

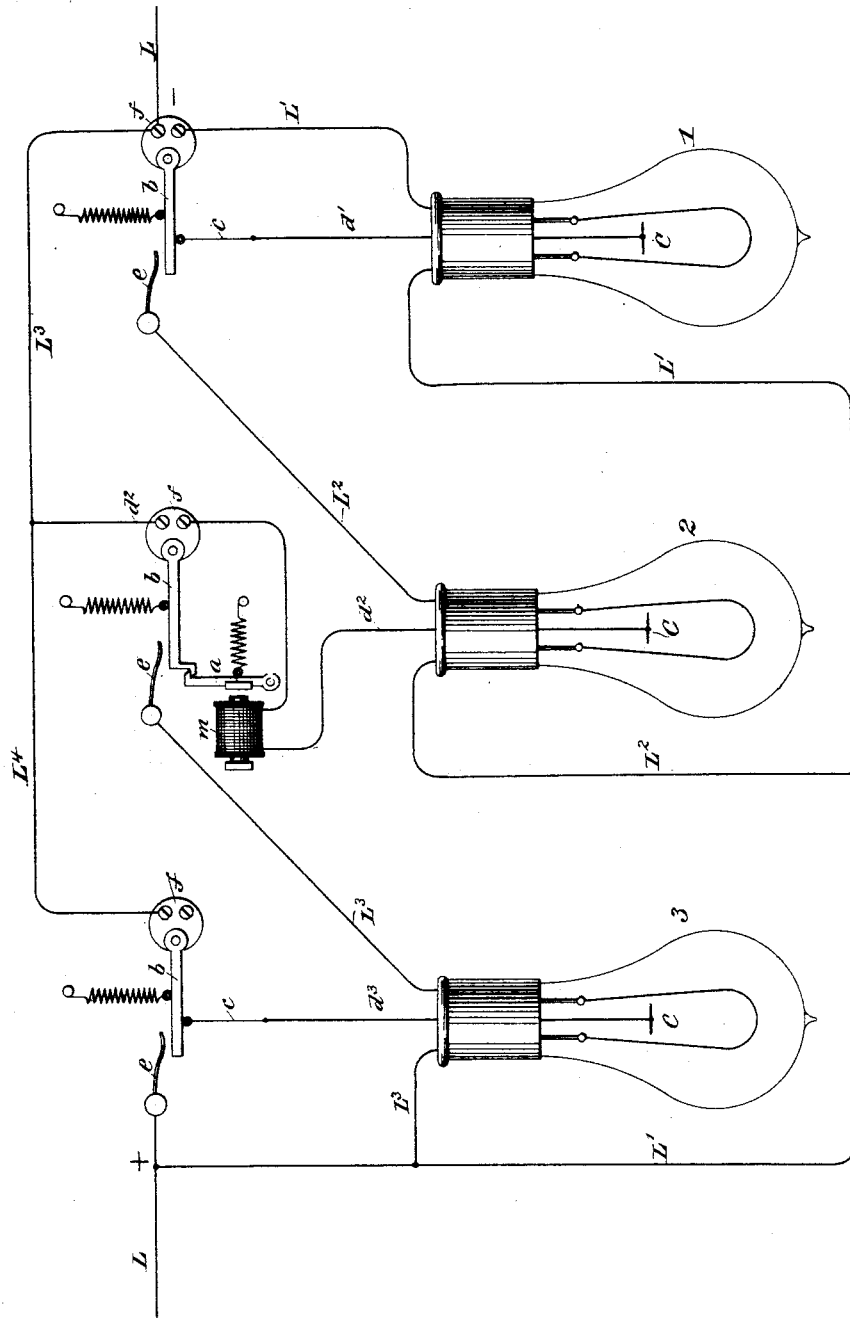
(No Model.)

O. P. LOOMIS.

AUTOMATIC CIRCUIT CONTROLLER FOR ELECTRIC LIGHTS.

No. 402,754.

Patented May 7, 1889.



Witnesses,

Geo. W. Dreck,
Eugene J. Reilly

Inventor,

Oscar P. Loomis

By his Attorneys

Fowler & Fowler

UNITED STATES PATENT OFFICE.

OSBORN P. LOOMIS, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO THE
LOOMIS ELECTRIC MANUFACTURING COMPANY, OF NEW YORK, N. Y.

AUTOMATIC CIRCUIT-CONTROLLER FOR ELECTRIC LIGHTS.

SPECIFICATION forming part of Letters Patent No. 402,754, dated May 7, 1889.

Application filed April 15, 1887. Serial No. 234,953. (No model.)

To all whom it may concern:

Be it known that I, OSBORN P. LOOMIS, a citizen of the United States, residing at Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Automatic Circuit-Controllers for Electric Lights, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

The object of my invention is to so control an electric circuit having electro-receptive devices therein, preferably incandescent electric lamps, that when one of the same is incapacitated another will automatically by the current itself be put in circuit and the former cut out of circuit.

The invention consists in an arrangement of circuits for accomplishing the above purpose in connection with incandescent electric lamps having a conductor sealed in the globes thereof between the branches of the filament, as described in my application, Serial No. 225,318, filed January 24, 1887, and in having a circuit connecting with such conductor in such a manner that when the filament becomes broken in any way the current will be diverted to the circuit connected with the conductor, in which circuit is located a fusible wire for cutting out the lamp and putting another in circuit by the current caused to flow over said circuit, all of which will be described in detail, and the new features pointed out in the claims appended hereto.

In the accompanying drawing, forming part of this specification, 1, 2, and 3 represent incandescent electric lamps connected with a main line, L, in the manner represented in the drawing. Between the branches of the filament of each lamp is preferably arranged a T-shaped conductor, C, which is sealed in the globe or otherwise suitably disposed, as pointed out in the application referred to above. Connected with these conductors are circuits d^1 , d^2 , d^3 , in which circuits are arranged devices for cutting the lamp out of circuit and putting another in when the current is caused to flow over said circuit upon failure

of the filament. The lamp l is represented as the one normally in circuit. It is connected with the main line L by a conductor, L^1 . In the circuit d^1 , connected with the conductor C of lamp l , is arranged a fusible wire, c , which is fastened to a spring-actuated lever, b , normally held away from a contact-spring, e , by means of said fusible wire. The lever b is pivoted to a metal piece, f , connected with, preferably, the negative pole of the line L. Should the filament of lamp l become incapacitated for duty, the current circulating in the same will be caused to leap across to the conductor C, as pointed out in my application above alluded to, and pass over the fusible wire c , causing the same to melt, which will allow the lever b to be drawn against the contact-spring e , causing the circuit of the lamp 2 to be completed through the conductor L^2 and shunting the current from the conductor L^1 . In the circuit d^2 , connected with the lamp 2, as described, is arranged an electro-magnetic cut-out instead of fusible cut-out, as in the previous instance, to illustrate another way in which the circuits may be controlled; but I make no claim to this electro-magnetic cut-out arrangement, the invention being confined to my fusible cut-out in the combination described. An electro-magnet, m , is arranged in this circuit d^2 , which is also connected with a metal piece, f , upon which the lever b is pivoted, as before. The armature a of the magnet m normally holds the lever b from its contact-spring e by engaging a hooked portion of the same. When the current is diverted over the circuit d^2 , the electro-magnet m becomes energized, attracts its armature, and allows the lever b to make contact with the spring e , completing the circuit of the lamp 3 by way of a portion of the circuit d^2 over the conductor L^3 , short-circuiting the broken filament in the line L^2 .

Should the filament in the lamp 3 fail, the current will be diverted over the circuit d^3 and this lamp cut-out, as in the previous instances, the current passing over its lever b by way of its contact-spring e , metal piece f , and line L^4 and L^3 , the latter of which is connected with the negative terminal of the main line L.

I may use any number of lamps which may

be successively placed in circuit, and do not wish therefore to confine myself to any special number, it being only necessary to increase the circuits and circuit-controlling devices in the manner I have indicated.

In the present case the conductor C is preferably made T shape, which I regard as a slight improvement upon the form of conductor used in my previous application.

Having now set forth my invention and described its mode of operation, what I desire to aim, and secure by Letters Patent of the United States as my invention, is—

1. The combination, with a group of two or more incandescent electric lamps, having conductors sealed between the branches of the filament in the path of the arc forming on rupture of the filament, as set forth, one of which lamps is placed in circuit first, circuits connected with said conductors and in electrical communication with normally-open circuit-closers and the line, fusible wires in the path of said circuits, cut-out devices also located in said circuits normally held from operation by said fusible wires, and electrical connections, whereby when the filament of the first lamp fails the second will be brought in

circuit, and when the second fails the third will be brought in circuit, and so on, substantially in the manner specified.

2. The combination of two or more incandescent lamps, as 1 2 3, the former of which is in the main line L L', a T-shaped conductor, C, sealed in the globe of each lamp between the branches of the filament in the path of the arc forming on rupture of the filament idle-circuits d^1 d^2 d^3 , &c., connected with the same, a fusible wire in the path of each of said idle-circuits, automatic cut-out devices in said circuits normally held from operation by said fusible wires, and normally-open conductors L^2 , L^3 , and L^4 , &c., connected to the lamps and to the line, arranged to be successively placed in circuit by said fusible cut-out devices, all operating and combined for the purpose set forth.

In testimony whereof I have hereunto set my hand and seal, this 9th day of April, 1887, in the presence of the two subscribing witnesses.

OSBORN P. LOOMIS. [L. s.]

Witnesses:

GEO. WYATT DICKERMAN,
GEO. L. STEVENS.