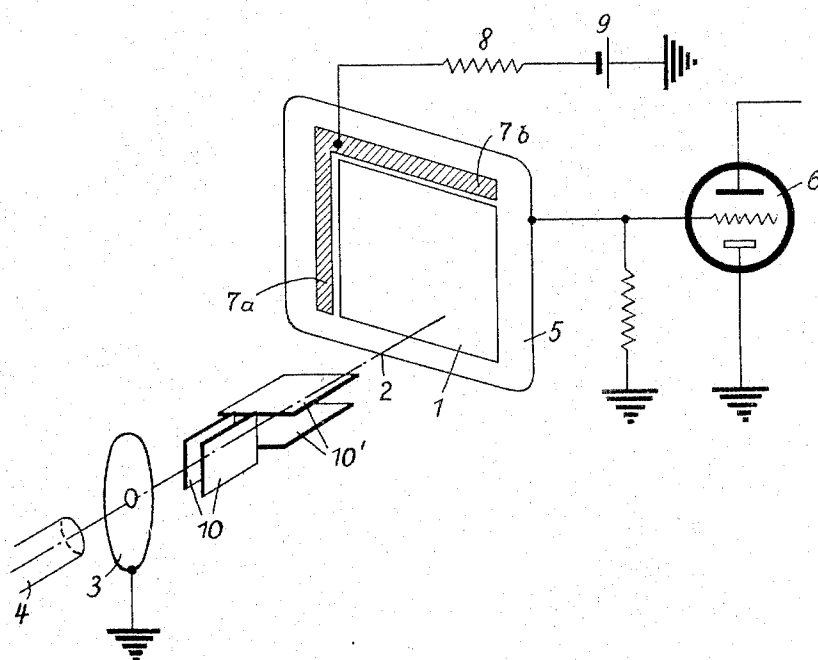
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TELEVISION TRANSMISSION ARRANGEMENT

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TELEVISION TRANSMISSION
ARRANGEMENT

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mesne assignments, to Loewe Radio, Inc., a cor-
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Original application November 10, 1936, Serial No.
110,042. Divided and this application May 10,
1938, Serial No. 207,073. In Germany Novem-
ber 18, 1935

3 Claims. (Cl. 178—69.5)

In the case of television scanning devices, which operate by the scanning of a mosaic photo-electric screen by means of a cathode ray, there has been employed heretofore, according to publi-
cations which have become known, a mechanical
device, usually a light siren, for producing the
correct deflection frequencies, and synchronisa-
tion signals have been produced by the same
means. A method of this kind does not produce
the synchronous signals as a matter of course
only when the scanning ray has reached the edge
of the photo-electric screen, but the initiation of
the synchronisation signal depends on the par-
ticular oscillation conditions of the siren, which
is coupled more or less loosely with the movement
of the ray. It is known that in the case of elec-
trically generated synchronisation signals of this
nature curvature of the image coordinates very
frequently occur. Even a humming component
in the mains-connected apparatus may give rise
to deviations from the straight line as regards the
edges of the image.

Curvatures of this kind in the co-ordinates
may be fundamentally obviated in an arrange-
ment operating with scanning discs when the
scanning image point itself causes the synchro-
nisation signal, viz., when it reaches a prescribed
edge of the image. It is then immaterial whether
the scanning point arrives at the edge of the
image with small errors in time—too early or too
late. The synchronisation signal is always initi-
ated in such fashion that the reversing points
of the synchronized received-image point are all
situated on a completely straight marginal line,
which in these cases is the transmitted television
image of the straight edge of the transmission
screen. Errors in the movement of the image
point are accordingly eliminated automatically
in the method of the self-synchronizing scanning
point.

In the parent application Ser. No. 110,042, filed
November 10, 1936 the synchronisation in the
case of the ikonoscope is describe. The present
invention relates to a special synchronizing de-
vice in such a case of mosaic screens scanned by
an electron ray.

The invention is illustrated in the accompany-
ing drawing which shows diagrammatically a
device according to the invention.

In the drawing, the deflection of the ray pro-
duced by cathode 4 is shown to be a double elec-
trostatic deflection. As well known, there is
situated behind the mosaic screen 1 a signal
plate 5 which is separated from the screen 1
by an insulating support of mica or the like (not

shown). The plate 5 may be connected with the
grid of an amplifying tube 6 the cathode of which
like the anode 3 of the cathode ray tube requires
to be earthed. The illuminated points of the
screen have been charged positively during the
storing period and upon the scanning, supply
negative impulses to the input grid of the am-
plifier 6. There are required for synchronisation
purposes, dependent on the method of transmis-
sion, negative or positive impulses of considerable
intensity. According to the invention, there is
employed for the automatic generation of im-
pulses of this nature when the edge of the image
has been reached a special marginal electrode
1a, 7b. This is a continuous conductive struc-
ture which is disposed about two edges of the
image in a width corresponding to the desired
duration of impulse. This synchronisation elec-
trode 7 is conducted separately outside the tube
and is earthed via a leakage resistance 8 and a
battery 9 biasing the electrode 7 as desired in
respect of extent and polarity. If the resistance
8 is large as compared with the internal resist-
ance of the scanning system defined by the cath-
ode ray, there are obtained by way of the com-
mon insulating plate negative synchronisation
impulses when the bias 9 is applied with its posi-
tive pole to 7 and positive impulses when the bias
of 7 is selected to be negative in relation to earth.
The intensity of the impulses depends on the
voltage of the bias 9. The occurrence of the sig-
nals produces in the receiver an image having
straight edges when the edges of the synchro-
nisation angle on the image side are also straight.
If the scanning ray is subject to errors in time
upon its scanning movement, the received image
in the case of this method of synchronisation will
nevertheless retain its linear form on the side
directed towards the synchronisation angle.

In the practical embodiment the synchronisa-
tion electrode 7 will preferably consist of a fine
silver deposit on the mica plate supporting the
mosaic 5, and by methods known per se will be
maintained free of photo-electric sensitivity upon
the sensitization of the intercepting plate. A
slight photo activity of 7 will, however, not be
detrimental as it may be overcome by adjusting
the bias 9.

I claim:

1. A television transmission arrangement in-
cluding a cathode ray tube having at least cath-
ode, anode and two pairs of deflecting plates for
deflecting the cathode ray in said tube, a photo-
electric screen comprising a plurality of photo-
electric cells, a metallic marginal electrode, and

an electronic amplifier, said marginal electrode being adjacent said photo-electric screen, a D. C. potential source, means for applying a constant adjustable bias to said marginal electrode from said D. C. potential source, said photo-cells and said marginal electrode being connected to the input of said electronic amplifier as to produce image currents and synchronisation signals when scanning said photo-electric screen and said marginal electrode by said cathode ray.

2. A television transmission arrangement including a cathode ray tube having at least cathode, anode and two pairs of deflecting plates for deflecting the cathode ray in said tube, a photo-electric screen comprising a plurality of photo-electric cells, a metallic marginal electrode, and an electronic amplifier said marginal electrode adjacent said photo-electric screen having the same counter-electrode as said photo-electric screen, a D. C. potential source, means for applying a constant adjustable bias to said marginal electrode from said D. C. potential source, said counter electrode being connected to the input of said electronic amplifier as to produce image currents and synchronisation signals when scanning said photo-electric screen and said marginal electrode by said cathode ray.

3. In a television transmission arrangement including a cathode ray tube comprising an insulating plate, a mosaic of mutually insulated light sensitive particles on one side of said insulating plate, a signal plate on the other side of said insulating plate, means for producing a cathode beam, means for applying to said cathode beam periodic deflections in two coordinates at different frequencies to cause the beam to scan said mosaic, and an amplifying device having its input coupled to said signal plate: means for producing synchronizing impulses in the input circuit of said amplifying device, the last mentioned means consisting of a marginal electrode, mounted on said insulating plate at the same side thereof on which said mosaic is disposed, to be hit by the cathode beam in its positions of extreme deflection in one direction of any of the two coordinates of deflection so that a synchronizing impulse is capacitatively conveyed to said signal plate each time said cathode beam reaches a position of extreme deflection in one direction of one of the two coordinates of deflection.

KURT SCHLESINGER. 25