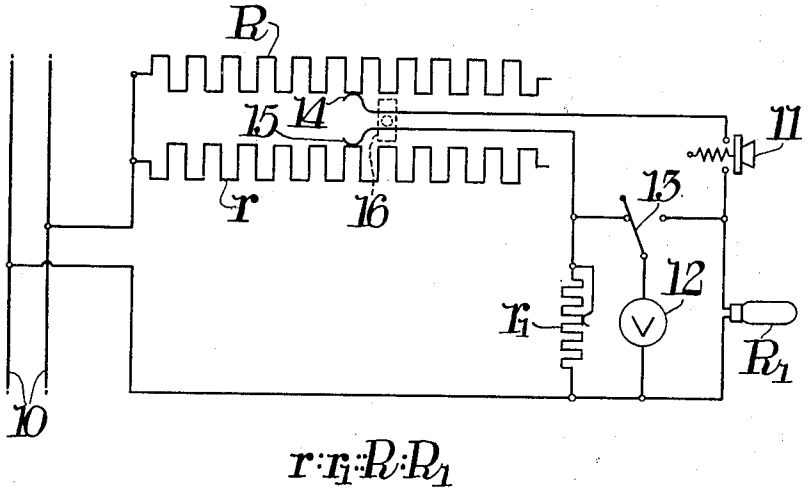
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LAMP VOLTAGE CONTROL DEVICE

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$r : r_1 :: R : R_1$

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LAMP VOLTAGE CONTROL DEVICE

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2 Claims. (Cl. 176—10)

My invention relates broadly to apparatus for controlling the resistance of an electrical circuit and more particularly to an adjustable circuit arrangement for insuring that the desired voltage will be applied to a lamp when the lamp is included in the circuit.

In certain types of photographic printers in which the exposure is controlled by switching the printing lamp on and off it is highly desirable that the lamp be energized to the same level for each and every exposure. Due to variations in line voltage and the fact that it is generally undesirable to switch on the lamp except for making exposures, the operator does not know what the voltage drop across the lamp will be when he makes an exposure and it is usually impossible to read a volt meter connected across the lamp because of the short time intervals involved.

One of the objects of my invention is to provide a circuit arrangement whereby a resistance in the lamp circuit may be so adjusted that the desired voltage drop across the lamp will be present when the lamp circuit is closed.

Another object of my invention is to provide an arrangement whereby the adjustment of a measurable circuit simultaneously adjusts the unknown lamp circuit according to the same law so that proper adjustment of one insures a proper setting of the other.

Other objects and advantages of my invention will appear from the following description when read in connection with the accompanying drawing and its scope will be pointed out in the appended claims.

Referring to the drawing the single figure of which shows a circuit arrangement embodying my invention the reference character R_1 designates a lamp which it is desired to repeatedly energize with a predetermined voltage and which is adapted to be connected to a source of power 10 through an adjustable resistance R and a push switch 11. The lamp R_1 and its series resistance R are connected in parallel with an adjustable resistance r and an adjustable rheostat r_1 which are connected across the source 10 during the entire time the lamp is to be used. The resistances R and r are adjustable in unison in any suitable manner as by sliding contacts 14 and 15 carried by a common member 16. In practice the resistance of the unit r should be several times that of the unit R so as to lower the amount of energy dissipated in it.

Initial adjustment is obtained by adjusting the rheostat r_1 until the voltage drop across it equals the voltage drop across the lamp R_1. The push switch 11 is held closed during this adjustment and the voltage drops may be compared by alternately connecting a voltmeter 12 across the rheostat r_1 and the lamp R_1 by means of a switch 13. This adjustment need be made but once for any one lamp.

After the initial adjustment has been made, the voltmeter 12 is left connected across the rheostat r_1. The two series resistances R and r are adjustable in unison and so proportioned that throughout their ranges the voltage drop across the rheostat r_1 and the lamp R_1 vary together, the relation between the various resistances being such that $r/r_1=R/R_1$.

In operation, the lamp circuit being open, the resistance r is adjusted to bring the voltage drop as indicated by the voltmeter 12 to the desired value and since the resistance R is adjusted simultaneously with the resistance r when the push switch 11 is closed the voltage drop across the lamp R_1 will be of the desired value.

From the above description it will be seen that with the apparatus of my invention it is possible to know immediately beforehand whether or not the desired voltage will be applied to the lamp when its circuit is closed and to adjust the lamp resistance the proper amount to make certain that the lamp will be energized the desired amount for correct printing.

While I have described in detail one specific embodiment of my invention, it will be obvious to those skilled in the art that various modifications will readily suggest themselves without departing from the spirit of my invention, the scope of which is pointed out in the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In combination an electrical source subject to voltage variations, a lamp circuit and a rheostat circuit connected in parallel to said source, an adjustable resistance in each of the parallel circuits, and means for adjusting simultaneously the two resistances without varying the ratio between the total resistances in the two circuits.

2. In combination, two parallel circuits adapted to be connected to a source of electrical energy, one of said circuits being normally open and containing a lamp, a switch for closing the circuit through the lamp, the other of said circuits being normally closed and containing a rheostat the resistance of which bears a definite relation to the resistance of said lamp, an adjustable resistance in each of said circuits, and means for adjusting said resistances in unison.

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