

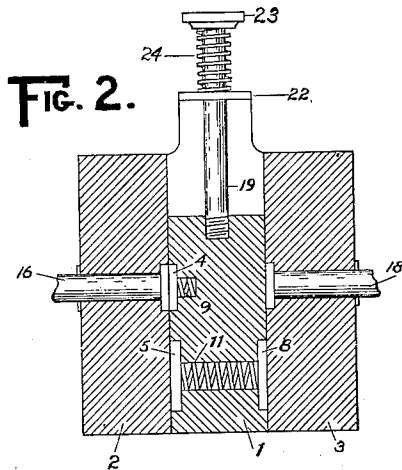
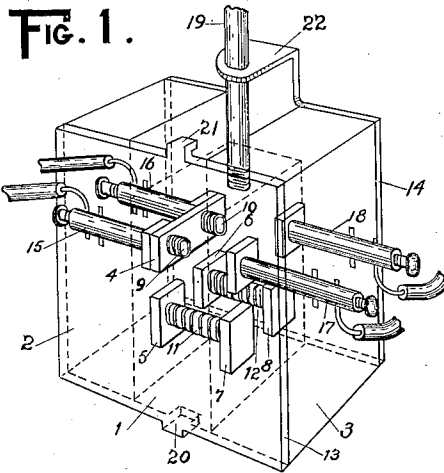
H. W. DOUGHTY & C. E. BEACH.

CUT-OUT.

APPLICATION FILED NOV. 9, 1908.

1,005,521.

Patented Oct. 10, 1911.



WITNESSES:

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CUT-OUT.

1,005,521.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, HERMAN W. DOUGHTY and CLARENCE E. BEACH, residing at Binghamton, county of Broome, and State of New York, have invented certain new and useful Improvements in Cut-Outs, of which the following is a specification.

This application is a division of application for patent issued to us February 15th, 1910, No. 949,699.

Our invention relates particularly to that class of cutouts which are arranged to control the connection between two sets of conductors and first short circuit all of said conductors and then disconnect one set of the conductors from the other set of conductors.

The objects of our invention are to provide a cutout more reliable in operation, more durable, and better able to resist the destructive influence of lightning or high potential currents than devices of the kind heretofore produced, and our further objects are to so simplify the mechanism that it may be readily understood and kept in order by those entrusted with its use, and so that it will require a minimum of attention and repairs, and such other objects as may be described in the following specification and more particularly pointed out in the claims.

In constructing this invention a member is provided constructed of insulating non-inflammable material of suitable size and so arranged as to pass between contacts communicating with the two sets of conductors and carrying means for connecting the contacts on one side of said member with corresponding contacts on the opposite side of said member when same is in a certain position and to connect the contacts on one side of said member with each other and interpose a large body of insulating material between the opposing contacts when the member is in another position.

In order that our invention may be better understood, we show in the drawings annexed to and forming part of specification, a form of cutout adapted for use in a fire alarm signal box, but we do not limit ourselves to the construction shown as it is evident that our invention may be applied to other forms of cutouts than that shown, and we do not desire to limit ourselves to the construction or design of parts shown in the

drawings and hereinafter described, as same are only given for the clear understanding of our invention, and changes in construction and arrangement, and insertion or omission of various parts may be made without departing from the spirit of our invention, as defined in the appended claims.

In the drawings forming part of this specification in which like numerals of reference denote the same parts throughout: Figure 1 represents perspective view of complete cutout with wall transparent. Fig. 2 represents sectional view of cutout taken in a vertical plane passing through terminals 16 and 18.

Referring to Fig. 1, the insulating block 1 is mounted between the insulating blocks 2 and 3 and is provided with recesses on the sides toward said blocks. The contact strips 4, 5, 6, 7 and 8 are fitted to the recesses in the block 1, and suitable springs such as 9, 10, 11 and 12 are provided under said contacts and tending to push said contacts out of their respective recesses in the block 1.

The blocks 2 and 3 are held in such position that their opposing faces are parallel by means of the binding plates 13 and 14. The distance between the opposing faces of the blocks 2 and 3 and the plates 13 and 14 being sufficiently great to permit the block 1 to freely move through same, but the distance between the opposing faces of the blocks 2 and 3 must not be sufficiently great to permit the contacts 4 to 8 inclusive to disengage their respective recesses in the block 1.

The terminals 15 and 16 are so mounted in the insulating block 2 that said terminals may be electrically connected with each other by the contact plate 4 when the insulating block 1 is in a certain position, and so that, the contact plate 5 will rest upon the terminal 15 and contact plate 6 will rest upon the terminal plate 16 when the insulating block is in another position.

The terminals 17 and 18 are so mounted in the insulating block 3 that when the insulating block 1 is in the position where the contact plates 5 and 6 are resting upon the terminals 15 and 16 the terminals 17 and 18 will be in contact with the plates 7 and 8 respectively.

The heads of the terminals 15 and 16 ex-

tend in the direction of travel of the block 1 for such distance that when the block 1 is being moved between the position where the contact 4 rests upon the terminals 15 and 16, and the position where the contacts 5 and 6 rest upon said terminals respectively, there will not be any point in the travel of said block 1 where neither the contact 4 nor the plates 5 and 6 will rest upon the terminals 15 and 16.

The plate 5 is electrically connected with the plate 7 by means of the spring 11, and the plate 6 is connected to the plate 8 by means of the spring 12.

Suitable means are provided for operating the movable block 1 as, for instance, the bar 19, and stops or limits are provided for preventing the block 1 from being moved beyond its intended travel such as the projection or ears 20 and 21 formed upon the plate 13, so as to lie in the path of the block 1.

A guide 22 is provided for the bar 19 and an insulating head 23 may be provided upon the end of the rod 19 so that the block 1 may be moved in one direction by pressing upon said head 23, and the coil spring 24 may be provided for moving the block 1 in the opposite direction when the pressure is removed from the head 23, or any other suitable or convenient means may be employed for imparting motion to the block 1.

The thickness of the block 1 should be sufficiently great so that its dielectric strength will be sufficient to withstand any electro-motive force which it is anticipated might at any time tend to pass from the terminals 15 and 16 through the plate 4 and springs 9 and 10 to the terminals 17 and 18.

The distance between the edges of the heads of the terminals 15, 16, 17 and 18, and the respective contacts 5, 6, 7 and 8 when the movable block 1 is in the position shown should be sufficiently great to prevent any anticipated electro-motive force from jumping from either of the terminals 15 and 16, or from the plate 4 to either of the plates 5 and 6, and thence from the plates 7 and 8 to either of the terminals 17 and 18.

The terminals 15 and 16 are intended to be connected with one set of conductors, as for instance, the line wires leading from a fire alarm box through other boxes to the receiving instruments and batteries. The terminals 17 and 18 connect with another set of conductors, as for instance, the lead wires from signal mechanism which it is desired to include in such fire alarm circuits at certain times and to disconnect from such fire alarm circuit at other times.

When the parts are in position shown the plate 4 is held against the end of the terminals 15 and 16 by means of the springs 9 and 10, and thus forms an electrical connection between said terminals. The ter-

minals 17 and 18 are separated from the terminals 15 and 16 by an insulating medium of such dielectric strength as will not be broken down by any electro-motive force which it is anticipated may at any time tend to pass from the terminals 15 and 16 to the terminals 17 and 18. The spring 24 is so compressed as to tend to move the head 23 away from the guide 22. If the head 23 is now permitted to respond to the tendency of the spring 24 the block 1 will be drawn up by means of the bar 19 thus withdrawing the contact 4 from the terminals 15 and 16 and bringing the contacts 5, 6, 7 and 8 to rest upon the terminals 15, 16, 17 and 18 respectively. During such transfer the contact 4 will not cease to touch the terminals 15 and 16 until the contacts 5, 6, 7 and 8 touch the respective terminals 15, 16, 17 and 18. After the contact plate 4 has been withdrawn from the terminals 15 and 16 the path of current will be from the terminal 15 through the contact 5 the spring 11 and the contact 7 to the terminal 17, thence through the mechanism connected between the terminal 17 and the terminal 18 to the terminal 18, thence through the contact 8, spring 12, and contact 6 to the terminal 16.

We claim:—

1. Two sets of separately insulated terminals, two insulating blocks in which said terminals are so mounted that their contact faces are parallel and the contact surfaces of one set of terminals facing the contact surfaces of the other set of terminals, a movable insulating block adapted to slide between the terminal blocks so as to form a shield at certain times between the two sets of terminals, suitable recesses in the movable block, contact plates supported in certain of said recesses and arranged to form an electrical connection from each of the terminals mounted in one of the terminal blocks to a corresponding terminal mounted in the other terminal block, another contact plate so arranged that it will maintain a connection between two of the terminals mounted in one of the terminal blocks except when the movable block is in a position where the other contacts rest upon their respective terminals.

2. Two insulating terminal blocks, two sets of terminals, one of which sets is mounted in one of said terminal blocks, and the other of which sets is mounted in the other of said terminal blocks, a movable insulating block adapted to slide between the terminal blocks, so as to form a shield at certain times between the two sets of terminals, suitable recesses in the movable block, contact plates supported in certain of said recesses and arranged to form an electrical connection from each of the terminals mounted in one of the terminal blocks to a corresponding terminal mounted in the other terminal block.

5 minal block, another contact plate so arranged that it will maintain a connection between two of the terminals mounted in one of the terminal blocks except when the movable block is in a position where the other contacts rest upon their respective terminals.

10 3. Two insulating terminal blocks, two sets of terminals one of which sets is mounted in one of said terminal blocks and the other of said sets is mounted in the other of said terminal blocks, a movable insulating block adapted to slide between the terminal blocks and to form a shield at certain times between the two sets of terminals, suitable
15 recesses in the movable block, contact plates so mounted in certain of said recesses that said plates may be moved in front of the faces of the various terminals when the movable block is in a certain position and so
20 that said plates will be carried away from their respective terminals when the movable block is in another position; electrical connections between certain of said contacts, a contact plate supported in another recess
25 and so constructed and arranged that it will maintain a connection between the terminals mounted in one of the terminal blocks except when the movable block is in a position where the other contacts are in front of the
30 faces of their respective terminals, and springs tending to press the respective contact plates out of their respective recesses.

4. Two insulating terminal blocks, two sets of terminals one of which sets is mounted in one of said terminal blocks and the other of said sets is mounted in the other of said terminal blocks, a movable insulating block adapted to slide between the terminal blocks and to form a shield at certain times between the two sets of terminals, contact plates connected in pairs and so mounted in a movable block that said plates may be moved in front of the faces of each of the various terminals when the movable block is in a certain position and so that said plates will be carried away from their respective terminals when the movable block is in another position, another contact plate carried by the movable block and arranged to maintain a connection between the terminals mounted in one of the terminal blocks except when the other contacts are maintaining a connection between each of the terminals in one terminal block and a corresponding terminal in the other terminal block.

55 In testimony whereof, we have hereunto subscribed our names in the presence of two witnesses this sixth day of November, 1908.

HERMAN W. DOUGHTY.
CLARENCE E. BEACH.

Witnesses:

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H. W. HAWLEY.