

(No Model.)

J. S. GEORGE, Jr.
PUSH BUTTON CUT-OUT.

No. 500,200.

Patented June 27, 1893.

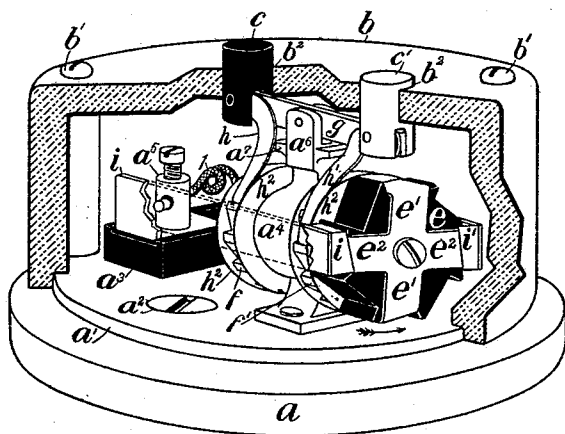


FIG. 1

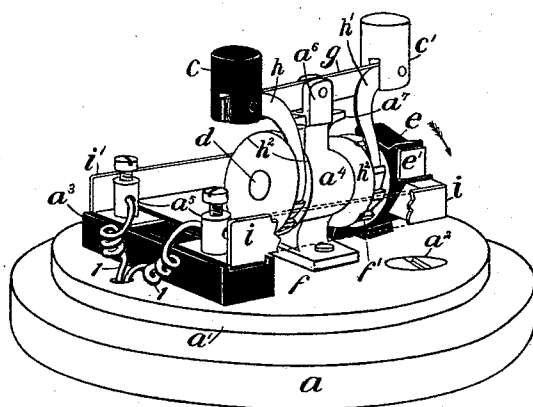


FIG. 2

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JAMES SCOTT GEORGE, JR., OF PHILADELPHIA, PENNSYLVANIA.

PUSH-BUTTON CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 500,200, dated June 27, 1893.

Application filed November 28, 1892. Serial No. 453,334. (No model.)

To all whom it may concern:

Be it known that I, JAMES SCOTT GEORGE, Jr., a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Push-Button Devices for Electric-Lighting Systems, of which the following is a specification.

The principal objects of my present invention are first, to provide a simple, neat, compact and efficient switching device actuated by a pair of push buttons, whereof one serves to switch in and the other to cut out an electric circuit applicable to lighting systems; and second, to provide such a device with efficient and durable mechanism operated by a pair of push buttons for controlling a make-and-break wheel in respect to leading in springs or brushes.

My invention consists of the improvements in a lamp circuit switch and cut-out device substantially as described and claimed.

The nature, objects and scope of my present invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, and in which—

Figure 1, is a perspective view illustrating a push button lamp circuit switch and cut-out device embodying features of my invention, having a portion of the housing thereof broken away in order to expose to view certain of the interior or working parts; and Fig. 2, is a similar view illustrating the interior or working parts not fully shown in Fig. 1.

In the drawings *a*, is a circular base plate of porcelain or other preferred material provided with a flange *a'*, to which a cap or cover *b*, which may be also of porcelain, is detachably connected by means of screws *b'*, or in any other required manner. This base plate *a*, supports the working parts of the device and is provided with an aperture for the reception of a screw *a''*, by means of which it may be secured to place upon or in a wall or other object. The cap or cover *b*, is provided with openings *b''*, through which push-buttons *c* and *c'*, protrude and may be readily removed from the base-plate *a*, by detaching or releasing the screws *b'*, in order to afford access to the interior of the device. The base-

plate *a*, is provided with an insulating block *a'''*, a post *a''''*, and circuit connections *a''''''*.

d, is a shaft revolubly supported in a bearing in the post *a''''*, and provided at one extremity thereof with a make-and-break wheel *e*. One of the push-buttons *c'*, is preferably of one color, as white, and the other *c*, is preferably of a different color, as black, and these push-buttons are adapted to operate the make-and-break wheel *e*, through the intervention of ratchet-wheels *f* and *f'*, secured to the shaft *d*, and located upon opposite sides of the post *a''''*. The post *a''''*, is provided with an extension *a''''''*, for pivotally supporting a working-beam *g*, having its respective extremities pivotally connected with the push-buttons *c* and *c'*.

a'''''', are back-stops projecting from the post *a''''*, into position for limiting the range of motion of the working beam *g*.

h and *h'*, are pawls pivotally connected at one of their extremities to the working beam *g*, and disposed upon opposite sides of the pivotal point thereof. The free extremities of these pawls *h* and *h'*, project into range of the teeth of the ratchet wheels *f* and *f'*, and are guided into engagement therewith by means of washers, collars or flanges *h''*, so that these pawls operate alternately to revolve or actuate the ratchet and make-and-break wheels in the direction indicated by the arrows in the drawings.

The make-and-break wheel *e*, is constructed of insulating material and is provided with a conducting cap having radial arms constituting diametrically disposed strips *e'* and *e''*, that co-operate with contact springs or brushes *i* and *i'*, connected respectively with the circuit connections *a''''''*. The extremities of the strips *e'* and *e''*, are folded onto certain of the faces of the teeth of the wheel *e*, so that the extremities of the springs or brushes *i* and *i'*, are adapted to rest upon the extremities of one of the strips to make the circuit, and then upon the intermediate insulating teeth to break the circuit. It may be remarked that the free ends of the contact springs *i* and *i'*, are provided with wedge-shaped pieces that side with the faces of the teeth of the make-and-break wheel *e*, so that the same may snap into position for making or breaking the circuit without an arc being drawn in either

operation. The drawing of an arc or sparking as it is sometimes called, is also avoided by reason of the fact that the springs or brushes i and i' , contact with the make-and-break wheel e , at points diametrically opposite each other.

The mode of operation of the hereinabove described device is as follows:—Assuming that the contact springs or brushes i and i' , are in engagement with the respective extremities of the contact strip e^2 , and that the push-button c' , is depressed as shown in Fig. 1, then it follows that the circuit through the conductor l , terminals a^5 , and springs or brushes i and i' , is completed or made through the conducting strip e^2 . This circuit may be broken by the simple operation of depressing the push button c , because such motion thereof actuates the pawl h , and the ratchet-wheel f , to effect the required revolution of the make-and-break wheel e , for turning the conducting-strip e^2 , out of engagement with the contact springs or brushes i and i' , and for permitting the latter to rest upon the insulating portion of the make-and-break wheel as shown in Fig. 2. The next depression of the push-button c' , causes the circuit to be made, because such motion acting through the pawl h' , and ratchet-wheel f' , effects the required revolution of the make-and-break wheel e , for turning the conducting strip e' , into engagement with the contact springs or brushes i and i' , for affording a path for the passage of the current. The depression of the push-button c' , acting through the instrumentality of the pawl h' , and ratchet-wheel f' , always serves to rotate the make and break wheel e , in the direction indicated by the arrows on the drawings into a position for causing one of the conducting strips e' and e^2 , to make the circuit, and the depression of the push-button c , acting through the instrumentality of the pawl h , and ratchet-wheel f , always to rotate the make-and-break wheel e , in the same direction, into a position for causing the insulating portions of the wheel e , to come into engagement with the contact springs or brushes i and i' , to break the circuit, and it may be remarked that the contact springs or brushes i and i' , not only afford a path for the passage of the current, but also by engaging the teeth of the make-and-break wheel, prevent accidental retrograde movement of the ratchet-wheels f and f' . The making and breaking of the circuit through the conductor l , may be availed of, for closing and making a shunt circuit and thus short circuiting or excluding the lamp circuit in a series distribution system.

In a multiple arc or parallel system of distribution, the hereinabove described device is interposed in one of the leads of the lamp circuit, so that in such case the conductor l , would represent one of the leads in which the lamps are interposed. In such case the operation of the device results in the making and breaking of the lamp circuit.

It will be obvious to those skilled in the art to which my invention appertains that as to details modifications may be made, without departing from the spirit thereof. Hence I do not limit myself to the precise arrangement hereinabove explained and illustrated.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A lamp circuit-switch and cut-out device provided with a detachable housing, a revoluble make-and-break wheel, a working beam provided upon each side of its fulcrum with push-buttons protruding through the housing, co-operating contacts, and pawl-and-ratchet connections interposed between the working beam and the make-and-break wheel for actuating the latter, substantially as and for the purposes set forth.

2. A lamp circuit switch and cut-out device comprising a housing, a revoluble make-and-break wheel and its complemental ratchet-wheels and contacts, a working-beam, pawls attached to said beam and depending from opposite sides of the fulcrum thereof into engagement with the ratchet-wheels, and push-buttons connected with the respective extremities of the beam, substantially as and for the purposes set forth.

3. A lamp circuit switch and cut-out device comprising a housing, a revoluble make-and-break wheel and its complemental contacts, ratchet-wheels connected with the make-and-break wheel, a working beam provided at or near its extremities with push-buttons protruding through the housing and with pawls meshing with the ratchet-wheels, and washers, collars or flanges for guiding said pawls, substantially as and for the purposes set forth.

4. A lamp circuit-switch and cut-out device comprising a base-plate provided with a detachable-cap, a make and break wheel and two ratchet wheels fast upon a shaft journaled to a fixed post, co-operating contacts, a working-beam carried by the post and provided on each side of its fulcrum with push-buttons protruding through the housing and with pawls engaging the ratchet-wheels, substantially as and for the purposes set forth.

5. A lamp circuit switch and cut-out device comprising a housing having a post connected with the base-plate thereof, a toothed insulating-wheel journaled to the post and provided with conducting-strips, springs or brushes engaging the teeth of said insulating wheel and the extremities of said conducting-strips, ratchet-wheels fast to the insulating-wheel, a working-beam carried by the post and provided upon opposite sides of its fulcrum with pawls engaging the ratchet-wheels and with push-buttons protruding through the housing, substantially as and for the purposes set forth.

6. A lamp circuit switch and cut-out device comprising a housing provided with a detachable-cap, a post connected with the base of the housing, a toothed insulating-wheel journaled to the post and provided with conduct-

ing-strips, contact springs or brushes and circuit connections carried on insulating-blocks attached to the base-plate, ratchet-wheels fast to the insulating-wheel, and a working-beam
5 carried by the post and provided on opposite sides of its fulcrum with pawls and with push-buttons protruding through the housing, substantially as and for the purposes set forth.

7. In a lamp circuit switch and cut-out device, a revoluble make-and-break wheel, co-
10 operating contacts, a working-beam provided with push-buttons, ratchet-wheels fast to the

make-and-break wheel, and pawls depending from the working-beam and operating to intermittently rotate the make-and-break wheel, 15 substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

JAMES SCOTT GEORGE, JR.

Witnesses:

THOMAS M. SMITH,

RICHARD C. MAXWELL.