(No Model.)

M. LEAVY.

CUT-OUT FOR ELECTRIC CIRCUITS.

No. 490,292. Patented Jan. 24, 1893.

Fig. 1

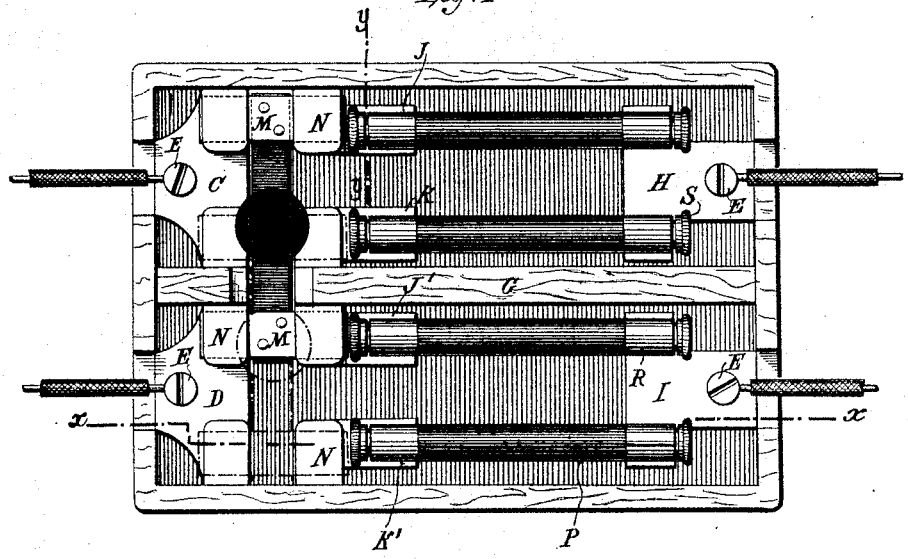


Fig. 2

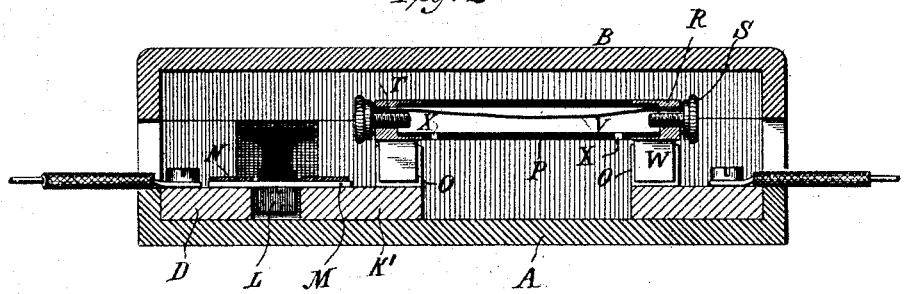
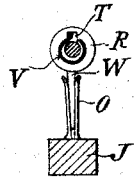


Fig. 3



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CUT-OUT FOR ELECTRIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 490,292, dated January 24, 1893.

Application filed June 16, 1892. Serial No. 436,971. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL LEAVY, a citizen of the United States, residing at Pittsfield, in the county of Berkshire and State of Massachusetts, have invented certain new and useful Improvements in Cut-Outs for Electric Circuits, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

This invention is an improvement in fusible or safety cut-out devices for electric circuits, which is designed to afford a more practicable and safe device for this purpose than those in present use.

The improvements reside mainly in a novel construction of the holder for the fusible safety strip and in the means for including the same in the circuit, and by means of which the strips may be inserted or replaced in case of fusion without the use of tools, and by which better protection against the injury from the continuance of an arc is secured.

In the drawings hereto annexed I have illustrated in detail the construction which constitutes my invention.

Figure 1 is a top plan view of a cut-out box or case with my improvements applied thereto. Fig. 2 is a longitudinal vertical section on line *x*—*x* of Fig. 1. Fig. 3 is a vertical cross section of a portion of the instrument on the line *y*—*y* of Fig. 1.

The arrangement shown in the drawings is one more especially designed for use with a main circuit, as for example a street line when it enters a building, but the invention is equally applicable to circuits generally, wherever it is necessary or desirable to place a safety cut-out, as will be understood by those skilled in the art to which the invention pertains.

I employ a box or casing A, of porcelain or other suitable insulating material, provided with a suitable cover B, and adapted to be secured to a wall or other support.

In the particular form of device herein illustrated, are two copper blocks C, D, at one end of the box provided with screws or clamps E, by means of which the line wires F are connected to them.

At the opposite end of the box are two other blocks H, I, also provided with binding screws E, and to which the line wires running from the box are connected. The interior of the box is preferably divided by an insulating longitudinal partition G. The blocks C, D, are bridged or connected with the blocks H, I, through safety strips in the following manner: J, K, and J′, K′ are copper blocks secured to the bottom or sides of the box at a proper distance from the blocks H, I, and a switch is provided for connecting either J and J′ or K and K′ with the blocks C and D respectively. A convenient device for this purpose is a slide L of insulating material carrying conducting cross-bars M, which by the transverse movement of the slide are caused to pass under spring clamps or jaws N on the respective blocks. The object of this is that when one safety strip or one set of the same fuses or becomes injured, the continuity of the line may be immediately re-established by shifting the slide and throwing in the other set, while the first are being replaced or repaired. Each block J, K, J′, K′ is formed or provided with spring jaws or clips O, and a pair of similar clips is provided on each block H, I. These are to receive the terminals of the safety strip holders. The latter consist of tubes P of insulating and preferably refractory or non-combustible material, provided with metallic ends or ferrules R, closed at their ends except for a threaded hole for the insertion of a clamping screw S and a notch or opening T for the passage of a safety wire V. From the caps or ferrules extend lugs or wings W, which afford the means of connecting the safety strips in circuit by forcing them down between the spring jaws or clips O. A safety or fusible wire or strip slightly longer than the tubes is passed through the tube and its projecting ends bent over against the conducting ends of the tube. The screws S are then turned to bind the ends of the wire against the ends of the ferrules and make good electrical contact therewith so that when the tubes are set in position with the wings or lugs W between the spring jaws O a perfect conducting bridge is formed through the safety strips between the conducting blocks.

By the arrangement herein described one safety strip in each compartment is kept in circuit by the slide switch.

In each tube P and at one or both ends

of the same are openings X. These serve the very useful purpose of permitting the escape of air and gas on the fusion of the safety wire within the tube, and thus create a draft by the confined air and gases rushing toward and through the openings that extinguishes the arc, which when the tube is practically closed or when no tube is employed is liable to form and destroy the apparatus.

I am aware that safety strip holders have been used with spring clamping devices, and also that switch mechanism has been employed in conjunction with a number of safety strip terminals to bring one strip into circuit when another has blown out or fused, and these features I do not claim.

What I claim is:

1. The combination of the insulating box or case, the line terminals C, D and H, I, the conducting blocks J, J′ and K, K′, the safety strips electrically connecting the terminals H, I with said blocks, the slide L, the metallic cross-bars thereon, and spring clips on the terminals C, D, and the blocks J, J′, K, K′, respectively, with which said cross-bars are adapted to engage, as set forth.

2. The combination with an insulating safety strip holder having metallic ends formed or provided with lugs or wings, and means for binding or clamping the ends of a safety strip to said metallic ends, of terminals provided or formed with spring jaws or clips for receiving the lugs or wings and thereby retaining the safety strip in circuit, as set forth.

3. The combination with an insulating tube having metallic ferrules or ends formed or provided with lugs or wings, and binding screws for clamping to the ferrules the ends of a safety strip contained within the tube, of metallic terminals provided with spring jaws or clips by which the lugs or wings on the metallic ferrule or ends of the safety tube are held, as herein set forth.

4. The combination with the insulating tube, the end ferrules having threaded openings for the insertion of clamping screws and notches or openings for the passage of a safety strip, and formed or provided with lugs or wings W, of spring clips or jaws forming circuit terminals and adapted to receive and hold the safety strip tube by engaging with the lugs on the ferrules of the same, as set forth.

5. In a safety strip holder, the combination of an insulating tube having air passages or openings at or near the ends, metallic ferrules or ends formed with lugs or wings adapted for connection with terminal clips of the circuit, and having threaded openings for the passage of a safety-strip, and clamping screws for binding the ends of said safety-strip to the ferrules, as set forth.

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