

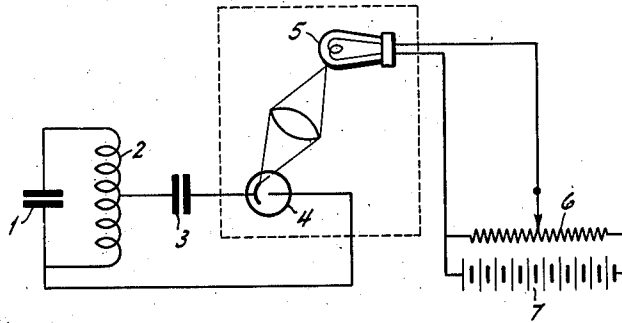
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REMOTE TUNING CONTROL MEANS

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REMOTE TUNING CONTROL MEANS

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3 Claims. (Cl. 250—40)

There are many cases in practice where an impedance, say, a frequency governing element of an oscillator must be varied from a distant point. In past practice variable reactances such as rotary condensers are frequently employed for this purpose, and these are adjusted and set by mechanical means such as cord or cable drives or else by electrically controlled motors. Arrangements of this kind are comparatively complicated in their construction and arrangement; they also are relatively sensitive to shock and other rough treatment. Moreover, the presence of mechanically moving parts is often an unfavorable factor in such remote controlled tuning devices.

Now, the present invention discloses an arrangement adapted to act upon and vary impedances in which the above mentioned drawbacks are absent. The arrangement of the invention comprises a photo-electric cell connected in parallel and/or in series relationship to the impedances to be varied, the electrical data thereof being varied by the intensity of illumination. An arrangement of this nature preferably is so designed that the photo-electric cell according to the invention is accommodated conjointly with a lamp inside a common opaque casing or housing, the volume of light being given off by the lamp being acted upon either by variation of the lamp current or by the aid of a variable stop or shutter (diaphragm) interposed between the light source or lamp and the photo-electric cell.

In what follows an exemplified embodiment of the invention shall be described in more detail by reference to the drawing. Suppose the problem is to make an RF oscillation circuit comprising a capacity 1 and inductance coil 2 tunable from a remote point inside a certain range or band of frequency. For this purpose, according to the invention, by way of a coupling condenser 3 a photo-electric cell 4 is connected in parallel relation to part or whole of an inductance coil contained in the oscillation circuit. The photo-electric cell together with an incandescent lamp 5 is confined inside a common light box (indicated by broken lines in the drawing), the light given off by the glow-lamp being capable of being focused by lenses and reflectors upon the cathode of the photo-electric cell. The glow-lamp is fed with current by way of a potentiometer 6 from a source of potential supply 7. By changing the tap or position of the slider on the potentiometer, the glow-lamp may be varied in

its intensity at will. As a result the capacity or the internal resistance of the photo-electric cell is altered, and this, in turn, results in a change in the tuning condition of the oscillation circuit 1, 2. In lieu of the potentiometer, it would, of course, also be possible to use a series resistance or rheostat in order to avoid wasted leak current. The said resistance or potentiometer may be so proportioned that there results a straight-line frequency dependence.

The volume of light striking the photo-electric cell may be varied by variations of the size of an iris type diaphragm interposed between the photo-electric cell 4 and the glow-lamp 5 rather than by variations of the potentiometer or series resistance. It is also possible to use the arrangement here disclosed at a great many other places of a circuit organization with a view to causing a change in the frequency. For example, a photo-cell may be included in the grid or plate circuit comprising thermionic tubes if the frequency is a function of the grid or the plate potential. Also an arrangement according to the invention may be used in connection with a great many arrangements where the chief desideratum is to produce distant or remote actions or variations of the value of an impedance.

I claim:

1. Means for controlling from a remote point the tuning of a parallel resonant circuit consisting of fixed inductance and capacity, comprising a photo-electric cell, means including a condenser for coupling said cell in parallel to at least a portion of the resonant circuit whereby the electrostatic capacitance of the cell is reflected into the circuit, means including a source of light adapted to direct a steady, uninterrupted light beam upon said cell to control the effective capacitance of said cell, the intensity of said light source determining the amount of capacitance reflected into the circuit and consequently its tuning, and means at a remote point for varying the intensity of said light source.

2. A system as defined in claim 1 wherein the photo-electric cell and the light source are confined within an opaque compartment.

3. A system as defined in claim 1 wherein the means at the remote point consists of a source of energy and a potentiometer connected thereacross, and connections from one end and a variable tap on said potentiometer to the light source.

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