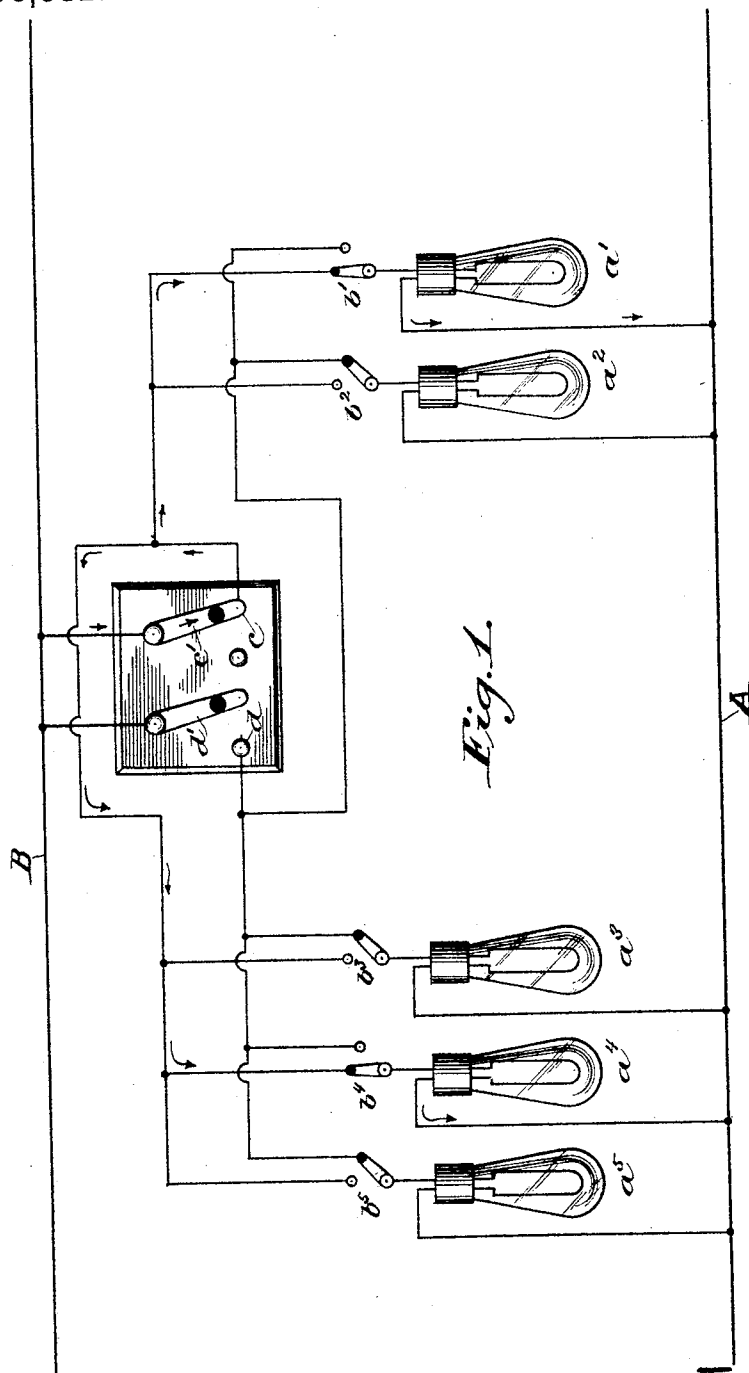


C. E. SCRIBNER.  
ELECTRIC LIGHTING SYSTEM.

No. 498,312.

Patented May 30, 1893.



Witnesses.

*C. Hawley.*

*Geo. Q. Parker.*

Inventor:

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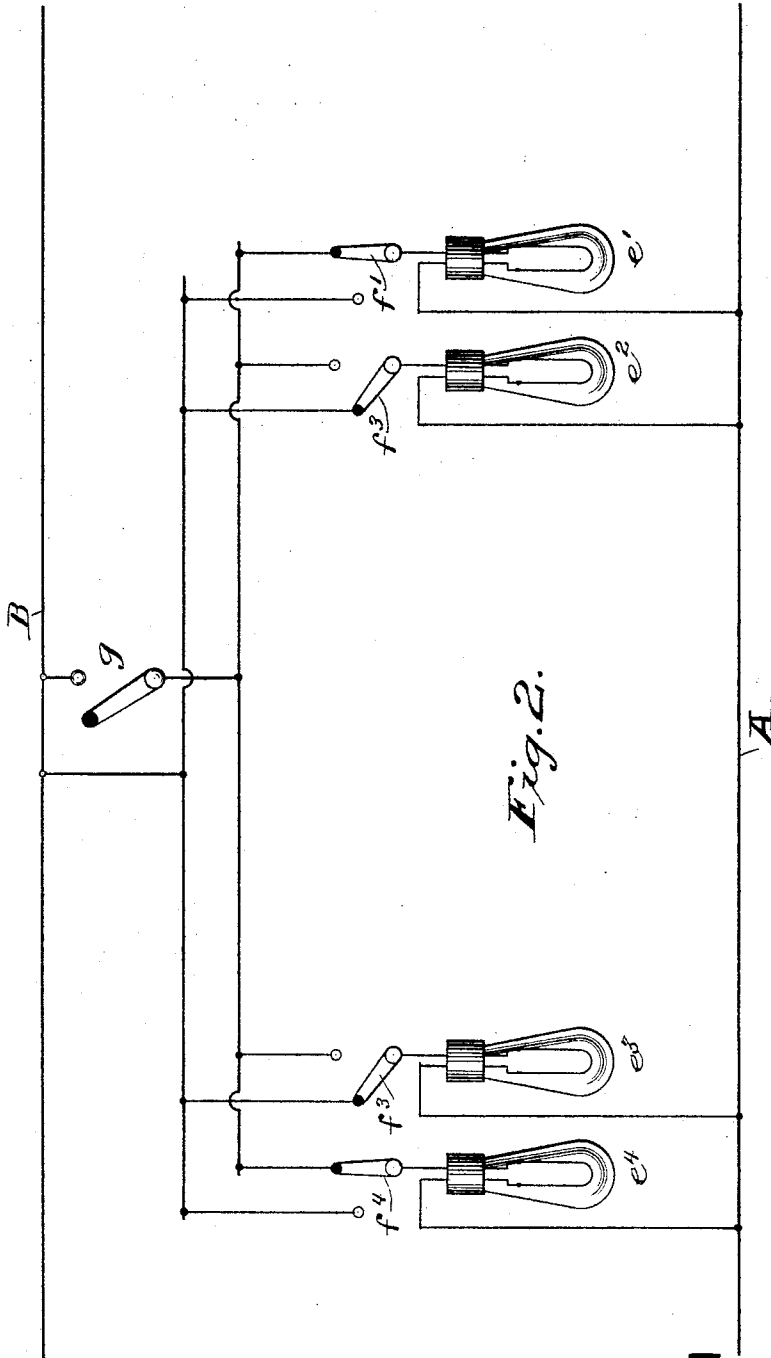


Fig. 2.

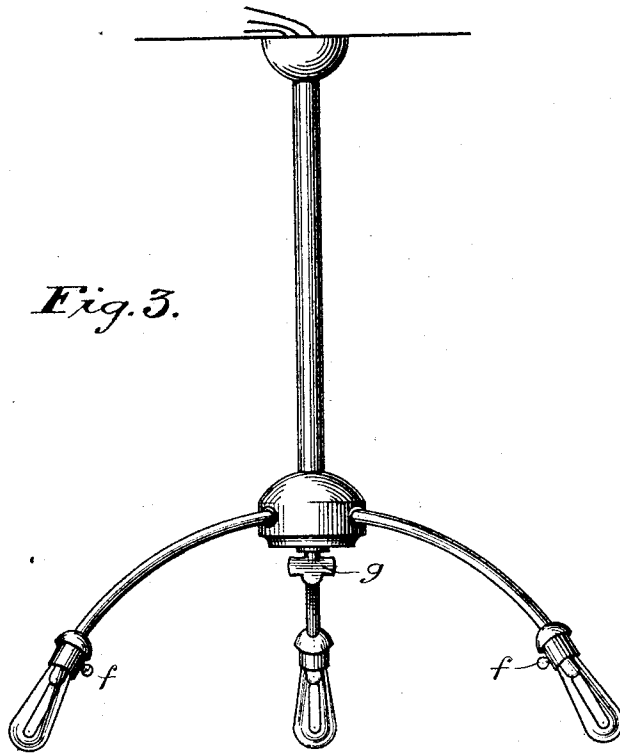
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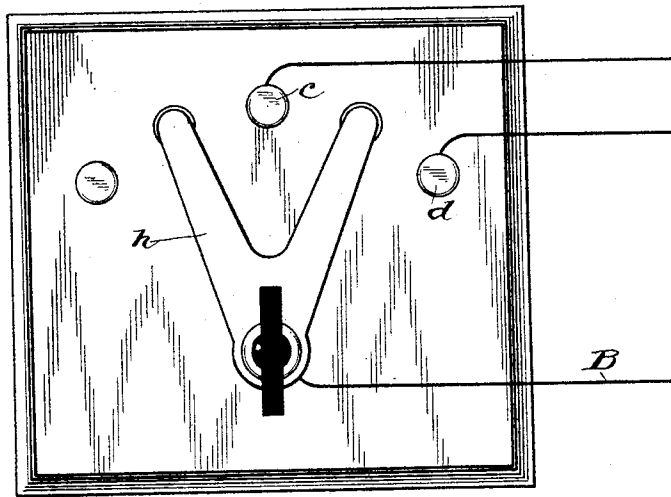
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*Fig. 3.*



*Fig. 4.*

*Witnesses.*

*C. G. Hawley.*  
*Geo. R. Parker*

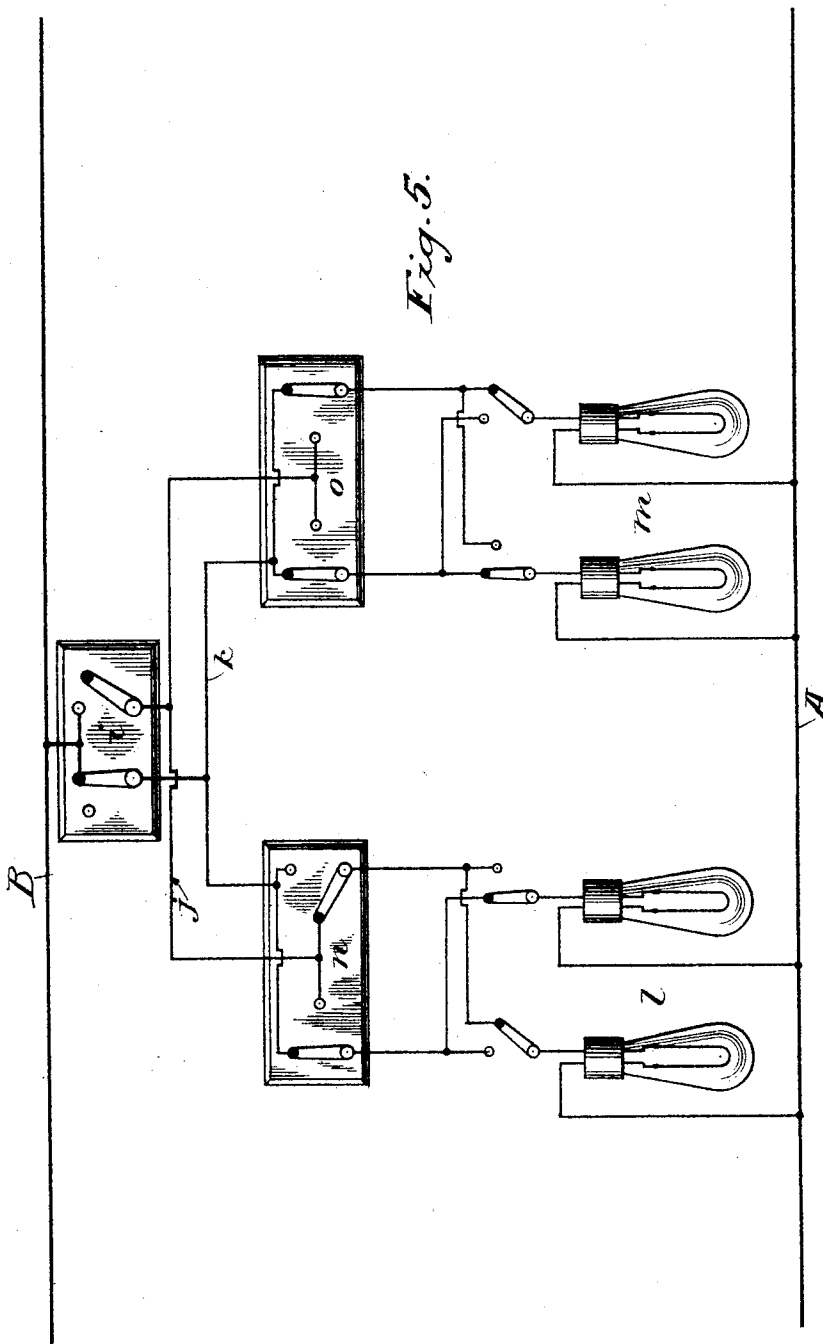
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*Inventor:*  
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*By [Signature] Attorney.*

# UNITED STATES PATENT OFFICE.

CHARLES E. SCRIBNER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

## ELECTRIC-LIGHTING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 498,312, dated May 30, 1893.

Application filed June 1, 1889. Renewed November 4, 1890. Serial No. 370,287. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. SCRIBNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Incandescent Electric-Lighting Systems of Wiring, (Case No. 193,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to circuits and switching apparatus designed especially for incandescent systems of lighting and its object is to provide ready means whereby a large number of incandescent lamps or other translating devices may be positively controlled, while at the same time, if desired, the switching apparatus at the controlling station may be so disposed as to permit of the turning off and on of individual lights or individual groups of lights by means of the special keys of the individual lamps or groups.

I have found it convenient in case of a single chandelier to arrange the switching apparatus and circuits in such manner that the individual lamps may be lighted separately one at a time or all at once and in case one or any other part of the lamps less than the whole are lighted all the remaining lamps of the chandelier may be lighted simultaneously by movement of a single general switch.

My system may be extended so as to include separate groups of lamps as well as individual lamps as will be hereinafter explained.

My invention will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a diagram illustrative of my switching apparatus and circuits as applied to a general system of incandescent lighting. Fig. 2 is a diagram showing a modification thereof, whereby the unlighted lamps as for example of a chandelier may be simultaneously lighted. Fig. 3 is a view of a chandelier which may be provided with circuits as shown in Fig. 2. Fig. 4 is a modification of the switching device at the controlling station adapted to assume three different positions, one position serving to light all the lamps,

the other to put them all out and the other to leave the individual lamps subject to control by the individual switches or keys of the different lamps. Fig. 5 is a diagram showing my invention applied to the control of different groups of lamps.

Like parts are indicated by similar letters of reference throughout the different figures.

I will first describe my invention as illustrated in Fig. 1. The incandescent lamps are included between two mains A and B. The individual lamps  $a'$   $a^2$  and  $a^3$   $a^4$   $a^5$  are provided each with an individual switch, these switches being indicated at  $b'$   $b^2$  and  $b^3$   $b^4$   $b^5$ . Each of these switches  $b$  is adapted to close upon either of two contact points, one contact of each pair being connected with a contact  $c$  and the other contact of each pair being connected with a contact  $d$ . A switching device in this instance consisting of levers  $c'$  and  $d'$  is provided whereby connection may be made and broken as desired between the main B and the contacts  $c$   $d$ .

When it is desired to leave the individual lamps  $a$  under the control of other individual users only one of the connections  $c$   $d$  is closed to wire  $b$ ; thus as illustrated the switch  $c'$  resting upon contact  $c$  completes the circuit between the main B and the right contact of each of the pairs of contacts of switches  $b$ . Thus as shown switches  $b'$  and  $b^4$  being upon their left contacts respectively the lamps  $a'$  and  $a^4$  will be lighted and the switches  $b^2$ ,  $b^3$  and  $b^5$  being to the right the corresponding lamps  $a^2$ ,  $a^3$  and  $a^5$  will be put out. If contact  $c$  would be open and switch  $d'$  closed to contact  $d$  the conditions would be reversed; that is, the lamps  $a^2$ ,  $a^3$  and  $a^5$  would be lighted and the lamps  $a'$  and  $a^4$  would be put out. But it matters not which one of the contacts  $c$   $d$  may be closed to the main B as long as one of said contacts is closed; it is evident that the individual lamps may be controlled, that is, lighted or put out by means of the individual switches  $b$ . If, however, both of said switches  $c$   $d$  should be open then all the lamps  $a$  would necessarily be extinguished. Moreover, if both contacts  $c$   $d$  should be closed to main B all the lamps  $a$  would be lighted because the individual switches  $b$  have each

only two positions; each must rest upon one contact or the other. Thus by means of the switching device and the circuits illustrated a very large number of lamps may be controlled at a single station; that is to say, all the lamps may be lighted or all may be extinguished, or each lamp may be left subject to the control of its individual user.

I have sometimes used only one lever of the switching device in connection with a chandelier, this arrangement sometimes being found most convenient when it is desired to light at once the whole chandelier or such of the lamps thereon as may not have been lighted by the use of the individual switches. This modification is illustrated in Figs. 2 and 3.

The mains A and B may be the same as shown in Fig. 1.

The lamps  $e'$   $e^2$  and  $e^3$   $e^4$  are connected at one terminal with main A and at the other with an individual switch  $f$ , the individual switches being indicated at  $f'$   $f^2$  and  $f^3$   $f^4$ . These switches  $f$  have each two normal positions, each resting either upon one or upon the other of its pair of contacts. One of these contacts of each pair, in this instance the left, is permanently connected with main B; the other contact of each pair is connected with a switch  $g$  adapted to make and break connection with said main B. Now it is evident that when switch  $g$  is closed to main B the unlighted lamps as  $f'$   $f^4$  will be lighted. This arrangement in chandeliers is especially convenient since it is sometimes desirable to have only one lamp lighted for a time and afterward it may be desired to illuminate by lighting the remaining lamps.

As shown in Fig. 3 the switch  $g$  is preferably placed in some convenient position under the chandelier; the individual switches  $f$  may be placed at the different lamps and may be in the usual form of keys now used in connection with incandescent lamps.

It is evident that in place of separate levers  $e'$   $d'$  as shown in Fig. 1 a single switch  $h$  may be used provided with two prongs with contacts suitably arranged. This switch  $h$  has three normal positions. When turned to the left the contact  $c$  will be closed only to the main B while the contact  $d$  will be open. When in its upright or central position both contacts  $c$   $d$  will be open to main B and when the switch is turned to the right both contacts  $c$   $d$  will be closed to main B.

As shown in Fig. 5 the lamps are arranged in separate groups between the mains A and B.

By means of the switching device  $i$  it is evident that all the lamps of both groups may be positively controlled. When, however, only one of the circuits  $i$   $k$  is connected with the main B the individual groups of lamps  $l$   $m$  will be subject to the control of the switches  $n$   $o$  respectively. Thus my system may be extended as desired.

My invention admits of various other modifications which would readily suggest them-

selves to those skilled in the art and I therefore do not limit myself to the construction shown.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with two mains of translating devices arranged in multiple arc between them, said separate translating devices being provided each with an individual switch at one terminal adapted to be connected with either one of two branch circuits and a switching device included in said branch circuits adapted to open or close either or both of said branch circuits, whereby all the translating devices may be simultaneously brought into circuit or disconnected therefrom or left to be controlled by the individual switch thereof, substantially as and for the purpose specified.

2. The combination with the mains of translating devices each with one terminal connected with one of said mains and the other terminal thereof connected with an individual switch and a pair of contact points for each of said switches, each contact of each pair being connected with a different branch circuit leading to the other main and a switching device in one of said branch circuits, substantially as and for the purpose specified.

3. The combination with two mains of translating devices included in multiple circuit between the mains, the said translating devices being divided into groups, switching devices one switching device for each group, branch circuits to the different groups in which said switching devices are respectively included, a switching device included in a circuit which connects with the several groups, whereby the circuit may be connected to or disconnected from the different groups or all the groups as may be desired.

4. In a wiring system the combination with the two mains, of translating devices divided into groups by switching devices included in circuit between the mains with a circuit branching from one of the mains through one of the switching devices adapted to connect said main with either of two branch circuits, the two branch circuits connecting with switching devices for each group, and by this last switching device adapted for connection with branch circuits leading to the individual switches of the translating devices and thence through the translating devices to the other main, whereby the individual devices may be connected to or disconnected from the circuit or the devices be connected to or disconnected from the circuit in groups or all simultaneously, substantially as and for the purpose specified.

5. The combination with two electric mains, of a circuit extending from one main directly through a translating device and thence through a switching device to either of two circuits according to the position of the said switching device through one of the circuits

directly to the other main or through the other circuit to a second switching device included therein to the other main, whereby the circuit of the translating device may be closed at either of the switches, substantially as specified.

6. The combination with two electric mains, of a circuit extending from one of said mains directly through a translating device to a switching device, two circuits extending from the said switching device to the other main and two independent switching devices one in each of said circuits extending to the other main, substantially as and for the purpose specified.

7. The combination with two mains, of several circuits branching from one of said mains, each circuit including a translating device, a switching device for each circuit, circuits one from each switching device connected with a common wire with which each of the switches may be connected, other circuits one from each switching device to another common wire with which each of the switches may be connected, said common wires being provided each with a switching device for connecting or disconnecting the same from the other main, whereby the circuits of the translating devices may all be closed or broken simultaneously or switched for individual control.

8. The combination with the main A, of the branches from said main containing translating devices  $a' a^2$ , the three point switches  $b' b^3$ , one for each of said branches, two contacts for each of said switches, the pair of contacts belonging to each switch being connected with different wires extending respectively to contacts  $c d$ , and a switching device for connecting both or either of said contacts  $c d$  with the main B.

9. The combination with the main A, of the branches from said main containing translat-

ing devices  $a' a^2$ , the three point switches  $b' b^3$ , one for each of said branches, two contacts for each of said switches, the pair of contacts belonging to each switch being connected with different wires extending respectively to contacts  $c d$  and a bifurcated switching device for connecting both or either of said contacts  $c d$  with the main B.

10. In a wiring system the combination with two mains, of circuits between the said mains including translating devices, individual switches one for each translating device and connected therewith, a switching device which all of the circuits connect in two common wires, separate contact points for each of the two common wires, a bifurcated switch lever adapted for three positions, said bifurcated switch lever connected with the other main to connect said other main at one of the positions of said lever with one of said common wires, at another of its positions with both of said common wires, and at its other position to disconnect the said other main from both the common wires, substantially as and for the purpose specified.

11. A switching device consisting of a bifurcated switch lever adapted for three positions, and two contact points one for each prong thereof, the said switch lever adapted for contact with both of said contacts at one of its positions, with one only of said contacts at another of its positions, and for disconnection from both of said contacts at the other of its positions, substantially as and for the purpose specified.

In witness whereof I hereunto subscribe my name this 27th day of April, A. D. 1889.

CHARLES E. SCRIBNER.

Witnesses:

ELLA EDLER,  
GEORGE P. BARTON.