

J. L. SMITH.
CUT-OUT.
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953,558.

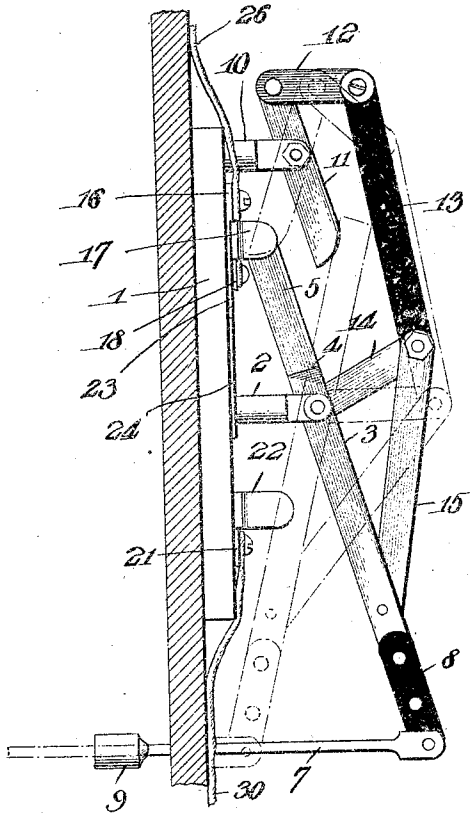


Fig. 1.

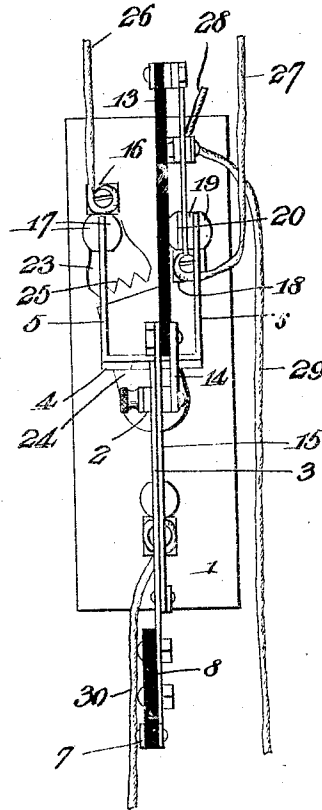


Fig. 2.

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JAMES L. SMITH, OF ALVORD, TEXAS.

CUT-OUT.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES L. SMITH, a citizen of the United States, residing at Alvord, in the county of Wise and State of Texas, have invented new and useful Improvements in Cut-Outs, of which the following is a specification.

The invention relates to an improvement in cut-outs, designed primarily for use on grounded telephone circuits, and particularly serviceable in providing a means arranged for manual operation to cut out the apparatus and line within the dwelling in the event of lightning or other electrical disturbance.

The main object of the present invention is the provision of a cut-out constructed for manual operation, in which, at the will of the user, the telephone main outside the dwelling may be put to an auxiliary ground and at the same time the line within the dwelling may be put directly to the main ground by operation in one direction, the opposing operation cutting in the telephone main to the service line within the dwelling.

The invention will be described in the following specification, reference being had particularly to the accompanying drawings, in which:

Figure 1 is a side elevation of the improved cut-out. Fig. 2 is a front elevation of the same.

Referring particularly to the accompanying drawings, the improved cut-out includes an insulated base 1 of porcelain or the like designed to be secured to any appropriate fixture, preferably on the outside of the building to be protected.

Secured on the base at an appropriate point is a post 2 in which is mounted the main switch lever 3. The switch lever 3 includes a forked end 4 comprising spaced switch blades 5 and 6, the main length of the lever projecting from the forked end being connected to an operating rod 7 through the medium of an insulated strip 8. The rod 7 is designed to project through an opening in the side of the building and is provided at its inner end within the building with a knob or handle 9, whereby the rod may be conveniently reciprocated and the lever 3 operated on its fulcrum to raise or lower the switch blades 5 and 6.

A binding post 10 projects from the base beyond the free ends of the switch blades 5 and 6, the upper end of the post being

divided to provide ears between which is pivotally mounted a contact lever 11. The outer end of the lever is connected through the medium of a strip section 12 with an insulated bar 13, the forward end of which is connected to a metallic section 14 secured on the pivotal point of the switch lever 3, a brace section 15 projecting from the outer end of the section 14 to the lever 3 in advance of its pivotal connection to maintain the desired fixed relation between the section 14 and the lever 3.

By the construction described it will be obvious that a movement of the operating rod 4 in either direction will cause a relatively opposite movement of the free ends of the respective levers 3 and 11, so that as the free end of the switch lever moves down up, and vice versa.

Secured upon the base 1 is a binding post 16 carrying switch points 17 of the spring type with which the switch blade 5 of the lever 3 is designed to engage. A second binding post 18 is secured upon the base carrying switch points 19 of the spring type, between which the switch blade 6 of the lever 3 is designed to engage. The post 18 carries a third point 20, forming with one of the points 19 an additional pair of points between which the free end of the contact lever 11 is designed to engage. It is understood, of course, that the switch blades of the lever 3 and the free end of the contact lever engage the respective points described only when the contact ends of said lever are in lowered position, and as such contact ends are oppositely movable it is, of course, obvious that the switch blades of the lever 3 and the operative end of the lever 11 are never in engagement with the respective switch points at the same time. The base 1 is also provided beyond the post 2 with relation to the posts 16 and 18 with another binding post 21, carrying spring points 22 between which the main length of the switch lever 3 is designed to engage. The points 22 are, therefore, in opposition to the points 17 and 19, so that when the switch lever is engaged with one set of points it is disengaged from the other.

A metallic plate 23 is secured on the base through the medium of the post 16, and a second plate 24 is secured upon the base through the medium of the post 2. These plates are arranged in line and their prox-

mate edges are spaced a slight distance apart, one or both of said proximate edges being serrated or roughened, as at 25, to provide the usual series of points. The plates 23 and 24 form the escape path for an excess current, as will be later described.

The arrangement of the cut-out in the circuit is as follows: The telephone main 26 from the central to the dwelling is connected to the binding post 16. The conductor 27 leading from the cut-out to the apparatus within the house is connected to the binding post 19. The main ground from the apparatus leads to the binding post 10 through a conductor 28, and from said binding post through a conductor 29 to the ground. An auxiliary conductor 30 leads from the binding post 21 to the ground. When the telephone circuit is in use the operating rod 7 is moved so as to arrange the connected end of the switch lever at its limit from the base 1.

In this operation the switch blades 5 and 6 engage the points 17 and 19, while the contact lever 11 is disengaged from the points 19 and 20. The telephone is then in circuit the current passing over the conductor 26, points 17, blades 5 and 6, points 19, conductor 27 to the apparatus, conductor 28, post 10, conductor 29 to the ground.

In the event of an electrical disturbance, as a storm, in which it is necessary to protect the apparatus and wiring within the dwelling, the rod 7 is drawn upon so that the connected end of the switch lever is moved to its inward limit toward the base 1. Under these conditions the main length of the lever engages the points 22, the blades 5 and 6 are disengaged from the points 17 and 19 and the free end of the contact lever 11 is engaged between the points 19 and 20. Any excess current passing over the main 26 will then pass through the plates 23 and 24, the main length of the lever 3, the points 22 and the grounded conductor 30. In this connection it is to be also noted that in the operation of the lever to cut out the telephone apparatus from the telephone main the contact lever 11 operates to establish a ground from the binding post 18 so that if by any possibility the excess current should bridge the space between the binding posts 16 and 18 it will still find its way to ground without materially influencing the telephone apparatus.

The device is of simple construction, requires no attention on the part of the operator and may be quickly installed in any grounded circuit carrying apparatus which it is designed to protect. The metallic parts are, of course, of any material having a good conductivity while the insulated parts may be constructed of any usual or preferred insulation.

I claim:

1. A cut-out including a base, switch

points secured upon the base and in connection with the main conductor, additional switch points mounted upon the base and in connection with the service conductor, a post mounted upon the base and in connection 70 with the main ground, a switch lever arranged for manual operation and adapted in one position to engage and bridge the switch points in the main conductor and service conductor, and a contact lever operated by the switch lever to establish electrical connection between the service conductor switch points and the post in the main ground conductor.

2. A cut-out including a base, a main 80 ground conductor, switch points secured upon the base and in connection with the main conductor, additional switch points mounted upon the base and in connection with the service conductor, a post mounted 85 upon the base and in connection with the main ground, a switch lever arranged for manual operation and adapted in one position to engage and bridge the switch points in the main conductor and service conductor, 90 and a contact lever operated by the switch lever to establish electrical connection between the service conductor switch points and the post in the main ground conductor, 95 aligned plates connecting the main conductor switch points and the switch lever, said plates having their proximate ends in spaced relation, and an auxiliary ground conductor adapted to be in electrical connection with the switch lever when the latter is in position to break the connection between the main conductor and service conductor switch points. 100

3. A cut-out including a base, a main conductor terminal secured thereon, a service conductor terminal secured thereon, a main ground point secured thereon, an auxiliary ground terminal secured thereon, a switch lever pivotally mounted on the base and carrying blades to engage the main conductor and service conductor and electrically bridge the space between them, and a contact lever carried by the main ground post and operated with and reversely in relation to the switch lever, said contact lever being 115 pivotally mounted on the main ground conductor post and engaging when in operative position the service conductor terminal, the switch lever in inoperative position engaging the auxiliary ground conductor terminal, 120 and an electrical path between the switch lever and main conductor terminal.

4. A cut-out including a base, main conductor switch points secured thereon, service conductor switch points secured thereon, a 125 lever post secured thereon, spaced plates arranged in alinement between the main conductor points and the lever post, a switch lever pivotally mounted in the post, blades carried by said lever to engage the main 130

conductor and service conductor switch points when the lever is in one position, a ground post mounted on the base and in electrical connection with the main ground conductor, a contact lever pivotally mounted on the ground post, and a connection between the contact lever and switch lever, whereby the free end of the contact lever and the blades are reversely operated in the movement of the switch lever, said contact lever in operative position being designed to engage the service conductor switch points.

5. A cut-out including a base, main conductor switch points secured thereon, service conductor switch points secured thereon, a lever post secured thereon, spaced plates arranged in alinement between the main conductor points and the lever post, a switch lever pivotally mounted in the post, blades carried by said lever to engage the main conductor and service conductor switch

points when the lever is in one position, a ground post mounted on the base and in electrical connection with the main ground conductor, a contact lever pivotally mounted on the ground post, and a connection between the contact lever and switch lever, whereby the free end of the contact lever and the blades are reversely operated in the movement of the switch lever, said contact lever in operative position being designed to engage the service conductor switch points, and auxiliary ground switch points secured on the base, the switch lever being designed to engage said auxiliary ground switch points when the switch lever is in inoperative position.

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

JAMES L. SMITH.

Witnesses:

J. B. FARMER,
C. F. O'TOOLE.