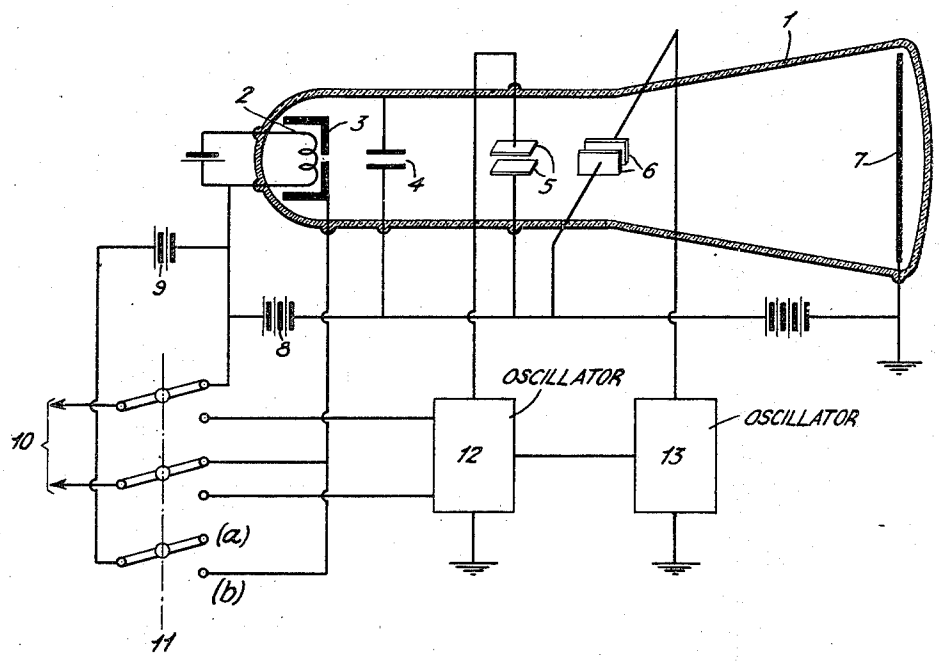
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TELEVISION APPARATUS

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TELEVISION APPARATUS

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The present invention is directed to a television receiver apparatus for re-creating the picture images.

There are fundamental differences in the various transmission methods in electric television in connection with the transmission of brightness values of picture units or points associated with the picture scanning and the picture re-creation. In decomposing the picture there is required a scanning movement in two coordinate directions. In the majority of methods disclosed in the prior art, this scanning movement is effected at as uniform as possible a rate of speed, while the brightness values independently thereof are transmitted in the form of current variations or modulations which serve to control the means in the receiver adapted to re-create the picture. On the other hand, methods have been evolved in which, contradistinct thereto, the brightness values are translated into, and manifest themselves as, speed variations in the scanning movement itself so that the control frequencies to be transmitted for the scanning motion carry at the same time the picture-point modulations.

The apparatus designed for these fundamentally different methods therefore distinguish themselves from each other in that for instance, the receivers designed for a given method may be utilized only in conjunction with a correspondingly designed transmitter outfit.

The present invention has as its object the construction of a receiver apparatus which is not limited in its utility to receive a single type of transmission as before mentioned. This advantage is secured, according to one form of the invention by utilizing a Braun or cathode ray tube as the image reproducing element. It is known in the art that in such a tube the cathode ray pencil creating the picture must be deflected according to two coordinates. What is used for this purpose are means such as vacuum tubes and circuit elements of various kinds such as glow tubes, resistors, condensers, impedances and the like, to produce control currents or control potentials which are transmitted from the sending end or which may be generated locally. These generated control potentials or control currents are then supplied to the elements such as electrostatic deflector plates or electromagnetic deflection coils provided in conjunction with the Braun tube for coordinate control.

According to the present invention means of this kind in combination with suitable change-over means in the receiver are employed in such a way that operation of the cathode ray tube is feasible at will either with constant spot speed and variable brightness of the spot, or else with constant brightness and variable speed.

One practical example for illustrating the invention would be in conjunction with what is known as "tilting-oscillation" circuit schemes for the generation of control potential for coordinate deflection of the cathode-ray pencil. In circuit schemes of this sort, as well known in the prior art, deflecting potentials are produced by the aid of the known parallel connection of condenser and gaseous-conduction lamps as is shown by U. S. Patent 1,695,719 or by a system to produce the same results in accordance with U. S. Patent 1,613,954. By the aid of systems of the type above suggested used in combination with a cathode ray device uniform motion of the spot in the scanning line and uniform progression from line to line are insurable.

According to this invention circuit schemes of the types above suggested are combined with the receiver circuit and the cathode ray or Braun tube in such a manner that by the aid of suitable change-over devices to be used the deflection or tilting circuit means are controlled either by frequencies transmitted from the sending end or by locally produced constant frequencies so that they result in a constant speed of the luminous spot, while at the same time the part of the receiver outfit carrying the picture modulations is connected with the intensity-regulator means of the Braun tube; or else the deflection or tilt circuit means may be so connected with the receiver that they are controlled by the incoming picture-unit modulations in order that the spot having constant brightness may be moved at varying rates of velocity across the picture re-creating screen.

One exemplified embodiment of the invention is shown schematically by the attached drawing although it should be understood that various modifications may be made therein without departing from either the spirit or scope of this invention.

Referring now to the drawing, the bulb of the Braun or cathode ray tube 1 is provided with a hot cathode member 2 and a control electrode or Wehnelt cylinder 3 as well as the usual anode electrode 4. Two pairs of deflector plates or sheets 5 and 6 are arranged at right angles to each other in the space between the anode 4 and the luminescent screen 7 to control the position at which the generated ray strikes the screen. Electromagnetic coils may be substituted for the electrostatic deflecting plates where desired.

The anode 4 is maintained at suitable potential

relative to the cathode by a battery 8, or equivalent, and a second source 9 serves to bias to a suitable constant value relative to the cathode 2 the Wehnelt cylinder when the switch is in position (*b*). The numeral 10 represents the line connected with the television transmitter or brought in from a suitable wireless or wire coil receiver (not shown). A switch 11 is herein disclosed as the medium adapted to effect the change from one of the two operating modes above outlined to the other. The switch 11 in the form shown comprises the two operative positions (*a*) and (*b*). The two oscillation generators to control deflection of the generated cathode ray are illustrated conventionally at 12 and 13, and in the switch position marked (*a*), by way of local synchronization, and independently of the transmitter, serve to control the movements of the cathode-ray pencil, while in the position marked (*b*) they will be "entrained" in their frequency by the incoming signal currents.

Having now described my invention what I claim is:

1. In a television receiver, a cathode ray tube provided with means for generating a cathode ray and a screen upon which the generated ray is observed, means for deflecting the generated cathode ray pencil along two coordinates, a signal receiving channel and means connected with the receiving channel and the tube to adjust in one operative position the operation of the tube for constant speed ray traversal of the screen with variable brightness of the resultant spot and in a second operative position produce constant brightness of the resultant spot with variable speed of screen traversal.

2. A television receiver comprising a cathode ray tube, means to develop within the tube a cathode ray for producing a luminous spot upon the end wall thereof, intensity control means contained within the tube to vary the electron density of the developed cathode ray, deflecting means for causing the produced cathode ray to traverse a predetermined pattern upon the tube fluorescent end wall, means for receiving image signal indications, and a change-over switch having one terminal connected with the receiving means and a plurality of other terminals connected with the intensity control means and with the deflection source respectively, whereby in one switch position the variable intensity effects of a constantly deflected cathode ray are produced to simulate varying brilliance of the produced image points and in a second switch position constant ray intensity results and the cathode ray is deflected at a variable deflection rate to produce also the effect of variable brilliance of the ray spot by varying the period of traversal of the tube fluorescent end wall thereby.

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