

No. 769,638.

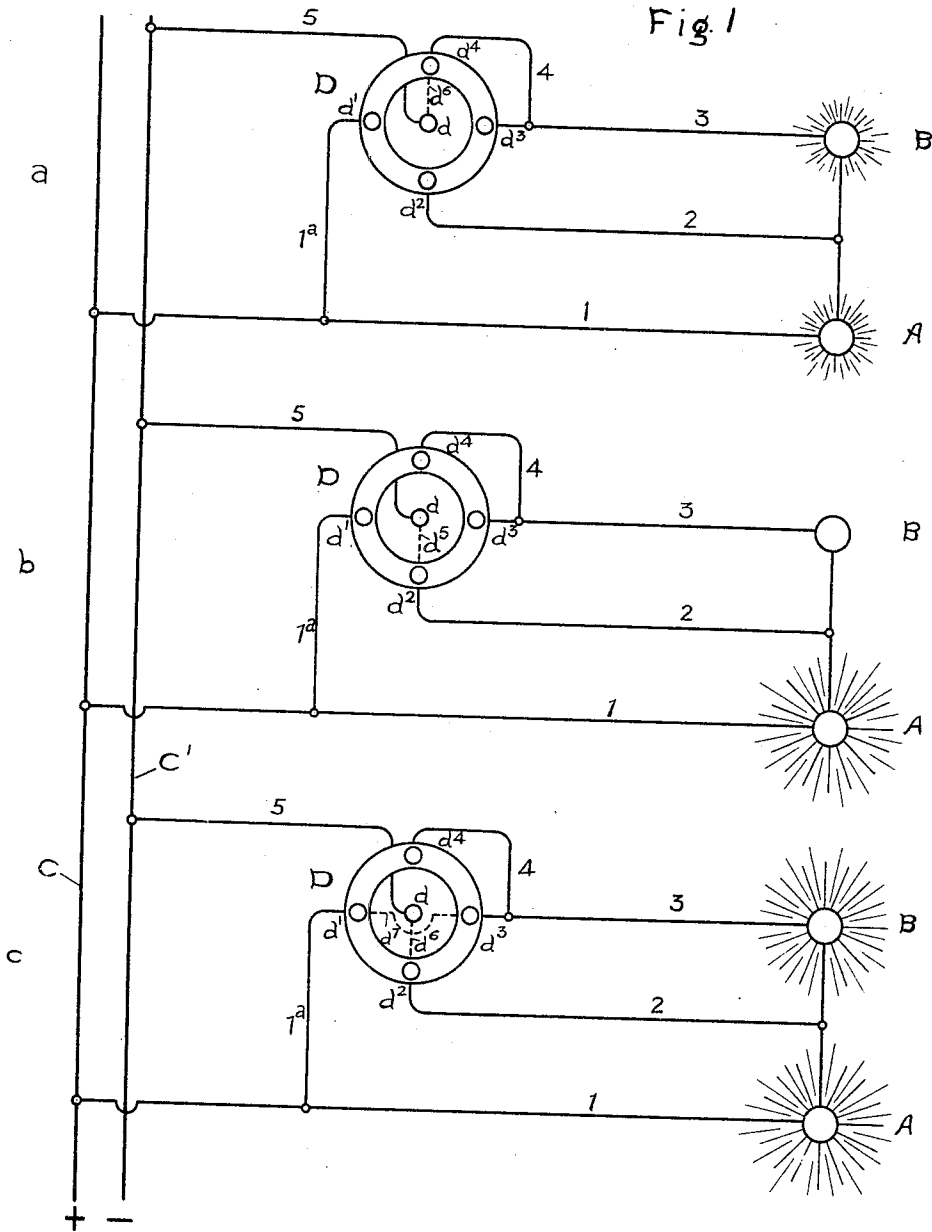
PATENTED SEPT. 6, 1904.

H. R. SARGENT.
REGULATION OF ELECTRIC CIRCUITS.

APPLICATION FILED NOV. 28, 1900.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

B. B. Hull

Benjamin B. Hull

Inventor
Howard R. Sargent
by *Albert B. Davis*

Atty.

No. 769,638.

PATENTED SEPT. 6, 1904.

H. R. SARGENT.
REGULATION OF ELECTRIC CIRCUITS.

APPLICATION FILED NOV. 28, 1900.

NO MODEL.

2 SHEETS—SHEET 2.

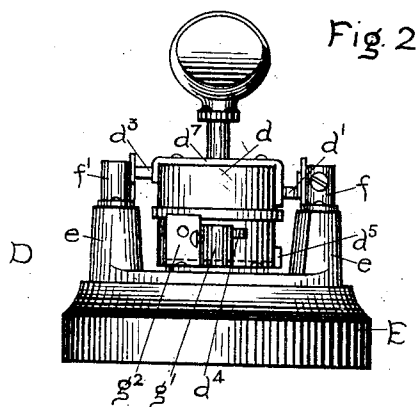


Fig. 2

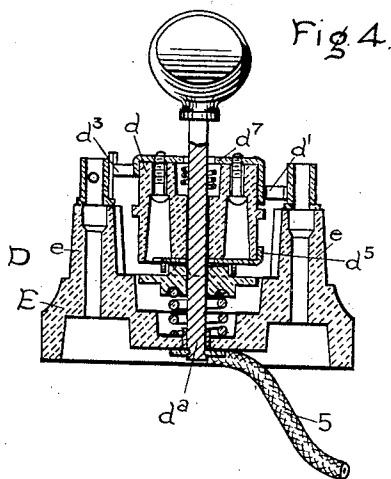


Fig. 4

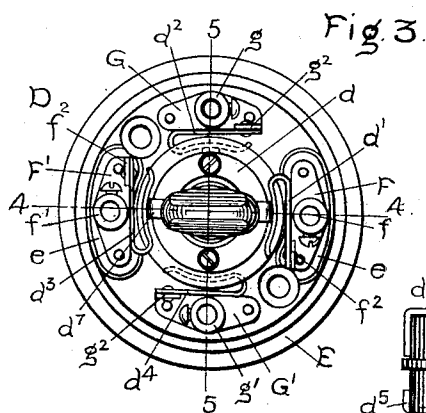


Fig. 3

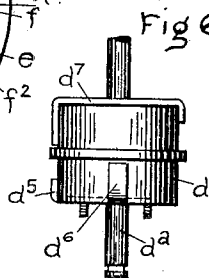


Fig. 6

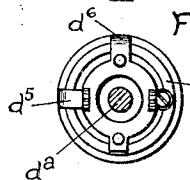


Fig. 7

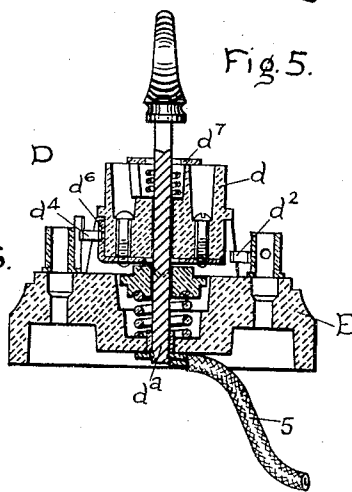


Fig. 5

WITNESSES

P. C. Chapman
Benjamin B. Hall

INVENTOR

Howard R. Sargent
by *Albert S. Davis*
Attorney

UNITED STATES PATENT OFFICE.

HOWARD R. SARGENT, OF SCHENECTADY, NEW YORK, ASSIGNOR TO
GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

REGULATION OF ELECTRIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 769,638, dated September 6, 1904.

Application filed November 28, 1900. Serial No. 38,014. (No model.)

To all whom it may concern:

Be it known that I, HOWARD R. SARGENT, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Regulation of Electric Circuits, of which the following is a specification.

My invention relates to electric lighting; and its object is to provide means whereby two or more incandescent lamps can be connected either with all the lamps in series to give a dim light or with one lamp only in circuit to give a brighter light or with all lamps in parallel to give a light of maximum brilliancy or with all lights extinguished.

The invention is applicable to any place where conditions require light of varying degrees of brilliancy controllable from a single switch, as in a sick-room or a safe-vault.

In the drawings, Figure 1 is a diagram showing three sets of lamps connected with current-supplying mains, each set provided with a four-way switch and each set arranged to produce a light of a different degree of brilliancy from the others. Fig. 2 is a side elevation of the switch. Fig. 3 is a top plan view of the same. Fig. 4 is a vertical section on the line 4 4, Fig. 3. Fig. 5 is a vertical section on the line 5 5, Fig. 3. Fig. 6 is a side elevation of the turning plug of the switch. Fig. 7 is a bottom plan view of the same.

For the sake of simplicity I have illustrated the application of my invention to two lamps, though it is to be understood that I do not limit myself to that number.

The two incandescent lamps A B are arranged in series and connected with the positive supply-main C by the wire 1. A four-way switch D, hereinafter described, is interposed between the lamps and the negative main C'. The switch has a turning plug d and four stationary contacts d' d^2 d^3 d^4 . The first is connected with the positive main C by wire 1^a. The contact d^2 is connected with both lamps by a common conductor 2. Contacts d^3 and d^4 are connected with lamp B by wires 3 4.

The turning plug d , Fig. 6, is made of insulating material and carries four metallic

segments, two of which are connected by spindle d^a and wire 5 with the negative main C'. One of them, d^b , is arranged to engage with contact d^2 only. The other, d^c , can engage with contacts d^3 and d^4 during the rotation of the plug. The plug also carries a bridging-segment d' , adapted to connect the contacts d' d^3 at one point in the revolution of the plug. The result of this arrangement is that when the switch stands with the segment d^b on contact d^2 , as shown at position *a* in the diagram, the current from the main C flows through wire 1, lamps A B, wires 3 4, contact d' , segment d^b , spindle d^a , and wire 5 to the main C'. The lamps are thus connected in series and give a dim light. By giving the switch-plug a quarter-turn to position *b* segment d^c , connected to the spindle d^a of the plug d , and thereby with the lead 5, engages contact d^2 . The circuit is now through wire 1 to lamp A and thence by wire 2 to contact d' , segment d^c , spindle d^a , and wire 5 to main C'. The quarter-turn of the switch-plug moves segment d^c from contact d^2 , and thus breaks the circuit of lamp B. All the current now passes through lamp A alone, which is lighted to full brilliancy, lamp B being cut out. Another quarter-turn of the plug to position *c* puts segment d^c on contact d^3 and the bridging-segment d' across the contacts d' d^3 . The current now divides between wires 1 and 1^a. That flowing through wire 1 goes to lamp A, while that by wire 1^a goes to lamp B via contact d' , bridging-segment d' , contact d^3 , and wire 3. The current after leaving the lamps flows through wire 2, contact d^2 , segment d^c , spindle d^a , and wire 5 to main C'. Both lamps are now in multiple and burn with full brilliancy, giving double the light produced by position *b*. On giving the switch-plug a fourth quarter-turn all the segments are placed out of engagement with the contacts and the lights are extinguished.

Figs. 2 to 7 show a switch embodying the various contacts and segments described above. The insulating-base E has a flat top, above which rise two diametrically opposite pedestals *ee*, on the top of which are secured metal plates F F', carrying binding-posts *f f'* and upright flanges *f''*, to which are secured

the spring-contacts d' d^3 , lying at different levels. Between the pedestals metallic plates G G' are secured to the base E at opposite points, carrying binding-posts g g' and upright flanges g^2 , to which are secured the spring-contacts d^2 d^4 , lying at different levels. A spindle d^a is mounted to rotate in a bearing in the base E and carries a barrel of insulation d , to which are secured two segments d^5 d^6 , electrically connected with each other and with the spindle and standing ninety degrees apart. The segment d^6 is higher than the segment d^5 , so that it can coact with both the contacts d^2 d^4 , the segment d^5 being capable of coaction with the lower contact d^2 only. On top of the barrel d is a bridge-strip d' of metal not in contact with the spindle and having its ends bent downward to engage with the contacts d' d^3 . One end of the bridge-strip extends down only far enough to engage the higher contact d^3 , while the other end is long enough to engage the lower contact d' . The wires 1, 2, 3, and 4 are connected, respectively, with the binding-post f g f' g' , and the wire 5 is connected with the spindle d^a . Upon turning the spindle and its barrel the circuit connections are altered, as above described. The switch may have the usual snap-action and lost-motion devices, which need not be described.

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

1. The combination with two translating devices, of a switch having four stationary contacts, one connected with one translating device, two connected with the other translating device, and one common to both translating devices, and a movable switch member carrying segments to connect said contacts so that both translating devices will be in series, or one translating device cut out, or both translating devices in parallel.

2. A switch for controlling the circuits of two translating devices, comprising four stationary contacts, and a movable switch element carrying a bridging-segment to connect two of the contacts at one point in its movement, and two connected segments to connect one or the other of the two remaining contacts with the line at three points in its movement.

3. In an electric switch, the combination with a base carrying two contacts d' d^3 opposite each other but on different levels, and two contacts d^2 d^4 opposite each other but on other and different levels, of a rotatable barrel carrying segment d^5 adapted to coact with contact d^2 , segment d^6 connected with d^5 and adapted to coact with contacts d^2 d^4 , and segment d' having its ends terminating at different levels, so as to bridge the contacts d' d^3 at only one point in the revolution of the barrel.

4. The combination with two interconnected electric devices A and B, of an electric switch having stationary and movable contacts of which a stationary contact is connected to the outside of device B; a movable contact is connected to the circuit and arranged to engage with said stationary contact; a stationary contact is connected between said devices and arranged to be engaged by said movable contact; two stationary contacts are connected to the outside of devices A and B; and a movable contact is arranged to bridge said two stationary contacts.

5. The combination with two interconnected electric devices A and B, of an electric switch having stationary and movable contacts of which a stationary contact is connected to the outside of device B; a movable contact is connected to the circuit and arranged to engage with said stationary contact; a stationary contact is connected between devices A and B and arranged to be engaged by said movable contact; a stationary contact is connected to the outside of device A; and a movable contact is arranged to connect the last-named stationary contact with the outside of device B.

6. The combination with two interconnected electric devices A and B, of an electric switch having a movable contact connected to the circuit, and two stationary contacts of which one is connected to the outside of device B, and the other of which is connected between the devices, said stationary contacts being arranged to be successively engaged by the movable contact.

7. The combination with two interconnected electric devices A and B, of an electric switch having stationary and movable contacts of which a stationary contact is connected to the outside of device B; a stationary contact is connected between the devices; a movable contact is connected to the circuit and arranged to engage said stationary contacts successively; a stationary contact is connected to the outside of device A; and a movable contact is arranged to connect the last-named stationary contact with the outside of device B.

8. In a rotatable electric switch for controlling two interconnected devices, the combination with the stationary and rotatable members, of two contacts mounted on the stationary member in different planes and respectively connected to the outsides of said devices, and a bridging-piece mounted on the rotatable member, and extending into the respective planes of the stationary contacts.

In witness whereof I have hereunto set my hand this 26th day of November, 1900.

HOWARD R. SARGENT.

Witnesses:

BENJAMIN B. HULL,
GENEVIEVE HAYNES.