

(No Model.)

E. T. COOKE & W. H. MACKAY.
ELECTRIC LIGHTING SYSTEM.

No. 478,186.

Patented July 5, 1892.

Fig. 1.

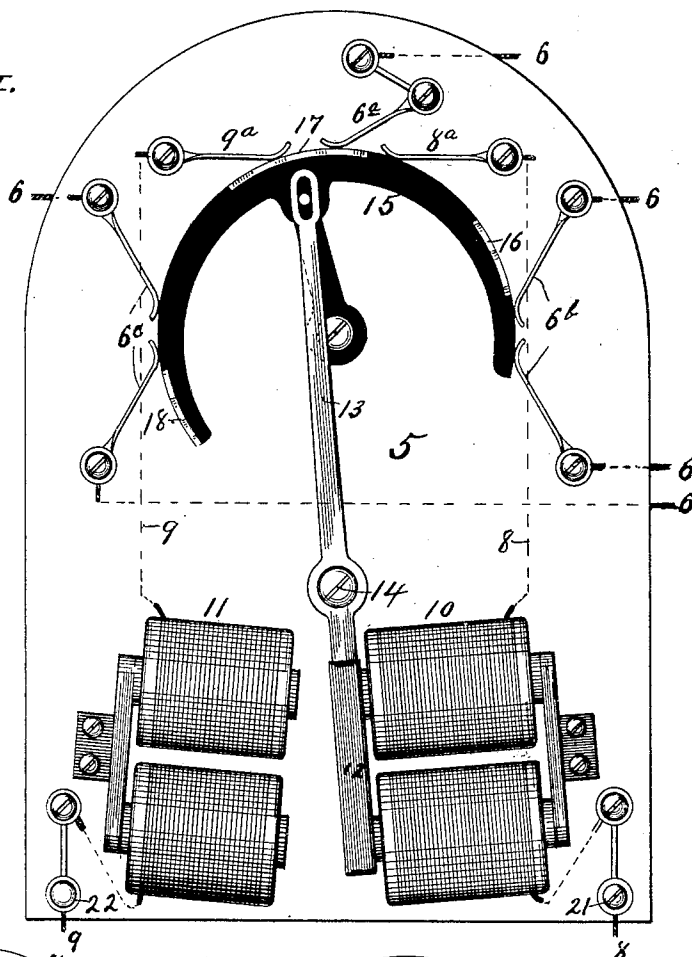


Fig. 3.

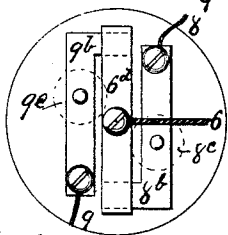
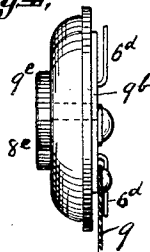


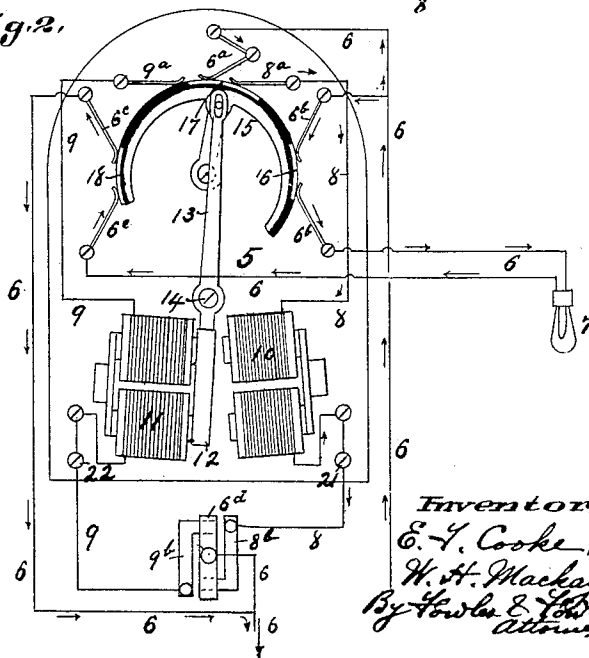
Fig. 4.



Witnesses:

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Fig. 2.



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UNITED STATES PATENT OFFICE.

EDWARD T. COOKE AND WILLIAM H. MACKAY, OF ST. LOUIS, MISSOURI.

ELECTRIC-LIGHTING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 478,186, dated July 5, 1892.

Application filed July 17, 1891. Serial No. 399,796. (No model.)

To all whom it may concern:

Be it known that we, EDWARD T. COOKE and WILLIAM H. MACKAY, citizens of the United States, residing at St. Louis, in the State of Missouri, have invented a certain new and useful System of Lighting and Extinguishing Electric Lamps, 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 drawings, forming part of this specification.

The object of our invention is to be able to light and extinguish from different points one or more electric lamps in a circuit.

This invention is designed as an improvement on an invention patented to us on July 22, 1890, No. 432,745.

It is often desirable to light and extinguish one or more electric lamps in a circuit at more than two different points of the circuit. To accomplish this purpose leads to a complicated system of circuits where our above-mentioned patented system is used. The devices herein described are designed to accomplish the same object with less complication and with a simple system of circuits. Where it is designed to put out and light any number of electric lamps arranged within a circuit—say in the front and upper hall of a house—our patented system heretofore referred to may be employed to great advantage; but where it is desirable to light and extinguish such lamps at another point also—say from a rear hall—or from any number of points the said construction cannot be used to such advantage, owing to complication of electrical circuits. The mechanism herein set forth, which is intended to accomplish these objects and to effect the same in a simple manner, consists of a switch located at any suitable point and controlled by two magnets, one of which magnets throws the switch so as to light the lamp or lamps and the other of which magnets actuates the switch so as to extinguish the lamp or lamps, a suitable switch or pair of push-buttons governing the said magnets, one for lighting and the other for extinguishing the lamps, being located at the different points from which it is desired to control the said circuit, the arrangement being such that when the first-mentioned switch is

operated so as to light the lamps the lighting-magnet is thereby thrown out of circuit and the light-extinguishing magnet thrown in circuit, and vice versa, so that when the lamp or lamps in circuit are lighted they can be extinguished only by operating one of the extinguishing push-buttons at the various points, the manipulation of the lighting push-buttons having no effect upon the circuit. These push-buttons we preferably design to have differently marked. One may be white or smooth for lighting and the other black or with a roughened surface for extinguishing the lamps and the two arranged side by side at the different points. The lighting-button may be above or below the extinguishing-button or to the right or left of the same—that is, one button may be arranged at a predetermined location with reference to the other button in order to readily distinguish the one from the other.

The invention will be best understood by referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view showing our improved form of switch for carrying out the objects of our invention. Fig. 2 is a diagrammatic view illustrating the circuits; and Figs. 3 and 4 are bottom and side views, respectively, of push-buttons for controlling said circuits to light and extinguish the lamps.

The same marks of reference indicate the same parts throughout the several views.

5 is preferably a rotating or oscillating switch located at any suitable place in a circuit 6, containing one or more electric lamps. Instead of a rotary or oscillating switch, any other kind of a switch—such, for instance, as a reciprocating switch—can be used. 8 and 9 are two circuits which may form a part of and derive their supply of electricity from the circuit 6, but which may also be separated from and controlled by an independent source of electricity. In the circuit 8 is arranged an electro-magnet 10, and in the circuit 9 is an electro-magnet 11. These said electro-magnets are preferably arranged opposite each other, and between them is an armature 12, carried by an armature-lever 13, pivoted at 14 and connected by a pin and slot to a rotary switch 15. In the accompanying drawings we have shown the circuits 8 and 9 as forming a part of and supplied by electricity from the

lighting-circuit 6, which is the preferred arrangement.

Carried by the switch 15 are three plates 16, 17, and 18, carefully insulated from each other by the switch-body, which may be made of insulating material or by insulating material carried by the switch-body. Resting upon the contact-plate 7 in both positions of the switch is a contact-spring 6^a, which is in electrical communication with the circuit 6. Arranged adjacent to this contact-spring and at each side thereof are contact-springs 8^a and 9^a, connected to the wires 8 and 9, respectively. In one position of the switch the plate 17 establishes communication between the contact-springs 6^a and 9^a, completing the circuit 9, (see Fig. 1,) and in the other position the switch establishes communication between the contact-springs 6^a and 8^a, completing the circuit 8. (See Fig. 2.)

6^b and 6^c are contact-springs adapted to make and break the light-circuit 6 at the plates 16 and 18, respectively, the circuit being made and broken at two points at and near the said plates. When the two plates 16 and 18 are beneath both sets of the contact-springs 6^b and 6^c, as indicated in Fig. 2, the lighting-circuit will be completed, as shown by the arrows in Fig. 2, and the lamps will be lighted. When, however, both sets of springs rest upon the insulating material of the switch, the circuit will be broken, as indicated in Fig. 1, and the lamps in the said circuit 6 will be extinguished.

20 is a circuit maker and breaker or push-button mechanism for controlling the magnets 10 and 11 and throwing the switch in one or the other direction to light or extinguish the lamps. The wire 8, in which the magnet 10 is arranged, is connected to a metallic strip 8^b, and the wire 9, in which the magnet 11 is arranged, is secured to a similar metallic strip 9^b, arranged side by side, and beneath the protruding ends of each of which is a metallic strip 6^d, in communication with the circuit 6. Carried by the strips 8^b and 9^b, respectively, are push-buttons 8^c and 9^c, which when depressed force their respective strips into contact with the strip 6^d and complete the circuit thereby. One of these buttons is adapted to light the lamp or lamps and the other to extinguish them.

Suppose the apparatus to be in the position indicated in Fig. 1, which illustrates the position of the switch after it has been operated by the magnet 10 to break the circuit 6 at the contact-springs 6^b and 6^c to extinguish the lamp. The circuit 8 of the magnet 10 is also broken at the contact-spring 8^a, so that should the extinguishing push-button 8^c be operated again it will have no effect upon the mechanism. It will be noted, however, that the circuit of the wire 9, containing the magnet 11, is closed by the plate 17 between the contact-springs 9^a and 6^a. If now the lighting contact-button 9^c is manipulated, the circuit of the magnet 11 will be energized and the switch

thrown in the position indicated in Fig. 2, the lamp or lamps being lighted by the plates 16 and 18 establishing communication across the contact-springs 6^b and 6^c, respectively, and completing the circuit 6. The circuit of the magnet 11 will now, however, be broken at the contact-spring 9^a, so that should the lighting push-button be manipulated again it would have no effect upon the apparatus. Each magnet, it will be observed, when it is energized and actuates the switch which controls the circuit 6 also cuts itself out of circuit. This is one of the leading features of our invention. By means of such an arrangement when the lamps are lighted an extinguishing push-button can only affect the circuit, and, vice versa, when the lamps are extinguished only a lighting push-button can light the lamps. Were the mechanism otherwise arranged, when the lamps were lighted at any point another person at a different point remote from the lamps where they could not be seen might operate, for instance, a lighting push-button with the idea of lighting the lamps, which, if already lighted, would by operating the mechanism cut the lamps out of circuit, this being exactly the reverse of what was intended. The arrangement above obviates all interference between the lighting and extinguishing buttons.

Any number of circuits containing a set of push-buttons may of course be connected to the terminals 21 and 22 of the switch and the switch controlled to light or extinguish the lamps at any number of required points by merely running a circuit to each point, the one switch being controlled from any number of points. This mechanism therefore avoids any complication of circuits.

Having fully set forth our improved system of controlling the circuit of electric lamps, what we desire to claim, and secure by Letters Patent of the United States, as our invention is—

1. A system of lighting and extinguishing electric lamps from one or more points, the same consisting of a circuit, a switch carrying two suitable contact-plates for making and breaking said circuit, two magnets governing said switch, one of which operates the said switch to make the circuit and light the lamps and the other of which operates said switch to break the circuit and extinguish the lamps, a circuit in which each of said magnets is arranged, a third contact-plate carried by said switch, adapted to break the circuit of the actuating-magnet and establish the circuit of the other magnet, the said third contact-plate being connected to one terminal of the circuit containing the lamps, and manually-operated devices controlling at will the circuits of said magnets to light and extinguish the lamps.

2. A system of lighting and extinguishing electric lamps from one or more points, the same consisting of a circuit, a rotary switch carrying suitable contact-plates for making

and breaking said circuit, two oppositely-arranged magnets for governing said switch, one of which operates the switch to make the circuit and light the lamps and the other of which operates said switch to break the circuit and extinguish the lamps, a circuit in which each of said magnets is arranged, a contact-plate carried by said switch to break its own circuit and establish the circuit of the other magnet, the said contact being connected to one terminal of the circuit containing the lamps, and push-buttons controlling the circuits of said magnets to light and extin-

guish the lamps and adapted to be placed in electrical communication with the other terminal of the circuit containing the lamps. 15

In testimony whereof we have hereunto set our hands and affixed our seals, this 13th day of July, 1891, in the presence of the two subscribing witnesses.

EDWARD T. COOKE. [L. S.]
WILLIAM H. MACKAY. [L. S.]

Witnesses:

J. H. COOKE,
E. U. COOKE.