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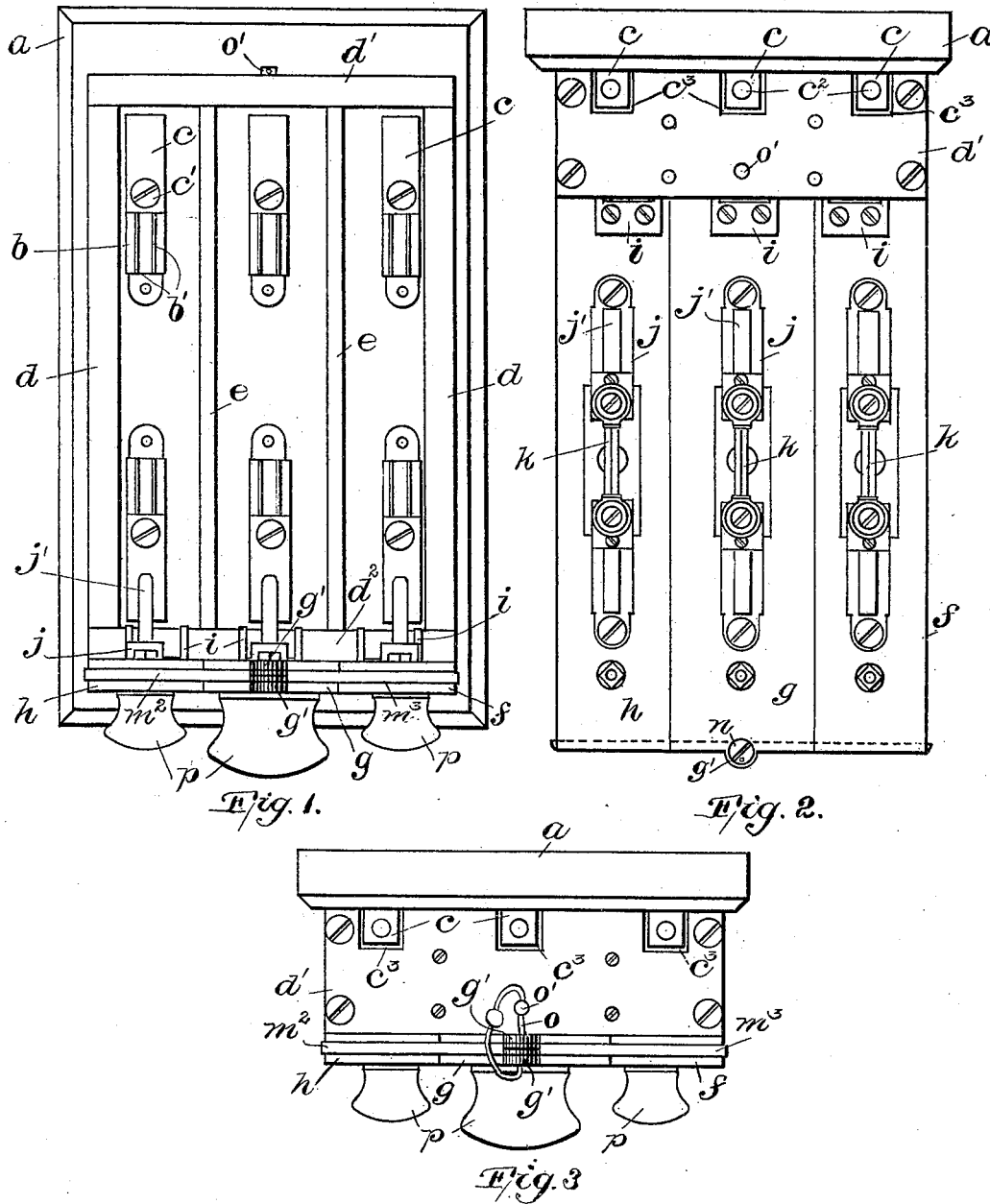
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SERVICE SWITCH FOR ELECTRIC LIGHTING SYSTEMS.

(Application filed Nov. 20, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
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Inventor:
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UNITED STATES PATENT OFFICE.

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SERVICE-SWITCH FOR ELECTRIC-LIGHTING SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 646,839, dated April 3, 1900.

Application filed November 20, 1899. Serial No. 737,551. (No model.)

To all whom it may concern:

Be it known that I, GEORGE O. KELLY, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Service-Switches for Electric-Lighting Systems, of which the following is a description sufficiently full clear, and exact to enable those skilled in the art to which it appertains or with which it is most nearly connected to make and use the same.

This invention relates to service-switches for electric systems, and has reference particularly to electric-lighting systems of the three-wire type.

The principal object is to provide for affording access to different sections of the switch independently, so that when a fuse of one branch of the system burns or "blows" out it will not be necessary to throw the whole system out of circuit in order to gain access for replacing the fuse.

Another object is to provide for incorporation of the fuse in a portion of the switch which is "dead" when the switch is open, thereby removing the danger of working on a live line in replacing the fuse. Again, I aim to so arrange the switch parts and the insulating-housing therefor as to facilitate making the wire connections, while at the same time effectually covering the terminals.

With the above-stated and other incidental objects in view the invention consists in a number of novel features of construction and combinations of parts, the essential elements of which are recited in the appended claims and a preferred form of embodiment of which is illustrated in the accompanying drawings and specifically described hereinafter.

Of said drawings, Figure 1 represents the switch in front elevation and in wholly-open condition. Fig. 2 represents the switch in top plan view under the same conditions. Fig. 3 represents the switch in top plan view entirely closed. Fig. 4 represents the switch in front elevation and closed condition with portions of its cover-plates broken away. Fig. 5 represents a central vertical longitudinal section of the switch in closed condition. Fig. 6 is a fragmentary sectional view, on an enlarged scale, illustrating parts which similarly appear in Fig. 5 on a smaller scale. Fig. 7

represents the switch in side elevation with one of the cover-plates opened out. Fig. 8 is a cross-section taken on the line 8 8 of Fig. 4.

The reference-letter *a* designates the base of the switch, which may be formed of any suitable insulating material—such, for example, as slate—and which is designed to be secured in vertical position to a suitable support, as ordinarily done in practice. Three sets of terminals for the wires of the system are mounted upon the base *a*, each set comprising a pair of terminals in vertical alignment and each terminal comprising a metal block *b*, having a pair of outstanding stiff spring-plates *b'*, and a block *c* making joint with the block *b*, as shown in Fig. 5, and secured thereto and to the base by means of a screw *c'*. Each of the blocks *c* is longitudinally bored, as at *c''*, for the reception of a wire of the system, which wire is fastened to the block before the latter is secured in place.

The three sets of terminals are surrounded by a casing composed of sides *d* and ends *d'* and *d''*, set on edge against the base *a* and suitably secured thereto and to each other, and the ends *d'* and *d''* are formed with square openings *c''*, through which the blocks *c* may be inserted and removed. When these blocks are in their proper places, they are entirely within the above-described casing, so as to be effectively housed. Partitions *e* extend between the ends *d'* and *d''* of the casing, dividing the interior of the latter into three compartments for the three series or sets of terminals, these partitions, as well as the casing, being formed of suitable insulating material—such, for example, as wood fiber—so that the sets of terminals will be properly separated. The lower end *d''* of the casing is slotted from its outer edge inwardly for the purpose of hinge connections, and the lower corner of this outer edge of the casing end is rounded off for a like purpose.

The switch-cover is of sectional construction and is here shown as composed of three plates *f*, *g*, and *h*, made of similar material to that composing the casing, and each of these plates is provided with a metallic hinge member *i*, with portions engaging slots in the casing end *d''*. A pintle *j* passes through the latter and the several hinge members, so that each cover-plate is independently hinged

to the casing. Each cover-plate has a pair of terminals mounted upon it in the form of metal blocks j , with outstanding blades j' to engage between the springs b' of the terminals in the casing, and each pair of blocks j is connected through the medium of a fuse k . A sight-opening k' is formed through each cover-plate over the fuse, through which opening it can be ascertained whether or not the fuse is intact, and for the same purpose similar sight-openings k^2 are formed in the sides d of the casing.

It will be seen that by making the cover of sectional construction, as described, and independently hinging the sections to the casing any one of the sections can be opened out, as illustrated in Fig. 7, without disturbing the other sections, and therefore in the event of a fuse burning out it is not necessary to throw out of circuit the entire system by opening the entire cover of the switch, as is ordinarily required. Thus in a lighting system all the lights need not be put out in order to replace a fuse in one part of the system only.

In order to provide for connecting the cover-sections to work as one when desired, and also to provide for locking the entire cover by one sealing device, I employ the following-described means: The cover-plates are grooved across their ends and the middle section g is formed with ears g' , between which and within the groove of this section are accommodated the inner overlapping rounded ends m and m' of the pair of locking-bars m^2 and m^3 , which are of sufficient length to protrude beyond the outer sections or plates f and h for purposes of manipulation. A pivot-pin in the form of a screw n passes through the ears g' and the rounded portions of the locking-bars, which are designed to work independently on this pivot. The locking-bars lie normally in the grooves of the three cover-plates, so as to connect the same for working as one in opening and closing the switch, and when the switch is wholly closed the cover is locked and sealed by means of a wire o passing through registering openings in the ears g' and the rounded portions of the locking-bars, said wire also passing through an opening in a stud o' on the top of the casing. It will be seen that this sealing-wire thus not only secures the cover to the casing, but also prevents the locking-bars from being lifted out of the grooves. When the seal has been broken and the wire removed, then the locking-bars are free to be lifted out of the grooves for the purpose of disconnecting any one of the sections of the cover from the others when such section is to be independently manipulated, as illustrated in Fig. 7. The cover-plates are equipped with knobs p , by which they may be pulled open.

It will be seen that the construction of switch above described is admirably adapted for accomplishing all of the objects primarily stated; but nevertheless it is to be understood that the invention herein disclosed is

capable of embodiment in other forms than that shown.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, it is declared that what is claimed is—

1. In a service-switch for multiwire electric systems, the combination with the several series of terminals; of a sectional cover with circuit-closers on its different sections for contact with terminals of the several sets respectively, and means for connecting the sections of the cover to work together or separately at will, substantially as described.

2. In a service-switch for multiwire electric systems, the combination with the several series of terminals; of a sectional hinged cover with circuit-closers on its different sections for contact with terminals of the several sets respectively, and one or more locking-bars for connecting the sections of the cover to work together or separately at will, substantially as described.

3. In a service-switch for multiwire electric systems, the combination with the several series of terminals; of a sectional hinged cover grooved across its free end and equipped with circuit-closers on its different sections for contact with terminals of the several sets respectively, and one or more locking-bars for engaging the grooves of the cover-sections to lock them together so as to work as one, said bar or bars being movable out of said grooves so as to permit independent manipulation of the cover-sections, substantially as described.

4. In a service-switch for multiwire electric systems, the combination with the several series of terminals; of a sectional hinged cover grooved across its free end and equipped with circuit-closers on its different sections for contact with terminals of the several sets respectively, and a locking-bar pivoted to one cover-section and adapted to occupy the groove thereof and the groove of the adjacent section so as to lock the sections together, and movable to disconnect the sections, substantially as described.

5. In a service-switch for multiwire electric systems, the combination with the several series of terminals; of a sectional hinged cover grooved across its free end and equipped with circuit-closers on its different sections for contact with terminals of the several sets respectively, locking-bars concentrically pivoted to one cover-section and adapted to occupy the groove thereof and also the grooves of adjacent sections, respectively, said bars being independently movable.

6. In a service-switch for multiwire electric systems, the combination with the several series of terminals; of a sectional hinged cover grooved across its free end and equipped with circuit-closers on its different sections for contact with terminals of the several sets respectively, locking-bars concentrically pivoted to

one cover-section and adapted to occupy the groove thereof and also the grooves of adjacent sections, respectively, said bars being independently movable and having registering-apertures for a sealing-wire, substantially as described.

7. In a service-switch, the combination of a base having a pair of terminals mounted upon it with detachable connector-blocks for the wires, a casing surrounding said terminals and having end openings opposite the connector-blocks through which the same may be removed and inserted; and a cover having a pair of circuit-closers for contact with said terminals, respectively, and a fusible connection between said circuit-closers.

8. In a service-switch for multiwire elec-

tric systems, the combination with the several series or sets of terminals; of a cover composed of a number of concentrically-hinged sections arranged side by side and separately movable, said cover having circuit-closers on its different sections for contact with the terminals of the several sets, respectively, and manipulative means for connecting the cover-sections together as one, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 15th day of November, A. D. 1899.

GEORGE O. KELLY.

Witnesses:

ARTHUR W. CROSSLEY,
F. P. DAVIS.