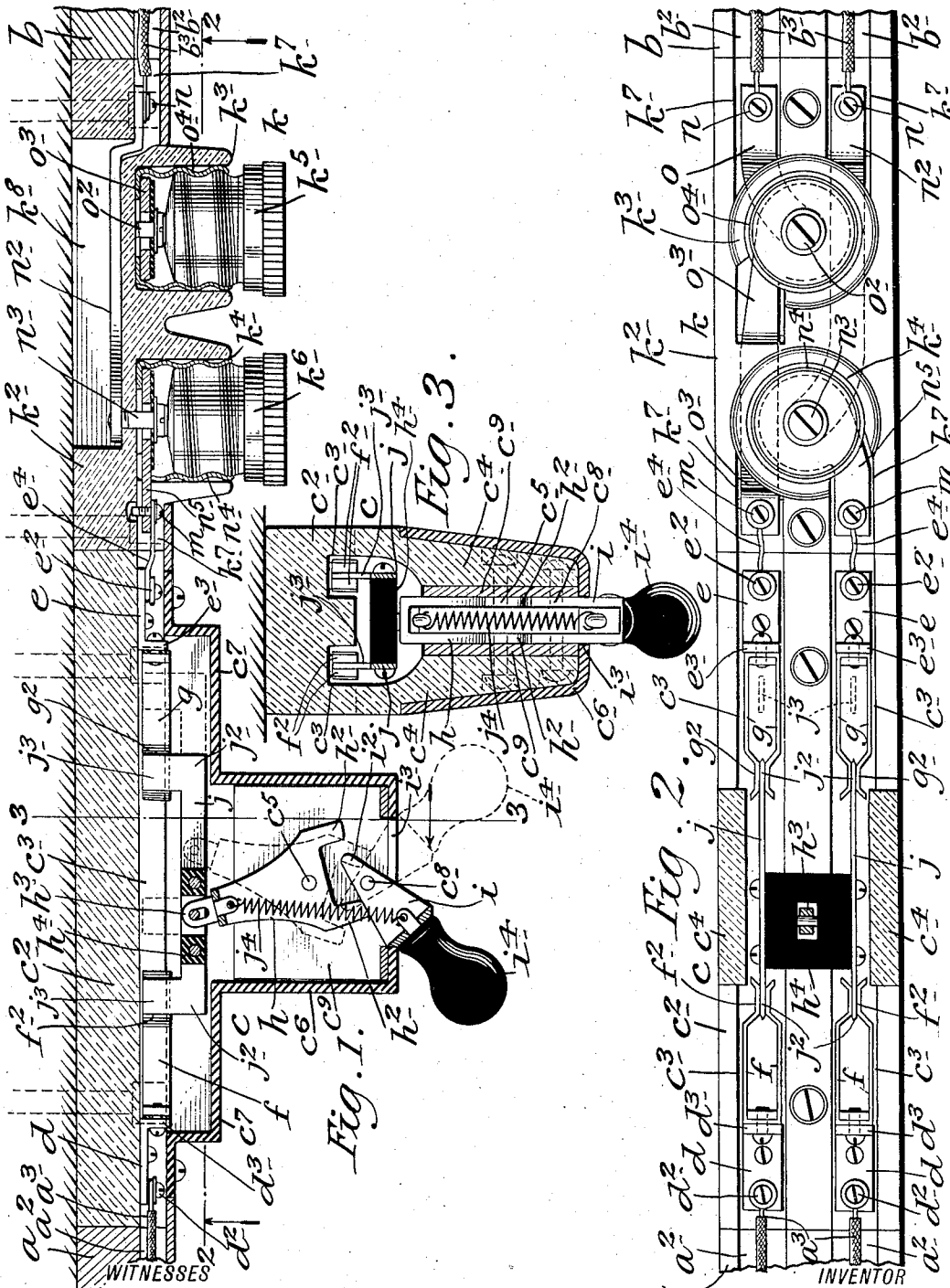


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ELECTRIC SWITCH AND CUT-OUT DEVICE.
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992,478.

Patented May 16, 1911.



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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT BIRNN, a citizen of the United States, and residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electric Switch and Cut-Out Devices, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to electric switch and cutout devices, and the object thereof is to provide improved devices of this class particularly designed for use in connection with the molding strips usually employed in wiring buildings for electric lights and for the supply of electricity for other purposes; a further object being to provide an improved electric switch device of the class specified which, while being particularly designed for use in connection with said molding strips, may also be used in other relations or for other purposes; a further object being to provide an improved cutout device particularly designed for use in connection with said molding strips and said switch device but which may also be used in other relations and for other purposes; and with these and other objects in view the invention consists in devices of the class specified constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which;—

Figure 1 is a longitudinal sectional view showing my improved switch and cutout devices in connection with the molding strips usually employed in wiring a building or other structure; Fig. 2 a partial horizontal sectional view on the line 2—2 of Fig. 1 with part of the construction removed, and Fig. 3 a transverse section on the line 3—3 of Fig. 1.

In the drawing forming part of this specification I have shown at *a* and *b* two molding strips of the class usually employed in wiring buildings for electrical purposes, and these molding strips are provided respectively with longitudinal parallel grooves *a*² and *b*², through which are passed insulated electric conductors *a*³ and *b*³.

In the practice of my invention I provide a switch device *c*, comprising a block *c*² of insulating material and of the same transverse width as the molding strips *a* and *b* and said block is provided with parallel grooves *c*³, which correspond with the grooves *a*² and *b*² in the molding strips *a* and *b*, and in the opposite end portions of said grooves *c*³ are secured plates *d* and *e* provided at their outer ends with binding posts or screws *d*² and *e*², and at their inner ends with raised lugs or projections *d*³ and *e*³, and in practice the conductors *a*³ in the molding strip *a* are connected with the binding posts or screws *d*² of the plates *d*, as clearly shown in Figs. 1 and 2, and other conductors *e*⁴ are connected, in the form of construction shown, with the binding posts or screws *e*² of the plate *e*.

Connected with the lugs or projections *d*³ of the plates *d* are inwardly directed spring contact arms *f* which extend toward the center of the switch block *c*², and the free or inner ends of which are provided with inwardly set contact portions *f*², and connected with the lugs or projections *e*³ of the plates *e* are spring contact arms *g* which extend toward the center of the switch block *c*², and the inner or free ends of which are provided with inwardly set contact members *g*². The spring contact arms *f* and *g* are arranged in pairs in the grooves *c*³ of the switch block *c*², and said switch block *c*² is provided centrally of the opposite sides thereof with raised or projecting members *e*⁴, in which is pivoted, as shown at *c*⁵, a lever *h*, the outer end portion of which is provided with a head having spaced projecting lugs *h*², and said lever and the parts *e*⁴ of the block *c*² are inclosed by a casing *c*⁶ of any preferred insulating material, and which is provided with a base portion *c*⁷ which is secured to the block *c*² in any desired manner, and which incloses the parts *d*, *e*, *f* and *g*, and the other operative portions of the switch as herein- after described.

Pivoted in the outer part of the casing *c*⁶ at *c*³ is an arm *i* having an inwardly directed nose *i*² adapted to operate in connection with the projecting lugs *h*² of the lever *h*, and said arm extends through a slot *i*³ in the casing *c*⁶ and is provided with an insulating handle *i*⁴.

The inner end of the lever *h* is provided

with a link device h^3 , which is loosely connected with an insulating block h^4 to the opposite sides of which are secured switch blades j , the opposite end portions j^2 of which are provided with angular and backwardly directed contact members j^3 , which are adapted to operate between the contact end members f^2 and g^2 of the spring contact arms f and g , and secured to the inner end of the lever h is a strong contractile spring j^4 which is also secured to the outer end of the arm i , and which normally holds the parts h , i and j in any position into which they may be thrown by the part i . The lever h is a yoke-shaped lever, the separate sides thereof being connected at their inner ends, and the outer end portions thereof being provided with the projecting lugs h^2 , and the arm i is a yoke-shaped arm, the separate side portions thereof being each provided with a nose i^2 , and the spring j^4 is placed between and operates between the separate side portion of the lever h and the arm i .

The raised or projecting members c^4 of the block c^2 between which the lever h and arm i are mounted are provided, in the form of construction shown, with plates c^5 , between which the lever h and arm i are pivoted, and this gives a firm and permanent support for said parts, and said plates may be secured in position in any desired manner.

The operation of my improved switch device will be readily understood from the foregoing description when taken in connection with the accompanying drawing and the following statement thereof. As shown in full lines in Figs. 1 and 2 the switch blades j are in position to make electrical connection with the separate sets of spring arms f and also with the spring contact arms g , and the circuit will be completed through the conductors a^3 and e^4 as will be readily understood, and in order to break said circuit all that is necessary is to throw the arm i into the position shown in dotted lines in Fig. 1, and in this operation, or at the end thereof, the switch blades j or the backwardly or inwardly directed contact members j^3 thereof will be thrown out of connection, both with the contact arms f and g , as clearly indicated in Fig. 1, and when the switch blades j are in this position, the contact members f^2 and g^2 at the ends of the separate parts of the contact arms f and g will be thrown together and said contact members f^2 and g^2 are only separated when the circuit is complete and the switch blades j are in the position shown in full lines in Fig. 1, and this construction and operation of said parts enables the spring contact arms f and g to retain their resilience, or spring qualities, much longer than would otherwise be possible, the tension

thereof being released when the switch blades j are in the position shown in dotted lines in Fig. 1.

My improved cutout device is shown at k and comprises a block k^2 of any suitable insulating material, and with the exception of the specific construction shown and described this block may be made in the same manner and of the same material as in the case of other devices of this class. The block k^2 is provided with two forwardly directed sockets k^3 and k^4 in which are placed the usual plugs k^5 and k^6 , and whenever desired these plugs may be removed and electric light bulbs inserted for use, or by means of suitable plugs branch wires for any desired use may be connected with said cutout block as will be readily understood. The block k^2 is also provided with two parallel grooves k^7 in the opposite end portions thereof, which correspond with the grooves b^2 in the molding strip b , and with the grooves c^3 in the switch block c^2 , and the central part of said block is cut out at the back thereof as shown at k^8 . The cutout block k^2 is of the same transverse width as the switch block c^2 and in the grooves k^7 at the end of said cutout blocks adjacent to the switch block c^2 are binding posts or screws m , with which the conductors c^4 are connected, and the opposite end of said block k^2 is provided, in the grooves k^7 , with binding posts or screws n with which the conductors b^3 are connected.

A metal strip n^2 extends from one of the binding posts or screws n to the bottom of the plug socket k^4 , and a screw n^3 is passed outwardly through the bottom of said socket and into the end of said strip. The socket k^4 is provided with the usual metal lining n^4 and in the bottom of said socket is a metal strip n^5 , which is in electrical connection with said lining and with one end of the binding posts or screws m , and the strip n^5 is insulated from the parts n^2 and n^3 , and when the plug k^6 is screwed into said socket a circuit is completed as will be readily understood. A metal strip o is connected with the other binding post n in the outer end of the block k^2 and extends to the bottom of the socket k^3 and a screw o^2 is passed outwardly through the bottom of said socket and into said strip o , and another metal strip o^3 connects with the bottom of said socket and extends to the other binding post or screw m in the end of the block k^2 adjacent to the switch block c^2 , and the strip o^3 is in contact with the metal lining o^4 in the plug socket k^5 , and the parts o^4 and o^3 are insulated from the parts o and o^2 .

From the foregoing description, taken in connection with the accompanying drawing, it will be seen that when the circuit is closed through the switch it will also be closed

through the cutout block, and when the circuit is open through the switch it will also be open through the cutout block.

The difference between the cutout device k herein shown and described, and others of its class, is in the shape of the block k^2 and the transverse dimensions thereof whereby said cutout device is particularly designed for use in connection with the molding strips a and b and with the switch device c , and in the method of making electrical connections between the molding strip b and the switch device. In cutout devices of this class as heretofore constructed, the block which forms the base of said device has been made square, and the conductors b^3 and c^4 have been brought into the block at right angles to the line of the sockets k^3 and k^4 . This construction has rendered said cut out device objectionable in use, said construction being such that the circuit wire connections were much more difficult to make than with my improved cutout device, and a complete job by reason of the form of the said cutout device or devices was rendered unsightly and unsymmetrical; but with my improved form of cutout device the circuit wires pass through the said cut-out device in line with the sockets k^3 and k^4 of said device and in line with the grooves in the moldings and the switch block, and the width of the cutout block being the same as the width of the molding strip and the width of the switch block, a symmetrical and finished construction is provided for, and a building may be more quickly and easily wired, and at a much less expense than with devices of this class as heretofore constructed.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent is;—

1. An electric switch device, comprising a base block having parallel grooves, plates secured in the opposite end portions of said grooves and provided with binding posts, spring contact arms arranged in pairs, con-

nected with said plates and extending inwardly toward the center of said block in said grooves, and the free ends of each pair of which are bent inwardly, an insulating block movable longitudinally of the base block, switch blades secured to the opposite sides of said insulating block and provided with end members adapted to operate in connection with the inwardly set end portions of said pairs of spring contact arms, and means for operating and moving said insulating block longitudinally of the base block.

2. An electric switch device, comprising a base block having parallel grooves, plates secured in the opposite end portions of said grooves and provided with binding posts, spring contact arms arranged in pairs, connected with said plates and extending inwardly toward the center of said block in said grooves, and the free ends of each pair of which are bent inwardly, an insulating block movable longitudinally of the base block, switch blades secured to the opposite sides of said insulating block and provided with end members adapted to operate in connection with the inwardly set end portions of said pairs of spring contact arms, and means for operating and moving said insulating block longitudinally of the base block, consisting of a pivotally supported lever connected with said insulated block, and a pivotally supported arm for operating said lever, said lever and said arm being connected by a tension device which will permit the operation of said parts but hold them in any position into which they may be thrown.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 23rd day of March 1910.

ROBERT BIRNN.

Witnesses:

C. E. MULREANY,
B. M. RYERSON.