

M. GUETT.
REGULATION OF ELECTRIC CIRCUITS.
APPLICATION FILED JULY 9, 1910.

1,021,774.

Patented Apr. 2, 1912.

3 SHEETS—SHEET 1.

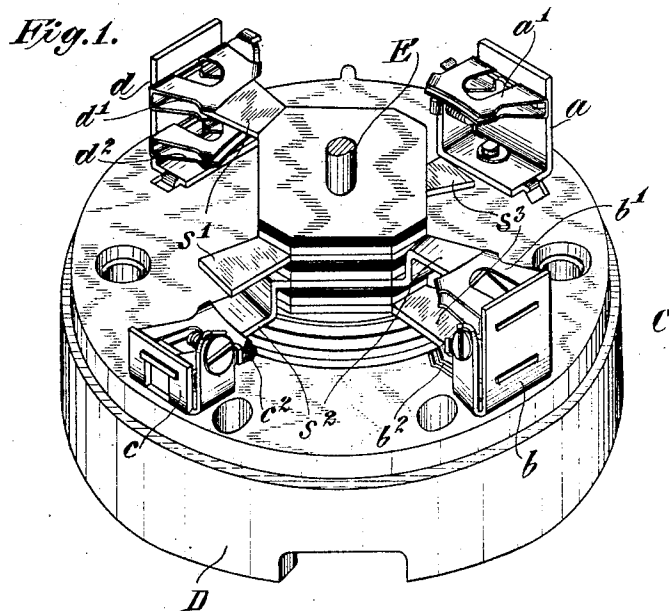
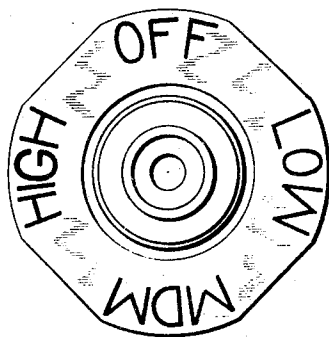


Fig. 2.



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Geoffmazz
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Fig. 3.

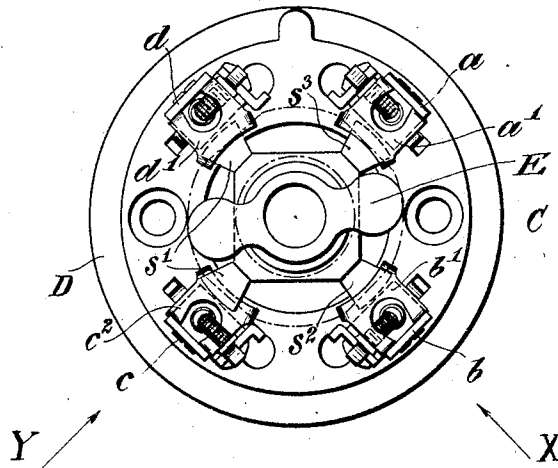


Fig. 5.

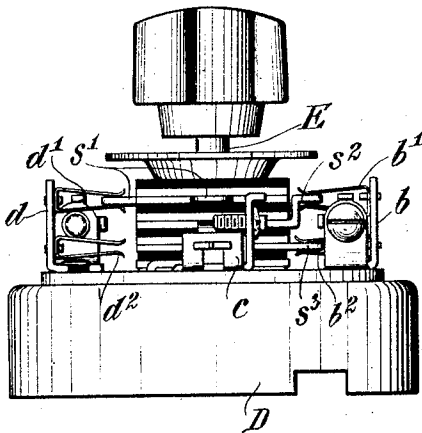
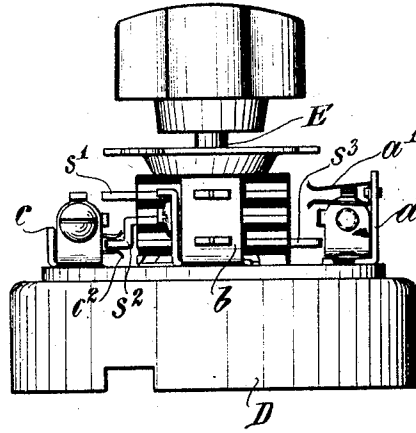


Fig. 4.



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Joseph Schwarz
R. Wehder.

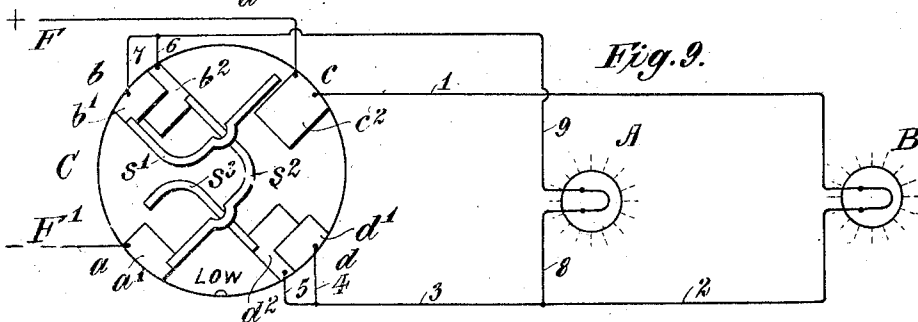
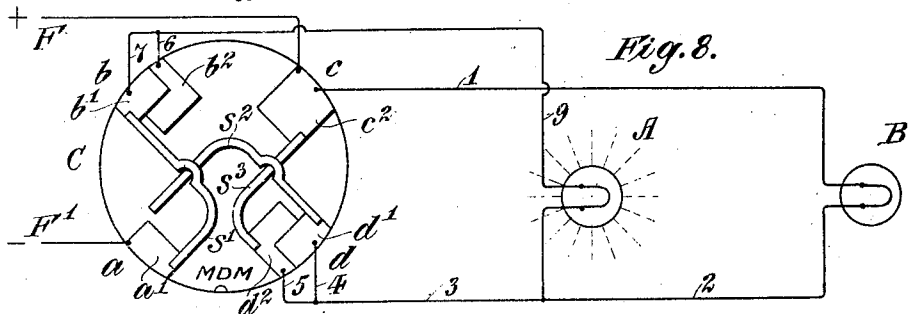
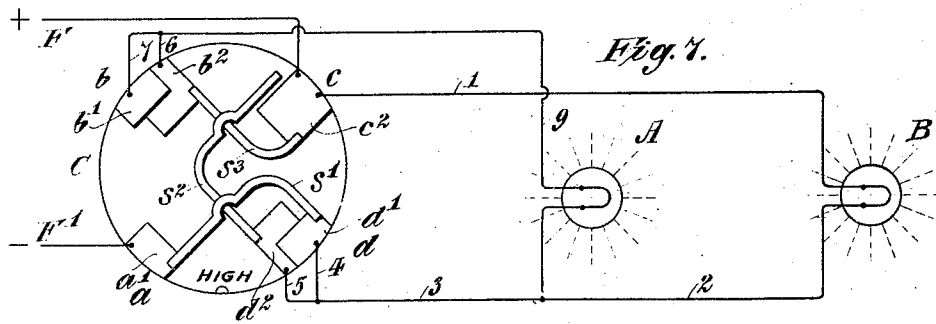
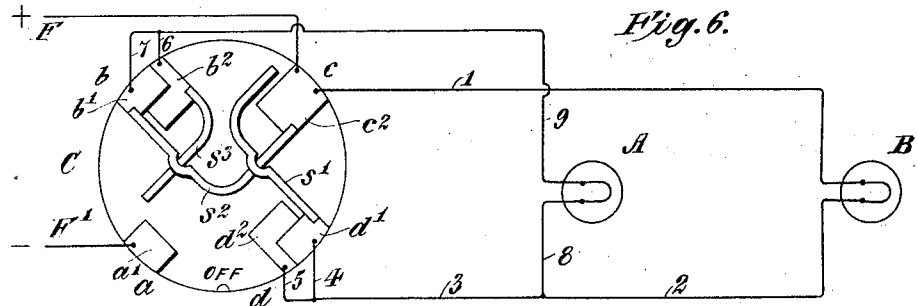
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3 SHEETS—SHEET 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

MONROE GUETT, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE HART & HEGEMAN MANUFACTURING COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

REGULATION OF ELECTRIC CIRCUITS.

1,021,774.

Specification of Letters Patent.

Patented Apr. 2, 1912.

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To all whom it may concern:

Be it known that I, MONROE GUETT, a citizen of the United States, and a resident of city of Hartford, county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Regulation of Electric Circuits, of which the following is a specification.

My invention relates to a "four way" switch for controlling the current which is to be utilized by one or more translating devices and also to the manner in which the switch is connected to the translating devices whereby two or more of said devices may be connected in either series or parallel, or so that one device only may be utilized, or so that all the devices may be cut out of the circuit at the will of the operator.

As showing a specific embodiment of my invention reference is made to the drawings forming a part of the specification, and in which—

Figure 1 is a perspective view showing the relative position of the contacts and bridges when the switch is in the off position. Fig. 2 is a plan view of the indicating dial. Fig. 3 is a plan view of the switch with the indicating dial indicated by dotted lines. Fig. 4 is a side elevation of the switch looking in the direction of arrow X, Fig. 3. Fig. 5 is another side view of the switch looking in the direction of arrow Y, Fig. 3. Fig. 6 is a diagrammatic plan view showing the position of the contacts and circuits when the current is not passing through any of the translating devices, corresponding to the off position of the switch. Fig. 7 is a diagrammatic view showing the position of the contacts and circuits when the maximum amount of current is passing through both translating devices, corresponding to the high position of the switch. Fig. 8 is a diagrammatic view showing the position of the contacts and circuits when the current is passing through one translating device only, corresponding to the MDM. position of the switch, and Fig. 9 is a diagrammatic view showing the position of the contacts and circuits in the position in which the current is passed in series through the translating device, corresponding to the low position of the switch.

The invention is illustrated as applied to two electric lamps as translating devices but

it is obvious that any other devices which depend upon the electric circuit for their source of energy may be utilized and it is also obvious that a greater number of translating devices than two may be utilized as long as they are assembled in two groups; and wherever in the claims two translating devices are called for it is to be understood that they are to cover arrangements in which there are two single translating devices, or two groups of translating devices, or one single translating device and a group of translating devices.

The two translating devices are designated by A and B and these are connected in a manner to be hereinafter described to the four-way switch C. The switch C has the insulating base D upon which are secured the four stationary contacts *a*, *b*, *c* and *d*, which may be referred to as contacts one, two, three and four, also carried by the base is a movable member, the turning plug E. This turning plug carries three insulated metallic segments or bridges *s*¹, *s*², *s*³ which may be referred to as bridges one, two and three, which act as contact connecting members or bridges, any one of which will electrically connect any two contacts with which it is in engagement. The contacts have portions with which the ends of the segments or bridges engage when electrically connecting the contacts. All of the engaging portions of the contacts are arranged in two planes which are at different elevations. It will be noted that contact *a* has only one engaging portion *a*¹ and that at the higher elevation; that contact *b* has two engaging portions *b*¹ at the higher elevation and *b*² at the lower; that contact *c* has only one engaging portion *c*² and that at the lower elevation; and that contact *d* has two engaging portions *d*¹ at the higher elevation and *d*² at the lower elevation. It will also be noted that segment *s*¹ has ends arranged to engage only the contacts in the upper plane; that segment *s*² has ends which can engage simultaneously engaging portions of contacts which portions are in both planes and that segment *s*³ will engage only the engaging portions which are at the lower plane. The engaging portions *a*¹, *b*¹, *b*², *c*², *d*¹ and *d*² may be referred to as engaging portions one', two', two', three', four' and four'.

In order to make clear the manner in

which the switch is connected to the lamp and the way that the segments or bridges connect the different contacts so that the desired results can be obtained reference is made to the diagrammatic views shown in Figs. 6 to 9. In these figures the segments are shown diagrammatically and also the contacts. The comparatively short members a' , b' , d' corresponding to the engaging portions described as being in the upper plane and the comparatively long members b^2 , c^2 , d^2 corresponding to the engaging portions of the contacts, in the lower plane.

In Fig. 6 the switch is in the off position and there is no current passing through the translating device A and B from and to the lines indicated by F and F'.

In Fig. 7 the plug E has been turned 90° from the off position so that it is in what is termed the high position and the current passes from F to engaging contact c^2 of contact c , over line 1, through translating device B, over line 2, 3, 4 to the engaging part d' of contact d , over segment or bridge s' and contact engaging portion a' of contact a , to line F'. The current which passes to engaging portion c^2 divides at this point and part passes over a segment or bridge s^2 , to engaging portion b^2 of contact b , from thence over line 6, 9, through translating device A and from thence over the same route which the current over line 2 from B passes in transit to F, which route is line 3, 4, engaging portion d' of contact d , segment s' , engaging portion a' of contact a to line F. It will be seen that this causes both A and B to receive the full strength of the current and that these devices are connected in parallel. By turning

the plug 180° from off position we have the connections according to Fig. 8 which corresponds to the MDM position of the switch which is the position when only one translating device is to be used. The current in this case comes from F, passes over engaging portion c^2 of contact c , segment s^2 , engaging portion d^2 of contact d , over line 5, 3 and 8 to translating device A and from thence over line 9 and 7 engaging portion b' of contact b , segment s' , engaging portion a' of contact a to line F'. By turning the plug 270° from off position we have the condition according to Fig. 8 which corresponds to the low position of the switch. In this position the translating devices are in series the current from F passes through engaging portions c^2 of contact c , to line 1, through translating device B, over line 2, 8, through translating device A, over line 9, 6, to the engaging portion b^2 of contact b , over segment s^2 , through engaging portion a' of contact a to line F'.

Several of the claims include reference characters therein but it is to be understood that such reference characters do not limit

the subject matter thereof to the exact construction referred to and shown and described in the specification.

It is obvious that various modifications may be made without departing from the spirit and scope of my invention.

I claim as my invention:

1. An electric switch having four stationary contacts, two of which have engaging portions at one elevation two others of which have engaging portions at a second and higher elevation; and a movable member having three bridging members one of which bridging members electrically connects the two engaging portions at the lower elevation simultaneously with a second bridging member electrically connecting the two engaging portions at the higher elevation and a third bridging member on the movable member constructed and arranged to electrically connect two engaging portions at different elevations when the movable member is moved to another position.

2. An electric switch having four contacts and a movable member having contact connecting members or bridges, one of which bridges electrically connects two of the stationary contacts while another contact connecting member or bridge electrically connects the other two stationary contacts at one position of the movable member, and a third contact connecting member or bridge on the movable member which electrically connects when the movable member is at another position two contacts not connected by either of the first mentioned contact connecting members or bridges when the movable member is in the first mentioned position.

3. An electric switch having four contacts and a movable member having contact connecting members or bridges, one of which bridges electrically connects two of the stationary contacts while another contact connecting member or bridge electrically connects the other two stationary contacts at one position of the movable member, and a third contact connecting member or bridge on the movable member which electrically connects when the movable member is in another position two contacts connected by one of the two first mentioned contact connecting members or bridges when the movable member is in the first mentioned position.

4. An electric switch having four stationary contacts designated one, two, three and four and a movable member carrying contact connecting members or bridges designated one, two and three the contacts and connecting members or bridges on the movable member so arranged that in one position of the movable member contact or bridge one can connect contacts four and one when bridge three is connecting contacts two and

three, so that in another position contact one can connect contacts one and two when bridge three connects contacts three and four; and so that in a third position contacts one and two will be the only contacts electrically connected and those by bridge two.

5. An electric switch having four stationary contacts designated one, two, three and four and a movable member carrying contact connecting members or bridges; contacts one, two and four having engaging portions at one level, contacts two, three and four having engaging portions at another level from the first, and a connecting member to connect at one elevation two of the contacts when the other two contacts are connected at another elevation by another connecting member or bridge.

6. An electric switch having four stationary contacts and a movable member carrying connecting members or bridges; contacts one, two and four having engaging portions at one or the first level, contacts two, three and four having other engaging portions at another or second level, the movable member having bridges one, two and three; the parts so arranged that bridge one connects the engaging portions of contacts four and one, at one level when bridge three connects the engaging portions, of contacts two and three, which are at the second level, in one position of the movable member; so that bridge one connects engaging portions, of contacts one and two at the first level when bridge three connects contact portions, of contacts four and three at the second level, in a second position of the movable member; and so that bridge two can connect two stationary contacts through two contact portions which are in different levels in a third position of the movable member.

7. An electric switch having four stationary contacts and a movable member carrying connecting members or bridges; contacts one, two and four having engaging portions at one or the first level, contacts two, three and four having engaging portions at another or second level; the movable member having bridging members one and three; the parts so arranged that bridge one connects the engaging portions, of contacts one and four, at one level when bridge three connects the engaging portions, of contacts two and three, which are at the second level in one position of the movable member; and so that bridge one connects the engaging portions, of contacts one and two, at the first level when bridge three connects the contact portions, of contacts two and three, at a second level in another position of the movable member.

8. An electric switch having three contact engaging portions, which may be designated as one', two' and four', in one elevation, three contact engaging portions, which may be designated as two², three² and four², in another elevation; the contact portions designated as two' and two² being electrically connected and also contact portions designated as four' and four²; a movable member carrying means for electrically connecting contact portions designated as four' and one' and also for electrically connecting contact portions designated as two² and three² when the movable member is in one position; and means for connecting contact portions designated at one' and two² only when the movable member is in another position.

9. An electric switch having three contact engaging portions designated one', two' and four', three contact engaging portions designated as two², three² and four² in another elevation, contact portions designated as two' and two² being electrically connected, contact portions designated as four' and four² being electrically connected; a movable member carrying means for electrically connecting the contact portions one' and two' and also means for electrically connecting the contact portions three² and four² when the movable member is in one position; and means for connecting only the contact portions one' and two² when the movable member is in another position.

10. An electric switch having three contact engaging portions designated as one', two' and four' in one elevation three contact engaging portions designated as two², three² and four² in another elevation; the contact portions two', two² being electrically connected, the contact portions four' and four² being electrically connected; a movable member carrying means for electrically connecting the contact portions four' and one' and also means for electrically connecting contact portions two² and three² when the member is in one position; said two means electrically connecting contact portions one' and two' and contact portions three² and four² when the member is in another position; said movable member carrying a third connecting means which will engage and electrically connect contact portions one' and two² in a third position of the movable member at a time the two aforesaid connecting means are out of position to electrically connect two contact portions.

This specification signed and witnessed this 6th day of July, A. D. 1910.

MONROE GUETT.

Signed in the presence of—

C. McKEW PARR,

A. E. PARSONS.