July 19, 1932. H. C. WELLER 1,868,403

CONTROLLING DEVICE FOR ELECTRICAL CIRCUITS

Filed Jan. 3, 1927

Fig. 1.

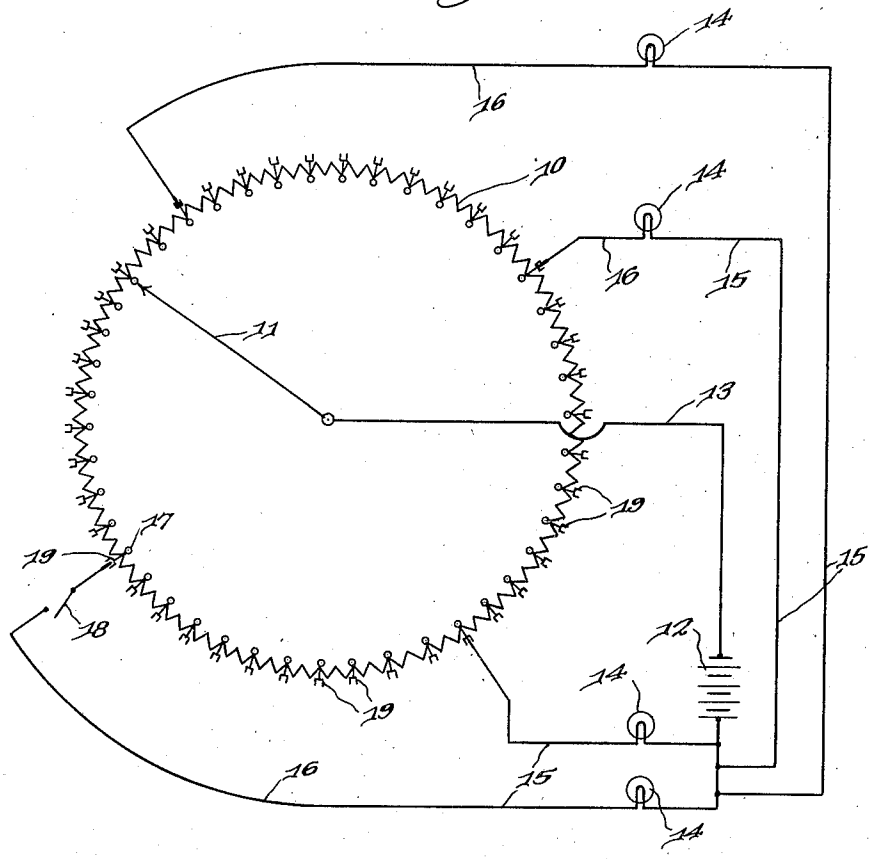
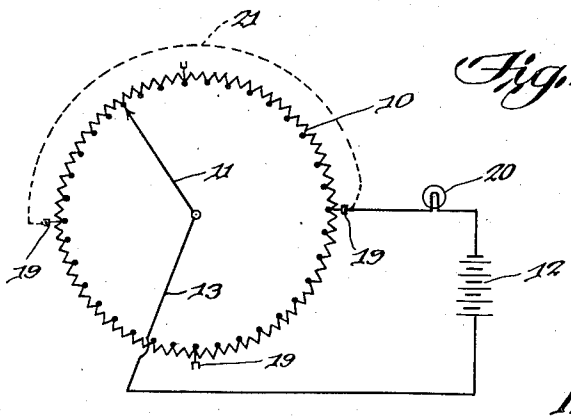


Fig. 2.



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UNITED STATES PATENT OFFICE

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CONTROLLING DEVICE FOR ELECTRICAL CIRCUITS

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This invention relates to certain novel improvements in controlling devices for electrical circuits and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

Among the salient objects of the invention is the provision of an endless or continuous resistance unit for simultaneously controlling by a single movable controlling arm a plurality of branch circuits containing translating devices such as lamps or the like.

A further object of the invention is to provide a device of this character whereby a plurality of translating devices, such as lamps or the like, may be dimmed while others are simultaneously brightened by a single continuous movement of a controlling arm over an endless resistance unit.

A still further object of the invention is to provide a rheostat which includes as a part thereof an endless resistance unit over which a single controlling arm is moved for controlling current flow through branch circuit wires and whereby the resistance of the unit may be diminished or increased at will.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing, showing the preferred form of construction, and in which:

Fig. 1 is a diagrammatical view of my invention embodied in a concrete form, and

Fig. 2 is a diagrammatical view of my invention illustrating the manner of varying the resistance of the resistance unit embodied in the invention.

The invention, hereinafter to be more fully set forth, embodies a rheostat to which branch circuit wires are connected and this rheostat is especially designed for controlling current flow through the circuit wires by means of a single arm movable over an endless resistance unit. The device when constructed in accordance with the description hereinafter set forth will find a particular field of usefulness in the lighting of theaters, such devices being commonly called light dimmers, and further where it is desired to vary the spectrum of the colored lights.

The invention, in its preferred form of construction, Fig. 1, comprises a resistance unit 10 which is of an endless construction. This resistance unit 10 is formed of such material as will not readily oxidize due to the flow of current therethrough. The resistance unit is adapted to be engaged by a movable control arm 11 which may be manually or automatically operated as desired. This control arm 11 is connected to one side of a source of electrical energy 12 through the medium of a conductor wire 13. The other side of the source of electrical energy is connected in circuit with translating devices 14, illustrated in the present instance as lights, said connection being accomplished through the medium of branch wires 15. These lighting elements 14 are connected optionally at concentric points with respect to the unit through the medium of lead wires 16. This optional connection is accomplished through the medium of plugs and sockets of the ordinary type, the plugs being preferably connected to the unit 10 at diametrical points with respect to the unit 10, as at 17. Incorporated in the lead wires 16 may be switches 18 not all shown for optionally opening and closing the circuit between one or more of the lighting elements and the resistance unit. As shown in Fig. 1 the sockets, indicated at 19, are equally spaced circumferentially with respect to the resistance unit 10 whereby the lighting elements, regardless of their number, may be connected in circuit with the resistance unit at any point about its circumference.

In actual use, as the arm moves away and toward any one of the points 17 the electrical resistance will be increased or decreased according to the position of the control arm 11 with respect to the unit 10. From this it will be seen that not only any number of translating devices may be controlled by the endless resistance unit 10 but that a simple method is provided for varying current flow in the branch circuits.

From this description taken in connection

with the accompanying drawing, it will be manifest that the device will be of great utility when incorporated in circuit with stage lights and electrical signs or other translating devices where it is desirable for gradual simultaneous dimming of the lights.

In Fig. 2 I have illustrated a diagrammatical view to show a simple method of reducing the resistance of the unit 10 and to illustrate this novel method I have shown but one translating device in the form of a lighting element 20. This lighting element 20 is shunted from one side of the resistance unit 10 to an opposite diametrical side through the medium of a shunt wire 21. It will be thus seen that as the controlling arm 11 moves over and into contact with the resistance unit 10 the resistance of the same is greatly reduced by reason of the shunt wire 21. The resistance unit illustrated in Fig. 2 is intended to be constructed in substantially the same manner as the resistance unit illustrated in Fig. 1 whereby the shunt wire may be connected with the resistance unit through the medium of the plugs 19 and at this time it is pointed out that any number of shunt wires may be used whereby to diminish the resistance of the unit controlling one or more of the lighting elements 14.

I am aware of the fact that prior to my invention rheostats have been incorporated in electrical circuits for the purpose of my invention but I do not know of a rheostat controlling device of the character such as herein described as embodying my invention and which has incorporated therein an endless or continuous resistance unit for successive variation of current flow in the branch wires. By the construction of a rheostat in accordance with the description herein set forth it will be manifest that operation of the same either manually or automatically is greatly reduced in simplicity.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

The invention having been set forth, what I claim as new and desire to secure by Letters Patent is:

1. A controlling device for electrical translating devices comprising an endless metallic resistance unit having a plurality of connecting elements connected thereto at intervals therearound, a rotatable contact arm movable over said unit and connected to one side of a source of current, a plurality of conducting members adapted to be detachably and selectively connected at one end with any one of said connecting elements and connected at their opposite ends to said current source with a translating device in circuit with each of said conducting members whereby said contact member may be rotated alternately to increase and decrease the potential delivered to said translating devices.

2. A controlling device for electrical translating devices comprising an endless metallic resistance unit having a plurality of connecting elements connected thereto at intervals therearound, a rotatable contact arm movable over said unit and connected to one side of a source of current, a plurality of conducting members adapted to be detachably and selectively connected at one end with any one of said connecting elements and connected at their opposite ends to said current source with a translating device in circuit with each of said conducting members whereby said contact member may be rotated alternately to increase and decrease the potential delivered to said translating devices, and a shunt connector for connecting two or more of said connecting elements in a common circuit.

In testimony whereof I affix my signature.

HERBERT C. WELLER.