Dec. 12, 1933. E. BUSSE 1,939,434

OSCILLOGRAPH

Filed May 14, 1932

Fig. 1

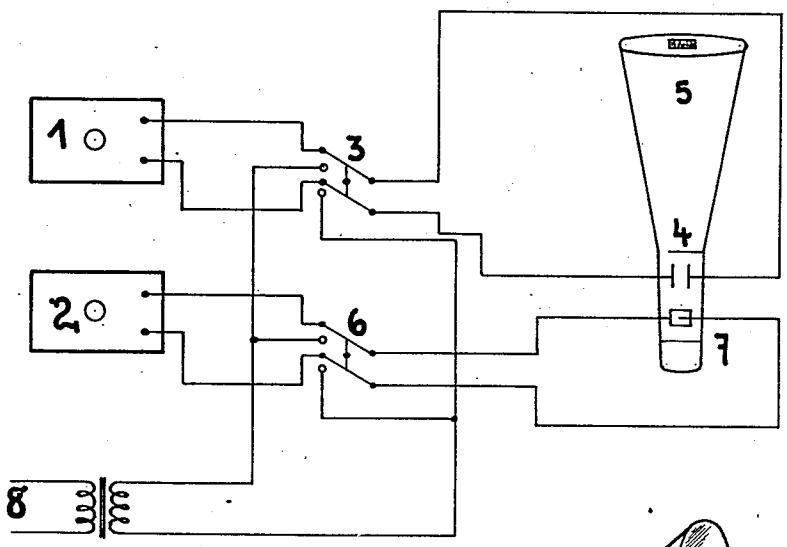
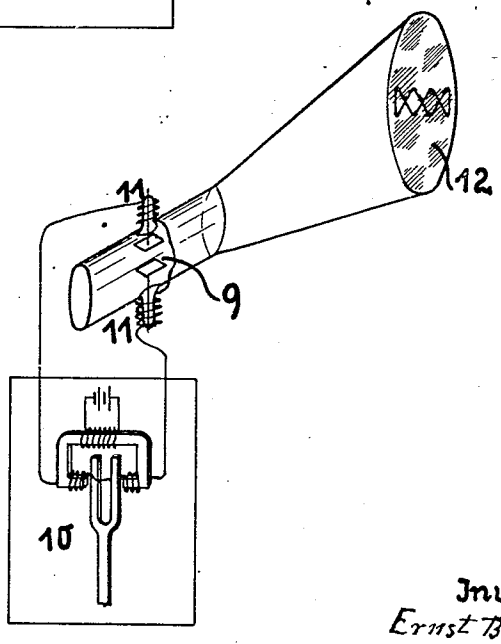


Fig. 2



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OSCILLOGRAPH

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2 Claims. (Cl. 172—245)

This invention relates to improvements in television apparatus, particularly to an adjusting device for the frequencies of electrical reactions principally in television.

The known regulators for the composition of pictures require the true maintenance of positively defined frequencies, the co-called line and picture frequency.

The regulation to the correct frequency during the picture reception is found by continuing to regulate until the picture appears correctly in the picture window. However, this regulation consumes time which is lost for the reception of the television picture. It will, therefore, be a great advantage if this regulation of the frequency is effected at the receiving apparatus before the sending is started.

It is the object of my invention to provide a device making it possible to compare the regulator frequencies at the receiving apparatus with the known frequencies. Such known frequencies are for instance the vibrations of a tuning-fork or tuning-fork buzzers, or in the most simple form the frequency of an alternating electric current may be used as a standard comparator.

For comparison the electronic beam of the receiver tube is diverted in a direction angularly disposed to the direction of deflection of the frequency to be adjusted by means of a suitable device for instance by means of a diverter coil or diverter plates, or by the approach of a magnetized turning-fork which is made to vibrate, or by transitorily bringing the second pair of deflector plates into connection with the comparator frequency. It will then be possible to read the correct frequency from the Lissajous figures formed thereby.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a diagrammatic view of an oscillation or vibration generator constructed according to my invention.

Fig. 2 is a side elevation of a modified form of generator.

As illustrated in Figure 1, the oscillation or vibrator generator 1 is connected by the intermediary of a switch 3 with a pair of deflector plates 4 of a Braun tube 5, while a second generator 2 is connected by the intermediary of a switch 6 with the other pair of deflector plates 7 of the Braun tube 5.

By means of the switches the standard comparator, for instance the alternating current net 8 can be connected to the plates 4 and 7.

As shown in Figure 2, in which for the sake of clearness, one pair of plates is illustrated only, while the other is omitted, the pair of plates 9 has connected thereto the deflector voltage to be adjusted for instance to the television picture line. The tuning-fork generator 10 furnishes an alternating current through the pair of coils 11. By means of this alternating current the fluorescent spot on screen 12 is deflected in a direction vertical to the common axis of the coils.

With suitable arrangement of the coil and plate pairs the well known Lissajous figures are formed corresponding to the various reactions of the normal voltage and the frequency.

It will be understood that I have described and shown the preferred forms of my invention only as examples of the many possible ways to practically construct my device, and that I may make such changes in the general arrangement thereof and in the construction of its minor details as come within the scope of the appended claims, without departure from the spirit of my invention and the principles involved.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent is:

1. A television receiving apparatus including a Braun tube comprising means to produce Lissajous figures independent of the picture to be received before the transmission thereof by comparison of standard frequencies with the deflection frequencies required by influencing the cathode ray of said Braun tube to ascertain from the form of said figures the required frequencies.

2. In an oscillator for regulating the line and picture frequency in television apparatus at the receiver, a Braun tube, a pair of deflector plates within said tube, and a screen, a tuning fork generator, a pair of coils outside of said tube perpendicular to said plates, and connections between said generator and said coils to furnish an alternating current through said pair of coils to deflect the fluorescent spot on the screen in a direction vertical to the axis of the coils to read the current frequencies from Lissajous figures formed on the screen.

ERNST BUSSE.