

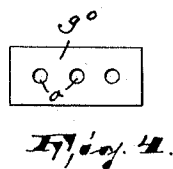
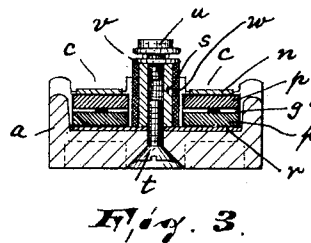
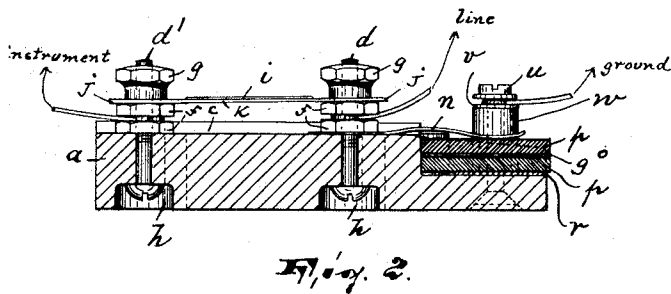
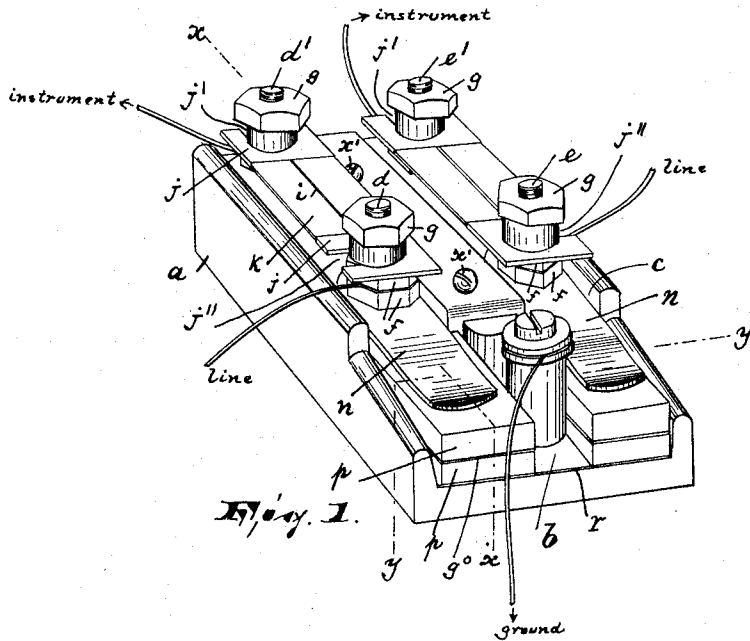
No. 617,170.

Patented Jan. 3, 1899.

B. L. LAWTON & E. C. WILCOX.
COMBINED LIGHTNING ARRESTER AND FUSIBLE CUT-OUT.

(Application filed Aug. 2, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

BURTON L. LAWTON AND ERNEST C. WILCOX, OF MERIDEN, CONNECTICUT.

COMBINED LIGHTNING-ARRESTER AND FUSIBLE CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 617,170, dated January 3, 1899.

Application filed August 2, 1898. Serial No. 687,500. (No model.)

To all whom it may concern:

Be it known that we, BURTON L. LAWTON and ERNEST C. WILCOX, citizens of the United States, residing in Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in a Combined Lightning-Arrester and Fusible Cut-Out; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of our invention is to provide a combined lightning-arrester and fusible cut-out for electrical circuits which will be effective in operation and simple, strong, and durable in construction.

The invention consists in the combined fusible cut-out and lightning-arrester and in the combination and arrangement of the various parts thereof, substantially as will be hereinafter more fully described, and finally embodied in the clauses of the claim.

Our invention is fully illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the instrument constituting our invention; Fig. 2, a sectional view on the line *x x* of Fig. 1; Fig. 3, a transverse sectional view on the line *y y* of Fig. 1, and Fig. 4 a top plan view of a certain insulating-strip used in connection with the grounding device.

In said drawings, *a* represents a rectangular block or base composed of porcelain or other similar insulating material and adapted to be secured in place by screws *x x'* or in any desired manner. The upper portion of said block is provided at one end with a rectangular recess *b* and with longitudinal channels *c c*, extending from said recess to the other end of the block. Projecting through said block are arranged two pairs of metallic binding-posts *d d'* and *e e'*, each of which, besides carrying the usual pair of binding-nuts *f f*, is also provided with a binding-nut *g*. The heads of the binding-posts are set in recesses *h* in the under side of the block.

To the binding-posts *d* and *e* and between

the binding-nuts *f f* thereof are connected the ends of the line-wire, while between the binding-nuts *f f* of the binding-posts *d'* and *e'* are connected the wires running to the apparatus or instrument.

Connection between the line and instrument wire binding-posts *d* and *d'* (or *e* and *e'* on the opposite side of the block) is formed through a short fusible wire *i*, glued or otherwise secured to one side of the mica strip *k* and connecting sheets or plates of platinum or tin-foil *J J*, also secured in any desired manner to said mica strip at each end and on both sides thereof. One end of each mica strip and also the platinum plate arranged thereon is provided with a longitudinal slot *J'*, adapted to be penetrated by and to receive the binding-post *d'* or *e'*, while its other end is provided with a slot *J''* at right angles to the center line of the mica strip which receives the binding-post *d* or *e*.

The mica strips can be easily removed or swung around when desired to break the connection between the binding-post *d* and *d'* and *e* and *e'*, respectively.

The foregoing constitutes the fusible cut-out.

The grounding device may be described as follows: Elastic copper strips *nn* are secured with their inner ends to the binding-posts *d* and *e* in the channels *c c* by the lower ones of the pairs of binding-nuts *f f*, while their outer or free ends project or extend over the recess *b*. These copper strips serve as conductors between the binding-posts and the sets of laminated carbon plates *p p* and intermediate mica strips *g⁰*, situated one set (two carbon plates and one intermediate mica strip) under each copper strip, and also hold them firmly in position. The mica strips *g⁰* are each penetrated by a series of holes or perforations, as shown at *o* in Fig. 4. These sets of carbon plates *p p* and mica strips *g⁰* are mounted upon a copper plate *r*, resting upon the bottom of the recess *b*. Said last-mentioned copper plate is held in place by a bushing *s*, secured to the block *a* by a screw *t*, carrying at its upper end a binding-post *u*, to which is connected the grounding-wire. Between the washer *v* of said binding-post and the copper plate *r* and surrounding

said bushing is arranged a rubber tube *w*, which also acts as an insulation between the upper carbon plate and the bushing.

It will be obvious that whenever the current carried by the line-wire becomes abnormally high—as, for instance, if the line-wire is charged with a lightning or other atmospheric current—the fusible wire *i*, leading to the apparatus or instrument, will burn out and the current will pass through binding-post *d* and copper strip *n* into the upper carbon plate *p*. Since the current is an abnormally heavy one, it will jump from the upper to the lower carbon plate through the openings *o* in the mica strip situated between said plates. From said lower carbon-plate the current will then pass through the copper plate *r*, the screw *t*, (which is in electrical contact therewith,) the bushing *s* to the binding-post *u*, and from there through the grounding-wire into the ground.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a block or base of insulating material, of a grounding-terminal and pairs of line and instrument terminals mounted thereon, fusible cut-outs each connecting a line and an instrument terminal, a copper plate mounted on said block, pairs of laminated carbon plates, one for each line-terminal arranged on said copper plate, perforated mica strips spacing said carbon plates, an elastic copper strip connecting each line-terminal with its corresponding pair of carbon plates and bearing upon and securing the latter in position, and a metallic binding-post mounted upon said copper plate between said pairs of carbon plates and in electrical contact with said copper plate, said binding-post constituting the grounding-terminal, substantially as described.

2. The combination, with a block or base of insulating material having in its upper face and near one end a recess and longitudinal channels also arranged in said face and communicating with said recess, of a grounding-terminal and pairs of line and instrument terminals, said pairs of line and instrument terminals being disposed in said channels, fusible cut-outs each connecting a line and an instrument terminal, a copper plate mounted on

said block in said recess, pairs of laminated carbon plates, one for each line-terminal also arranged in said recess and upon said copper plate, perforated mica strips spacing said carbon plates, an elastic copper strip connecting each line-terminal with its corresponding pair of carbon plates, each projecting into a slot at one of its ends and projecting at the other of its ends over said recess and bearing upon one of the pairs of carbon plates, and a metallic binding-post mounted on said copper plate between said pairs of carbon plates and in electrical contact with said copper plate, said binding-post constituting the grounding-terminal, substantially as described.

3. The combination, with a block or base of insulating material having in its upper face and near one end a recess and longitudinal channels also arranged in said face and communicating with said recess, of a grounding-terminal and pairs of line and instrument terminals, said pairs of line and instrument terminals being disposed in said channels, fusible cut-outs each connecting a line and an instrument terminal, each being pivotally connected to one and detachably connected to the other of said terminals, a copper plate mounted on said block in said recess, pairs of laminated carbon plates, one for each line-terminal, also arranged in said recess and upon said copper plate, perforated mica strips spacing said carbon plates, an elastic copper strip connecting each line-terminal with its corresponding pair of carbon plates, each projecting into a slot at one of its ends and projecting at the other of its ends over said recess and bearing upon one of the pairs of carbon plates, a metallic binding-post mounted upon said copper plate between said pairs of carbon plates and in electrical contact with said copper plate, said binding-post constituting the grounding-terminal, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands this 23d day of July, 1898.

BURTON L. LAWTON.
ERNEST C. WILCOX.

Witnesses:

E. L. KELSEY,
A. L. CRANDALL.