

(No Model.)

C. E. DEY.
CIRCUIT SWITCH.

No. 504,123.

Patented Aug. 29, 1893.

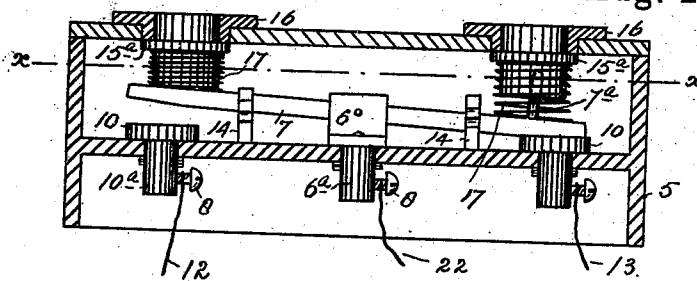


Fig. 1.

Fig. 2.

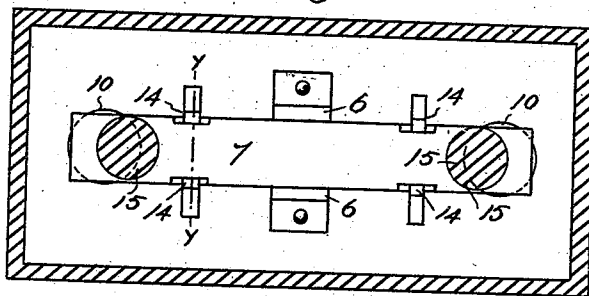


Fig. 3.

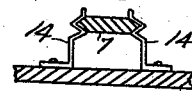


Fig. 5.

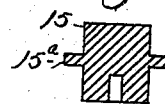
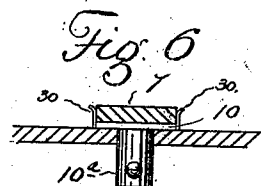


Fig. 4.



WITNESSES:

G. J. Rolland.
Wm. M. Council

INVENTOR

C. E. Dey
BY
A. J. Brien
ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES E. DEY, OF DENVER, COLORADO.

CIRCUIT-SWITCH.

SPECIFICATION forming part of Letters Patent No. 504,123, dated August 29, 1893.

Application filed December 13, 1892. Serial No. 455,087. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. DEY, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Circuit-Switches; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in switches specially designed for use in electric light circuits. The object of the invention is to provide a device of this class which shall be simple in construction, economical in cost, and at the same time reliable, durable and efficient in use.

To these ends the improvement consists of the features, arrangements and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a longitudinal vertical section taken through the box inclosing the mechanism, the latter being shown in elevation. Fig. 2 is a horizontal section taken on line $x-x$, Fig. 1. Fig. 3 is a section taken on line $y-y$, Figs. 1 and 2. Fig. 4 is a diagrammatic view illustrating the circuit. Fig. 5 is a longitudinal section of one of the push buttons. Fig. 6 shows another form of contact plate.

Similar reference characters indicating corresponding parts or elements of the mechanism in the several views let the numeral 5 designate an insulating box or receptacle preferably composed of insulating material except the top which may be composed of metal. To the bottom of this box is secured a forked metallic contact plate 6. Between the upwardly projecting arms of this fork is pivoted the bar 7 composed of some good conductor of the electric current, preferably metal. It may be well to state that the terms metal and metallic as used in this specification, are not used in a limited sense, but have a broad comprehensive meaning, covering any suitable con-

ductor of electricity which it may be deemed desirable or necessary to employ in the construction shown and described.

The forked contact plate 6 is provided with a projection 6^a which passes through an aperture formed in the bottom of the box and projects therefrom sufficiently to receive a binding screw 8 for securing in place the terminal of one of the circuit wires. On each side of the forked plate 6 is secured a metallic contact plate 10 having a projection 10^a passing through an aperture in the bottom of the box and projecting therefrom sufficiently to receive a binding screw 8 as in the case of the projection 6^a of the forked plate. To these projections lead respectively two circuit-wire terminals. Between the plate 6 and each contact 10 is located a pair of springs 14 secured to the base of the box and adapted to embrace bar 7 and retain the depressed extremity thereof securely in place on the corresponding contact plate 10. These pairs of springs 14 should alternately embrace the bar 7, which is wholly or partially released from one pair when it is tightly grasped by the other pair. The pivoted bar 7 is operated by the push buttons 15 which pass through apertures in the top of the box directly above the extremities of the bar. These buttons are provided with circumferential flanges 15^a forming shoulders which engage the flanged collars 16 secured to the top of the box. These push buttons are composed of insulating material and project into the box sufficiently to normally engage the raised extremity of the bar 7. These interiorly projecting extremities of the buttons are surrounded by coiled springs 17 which engage the shoulders of the buttons and normally retain them at their outward limit of movement with their outer extremities in the same plane with their surrounding collars. The bar 7 is provided with a projection 7^a at each extremity. These projections are adapted to enter counterpart apertures formed in the adjacent extremities of the push buttons for which they form guides as the buttons are depressed in operating the bar.

In Fig. 4 two of the switches are shown. This view is intended to illustrate the circuit required in controlling a light or lights from two different points, as from different floors

of the same house, one switch being located above and the other below. Let the numerals 19 and 20 designate the wires of the main circuit. Now assuming that the bars 7 are in positions shown in full lines in Fig. 5, the current may be said to pass from wire 19 through wire 9 to contact 6 of the lower switch and thence *via* bar 7, contact 10 and wire 12 to one contact 10 of the upper switch, and thence through the bar 7, contact 6 and wire 22 to the lamp 18 and thence through wire 23, to wire 20 of the main circuit. In this case the circuit is completed *via* the lamp which is therefore lighted. Having thus traced the current through the circuit when the lamp is lighted, it will be readily understood that if the bar 7 of either switch be shifted to the dotted-line position shown in Fig. 5, the circuit will be broken and the lamp extinguished. On the other hand, if both bars 7 are simultaneously in the dotted-line position, the lamp will again be lighted, since in this case the current may be said to pass from wire 19 through wire 9, contact 6 of the lower switch, bar 7, contact 10, wire 13 to contact 10 of the upper switch, and thence through bar 7, contact 6 and wire 22 to the lamp and thence *via* wire 23 to wire 20 of the main circuit.

It will thus be observed that any number of lamps in the same circuit may in this manner be controlled from any two separate and distinct points. The size of the contacts in the switch must of course be regulated according to the number of lamps to be controlled and the current passing through the circuit and necessary to supply the lamps.

The operation of the switch mechanism is very simple, and will be readily understood. As either button is pressed the corresponding extremity of the bar 7 is forced to engagement with the adjacent contact 10 while the corresponding pair of springs 14 grasps the bar and retains it securely in engagement with the contact. As soon as the button is released from pressure the spring 17 returns it to its normal position with its outer extremity in the same plane with the surrounding surface of the box. It will be observed that when either extremity of the bar 7 is depressed to engagement with its contact, the opposite extremity is raised from engagement with its contact and wholly or partially released from its springs 14.

My improvement may be used as a single pole switch. In this case only one contact 10, and two circuit wires would be employed. The contacts 10 may be provided with upwardly projecting springs 30 engaging the depressed extremity of the bar 7 on either

side for the purpose of making a better contact than could be secured by the flat contact plates.

Having thus described my invention, what I claim is—

1. In a circuit switch the combination with a suitable casing of three contacts secured to the bottom plate, to which contacts the circuit wires respectively lead, a bar pivoted to one of these contacts and adapted to alternately engage the other contacts, shouldered push buttons having their inner reduced extremities surrounded by coil springs engaging the shoulders of the button at one extremity and the bar at the opposite extremity, said shoulders engaging the inner surface of the top plate of the casing, while the upper reduced extremities of the buttons project through apertures formed in said plate, the buttons affording means for shifting the pivoted bar from one contact to the other, substantially as described.

2. In a circuit switch the combination of a suitable casing, three contacts secured to the base thereof to which the circuit wires respectively lead, a bar pivoted to one of these contacts and adapted to alternately engage the other contacts, spring actuated push buttons for operating the bar and two pairs of springs carried by the base plate and insulated from the contacts, said pairs of springs being adapted to grasp the respective extremities of the bar as the latter are depressed and retain the same securely in engagement with their corresponding contacts, substantially as described.

3. In a circuit switch the combination of a suitable casing, a bar pivoted on a contact plate secured to the base of the casing to which contact one of the circuit wires leads, and a contact 10 to which the other wire leads and shouldered push buttons for operating the bar whereby it is made to alternately engage and disengage contact 10, the lower reduced extremities of said buttons being surrounded by coil springs which engage the shoulders of the buttons at one extremity and are connected with the bar at the opposite extremity, said shoulders engaging the inner surface of the top plate of the casing, the upper reduced extremities of the buttons projecting through apertures formed therein, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES E. DEY.

Witnesses:

WM. MCCONNELL,
G. J. ROLLANDET.