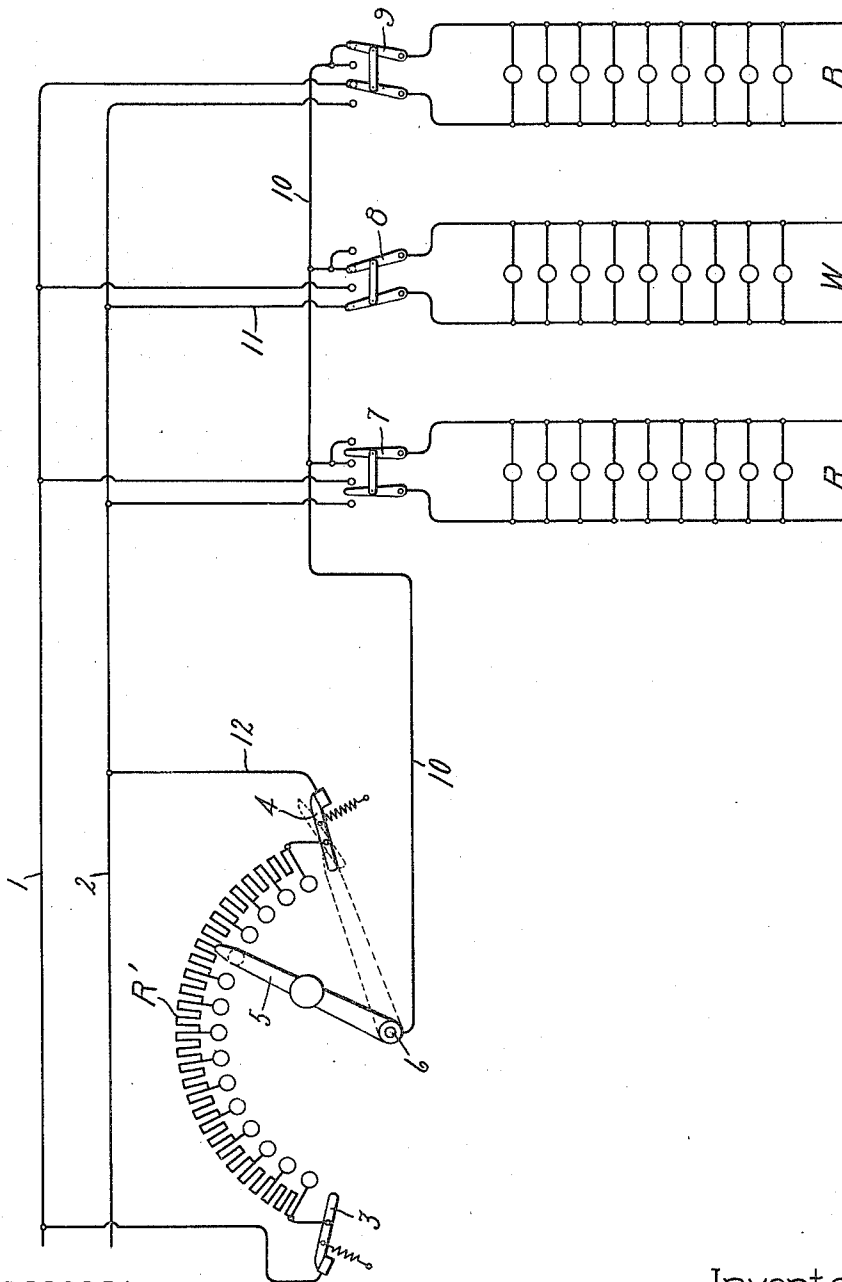


A. E. BUTTON.
CONTROLLING DEVICE FOR LIGHTING CIRCUITS.
APPLICATION FILED DEC. 19, 1907.

1,019,422.

Patented Mar. 5, 1912.



Witnesses:

George W. Tilden
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Inventor:

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by *Albert H. Davis*
Att'y.

UNITED STATES PATENT OFFICE.

ARNOLD E. BUTTON, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

CONTROLLING DEVICE FOR LIGHTING-CIRCUITS.

1,019,422.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed December 19, 1907. Serial No. 407,133.

To all whom it may concern:

Be it known that I, ARNOLD E. BUTTON, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Controlling Devices for Lighting-Circuits, of which the following is a specification.

This invention relates to devices for controlling electric circuits and has for its object the provision of means whereby a plurality of branch circuits containing translating devices may be simultaneously controlled by a single controlling rheostat.

My invention relates more specifically to devices for controlling electric lighting circuits.

One of the objects of my invention is to provide means whereby a plurality of translating devices, such as lamps, which are arranged in separate branch circuits may be dimmed while others are simultaneously brightened by a single continuous movement of the controlling rheostat. A device of this character finds a particular field of usefulness in the lighting of theaters, such devices being known as theater dimmers. It is oftentimes desirable where different colored lights are used to gradually shade from one color to another without a break in the continuity. This result is accomplished by constructing the rheostat so that as the resistance of the rheostat is cut out of some branches it is cut into others. I also provide means whereby the arrangement of branches may be varied in a simple and efficient manner.

In the accompanying drawing I have shown in a diagrammatic view my invention embodied in concrete form.

Referring to this drawing R is the resistance having a series of contact studs arranged in the arc of a circle in the usual way. This resistance is connected across the lighting mains 1 and 2, the switches 3 and 4 being connected between the mains and the opposite ends of the resistance. These switches are spring closed and are arranged to be opened by the controlling arm 5 pivoted at 6. A series of branch circuits R, W and B are arranged to contain translating devices, such for instance as incandescent lamps. The lamps may be of different colors, as for instance red, white and blue. Double-pole double-

throw switches 7, 8 and 9 connect these lamps with the rheostat and the line in the manner hereinafter described.

The arrangement of circuits and the mode of operation are as follows: With the arrangement of the switches shown in the drawing, the red lights are entirely cut out and the switches for the white and blue lights are oppositely arranged so that as the arm 5 is moved over to the right, resistance R' will be gradually thrown in series with the white lights and gradually cut out of circuit with the blue lights. In this way the white light is gradually dimmed while the blue light is brightened. The circuit will be as follows: from the positive main 1 through resistance R', arm 5, conductor 10, switch 8, lights W, conductor 11 and back to line. The circuit through the blue lights will be from the positive main 1, switch 9, lights B, conductor 10, arm 5, resistance R, conductor 12 and back to line. When the last stud is reached all of the resistance R' will be in series with the white lights, and the latter will be practically extinguished while the blue lights will be at their brightest. By moving the arm 5 a little farther so as to open the switch 4, the blue lights may be extinguished. When the switches 8 and 9 are thrown in the same direction, they will be affected alike so that the lights may be combined in any desired manner.

While I have described my invention with reference to a particular arrangement of circuits and mode of operation it should be understood that I do not limit my invention in these particulars except in so far as it is limited by the scope of the claims annexed hereto.

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

1. The combination with a main electric circuit having a plurality of branches, and translating devices connected in said branches, of a rheostat connected across the main circuit, and connections whereby resistance is included in one of said branches and simultaneously excluded from another branch by a single movement of the controlling member of the rheostat.

2. The combination with a plurality of parallel branch circuits having translating devices connected therein, of a resistance connected in parallel therewith, a control-

ling member for said resistance, and connections whereby said resistance is included in the circuit of one of said branches and simultaneously excluded from others by a single movement of the controlling member.

5 3. The combination with a lighting circuit, of a resistance connected across the same, a plurality of parallel branch circuits having lamps therein, a controlling element
10 for said resistance connected to said branches, and switches for changing the connections between said branches and said controlling element.

15 4. The combination with a plurality of parallel branch circuits having translating devices therein, of a rheostat connected in parallel therewith, connections whereby resistance may be included in certain of said branches and simultaneously excluded from
20 others by a single movement of the controlling member of the rheostat, and a double pole switch in each branch for changing its connections with the rheostat.

5. The combination with a lighting cir-

cuit, of a plurality of branches having dif- 25
ferent colored lights therein, a rheostat connected in parallel therewith, and connections whereby the lights in certain of said
branches are dimmed while others are
brightened continuously by moving the con- 30
trolling member of the rheostat.

6. The combination with a lighting circuit having a plurality of parallel branches, colored lights arranged in said branches, the
lights in the different branches being dif- 35
ferently colored, a resistance connected across the circuit, a controlling member therefor, and connections whereby the lights
in certain branches are continuously dimmed
while those in other branches are simulta- 40
neously brightened.

In witness whereof, I have hereunto set my hand this 16th day of December, 1907.

ARNOLD E. BUTTON.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.