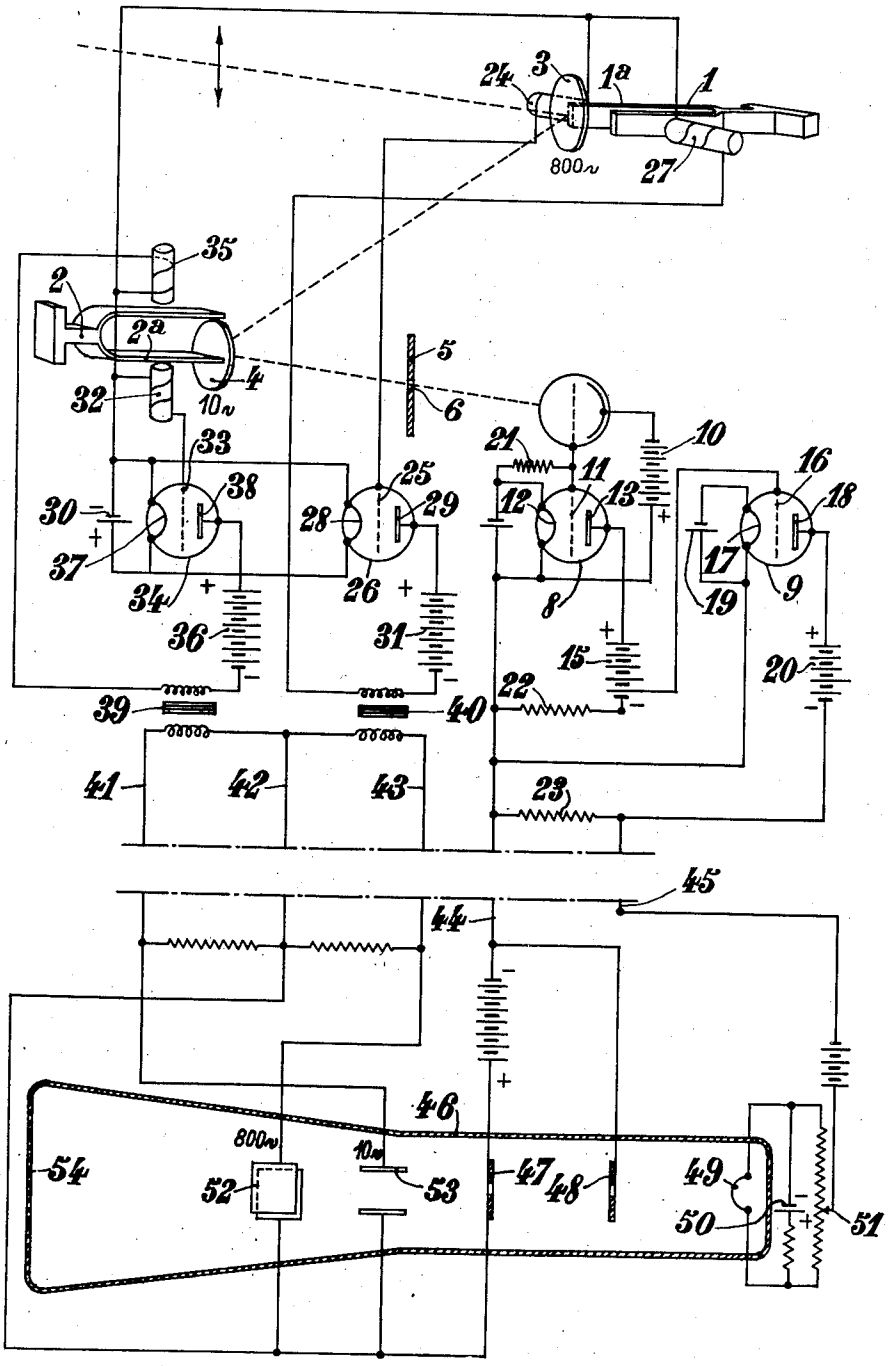
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TELEVISION SYSTEM

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TELEVISION SYSTEM

Original application filed August 22, 1924, Serial No. 733,651, now Patent No. 1,661,603, dated March 6, 1928, and in France November 29, 1923. Divided and this application filed December 10, 1927. Serial No. 239,187.

The present invention has for its object improvements in television systems, and is a division of Patent No. 1,661,603, dated March 6, 1928.

The main object of these improvements is to enable, in a better manner now known, the transmission at a distance of a real image in less time or at most in a time equal to the duration of the persistency of the retinal impressions, that is to say in one tenth of a second at most.

More particularly, the improvements in accordance with the improvements are further adapted to ensure in a continuous manner and without loss of time, according to a determined law, the analysis of the image to be transmitted, by selecting therein at every instant a beam of constant section, and to produce at the same time as this analysis and without loss of time, synchronism currents which vary according to the position of the said beam and according to the same law as the law of analysis of the image.

In the accompanying drawing, the figure illustrates by way of example only and diagrammatically a form of execution of the invention.

The apparatus illustrated comprises a light distributor which is arranged for continuously analyzing according to a determined law, a real image to be transmitted by selecting therein, at every instant, a beam of invariable section.

In the example illustrated, this light distributor is composed of two vibrating members 1 and 2 which are constituted by tuning forks and each carry a mirror 3 and 4. The tuning fork 1 is so arranged that the mirror which is secured on one of its branches, receives a vibratory movement in a horizontal plane, and the tuning fork 2 is so arranged that the mirror 4, which is secured on one of its branches, receives a vibratory movement in a vertical plane.

The tuning fork 1 vibrates for instance in the proportion of 800 periods per second. On the other hand, the duration of the retinal impressions is about 1/10 of a second; this necessarily implies, for realizing the television, that the real image to be transmitted must be analyzed in 1/10 of a second. The tuning fork 2 can therefore vibrate for instance in the proportion of 10 periods per second. The number of 800 periods per second for the tuning fork 1 can be modified according to the desired degree of precision and clearness for the images received.

The light distributor comprising the tuning forks 1 and 2 with their mirrors 3 and 4, is completed by the diaphragm 5 perforated with a hole 6. These various means cooperate for selecting at every instant, in the real image, a beam of invariable section (which is that of the hole 6) according to a double harmonic law; horizontally by the mirror 3 and vertically with the mirror 4.

The beam thus selected acts on a photoelectric cell 7 for producing photoelectric currents the intensity of which corresponds, at every instant, to the intensity of the light beam selected. These photoelectric currents are amplified by a suitable number of amplification stages, and for instance by the triode valves 8 and 9.

The photoelectric current, fed by the battery 10, reacts for instance on the grid of the triode valve 8, the filament of which is shown at 12 and the plate at 13. The heating battery is indicated at 14 and the battery of the filament-plate circuit is indicated at 15.

The photoelectric current thus amplified reacts in its turn on the grid 16 of the triode valve 9, the filament of which is indicated at 17 and the plate at 18. The heating battery is shown at 19 and the battery of the plate circuit at 20, 21, 22 and 23 designate resistances.

The maintenance of the oscillations of the tuning forks is ensured in the same manner for the two tuning forks; for instance, for the tuning fork 1, the oscillating displacements of the branch 1^a in front of the coil 24 cause the production by induction in the winding of this coil, of the varied current which reacts on the grid 25 of the triode valve 26. The electromagnet 27 for maintaining the oscillations is arranged in series in the circuit; filament 28—plate 29 of the triode valve 26. The heating battery is shown at 30 and the plate battery at 31.

Likewise, the branch 2^a of the tuning fork

2 causes the generation in the winding of the coil 32 of a varied current which reacts on the grid 33 of the triode valve 34. The electromagnet 35 for maintaining the oscillations is in series with the battery 36 in the circuit, filament 37—plate 28.

The plate circuit of the triode valve 34 comprises the primary winding of a transformer and the plate circuit of the triode valve 26, the primary winding of a transformer 40. The secondary windings of the transformers 39 and 40 are connected to the three line wires 41—42—43, conveying the synchronism currents. The photoelectric currents are conveyed by the line wires 44 and 45.

The receiving station is constituted by a cathodic oscillagraph 46; in the oscillagraph illustrated, 47 and 48 are the diaphragms and 49 the filaments, the heating battery being shown at 50, with a potentiometric adjusting system 51. The diaphragms 47 and 48 are connected to the line wire 44 and the movable contact of the potentiometer to the wire 45.

The wires 41 and 43 each lead to one of the armatures of condensers 52 and 53, arranged at right angles to each other. The other armatures, as well as the diaphragm 47, are connected to the common wire 42.

It will be seen that the photoelectric current transmitted by the wires 44 and 45 modulates the intensity of the cathodic beam, whilst the currents for maintaining the oscillations of the tuning forks 1 and 2, transmitted by the wires 41—42 and 43, play the part of currents of position which deviate the cathodic beam, through the medium of the condensers 52 and 53, so that the position of the said beam corresponds, at every instant, in an exactly identical manner, to that of the beam selected in the image to be transmitted. The cathodic beam reproduces, therefore, on the fluorescent screen 54 of the oscillator, the real image analyzed at the emitting station.

I claim:

1. In a television system, a light distributor arranged for continuously analyzing a real image to be transmitted by selecting therein at every instant, a beam of invariable section, vibrating means for imparting to said beam two simultaneous harmonic movements of constant amplitudes, the said movements occurring in planes at right angles to each other, means for producing, by means of this beam, photoelectric currents, means depending from the light distributor for simultaneously and directly producing and without loss of time synchronism currents, which vary according to the position of the said beam, and are consequently sinusoidal in form.

2. In a television system, a light distributor comprising two vibrating members of determined periods and arranged for vibrating in planes at right angles, each vibrating member carrying a mirror for deviating the light forming the image, a fixed diaphragm perforated with a hole for selecting a beam of invariable section, means for producing, by means of this beam, photoelectric currents, means for maintaining the vibration of the vibrating members, means controlled by the vibrating members for simultaneously producing and without loss of time synchronism currents which continuously vary according to the position of the said beam.

3. In a television system, a light distributor comprising two vibrating members of determined periods and arranged for vibrating in planes at right angles, each vibrating member carrying a mirror for deviating the light forming the image, a fixed diaphragm perforated with a hole for selecting a beam of invariable section, a photoelectric cell so arranged as to be influenced by this beam and to produce photoelectric currents, means for maintaining the vibration of the vibrating members, windings so arranged that the vibrating members induce therein synchronism currents which continuously vary according to the position of the said beam.

4. In a television system, a light distributor comprising two tuning forks of determined periods and arranged for vibrating in planes at right angles, each vibrating member carrying a mirror for deviating the light forming the image, a fixed diaphragm perforated with a hole for selecting a beam of invariable section, a photoelectric cell so arranged as to be influenced by this beam and to produce photoelectric currents, windings so arranged that the tuning forks induce therein synchronism currents which continuously vary according to the position of the said beam, a triode valve for maintaining, in cooperation with the said windings, the vibration of the tuning forks.

In testimony whereof I have affixed my signature.

ALEXANDRE DAUVILLIER.