(No Model.)

E. W. LITTLE.

THERMAL CUT-OUT.

No. 421,180. Patented Feb. 11, 1890.

Fig. 1.

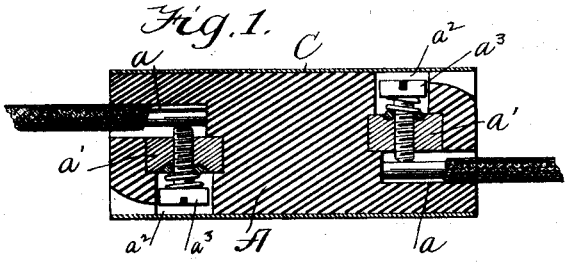


Fig. 2.

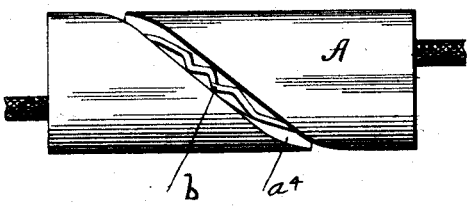


Fig. 3.

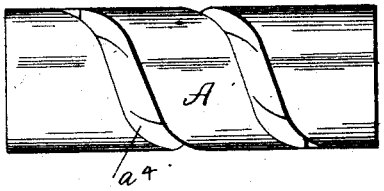


Fig. 4.

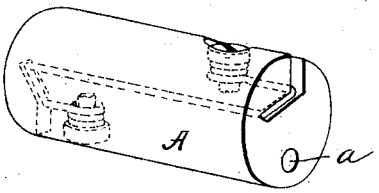


Fig. 5.

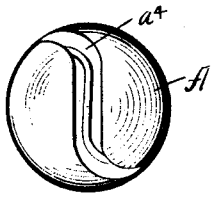
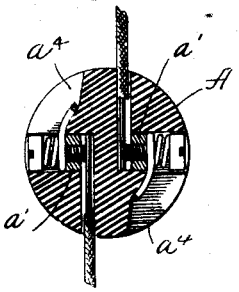


Fig. 6.



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THERMAL CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 421,180, dated February 11, 1890.

Application filed November 22, 1889. Serial No. 331,163. (No model.)

To all whom it may concern:

Be it known that I, EVERETT W. LITTLE, a citizen of the United States, residing in New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Safety-Catches for Electric Circuits, of which the following is a specification.

The invention relates to safety-catches or fuse-boxes for electric circuits, the object being to provide a block which will occupy as little space as possible, will protect the contact, be of simple construction, and requiring but a simple operation to make the necessary connections.

The invention consists, essentially, of a block of insulating material, into the ends of which conductors project and are secured, the block being provided with a spiral groove on its surface, in which is placed the fusing strip connected in a peculiar manner from one conductor to the other.

Referring to the accompanying drawings, Figure 1 represents a central section of the safety-catch; Fig. 2, a side elevation of the same; Fig. 3, a side elevation showing an elongated spiral groove; Fig. 4, a perspective illustrating another way of disposing of the fusible strip; and Figs. 5 and 6, elevation and section, respectively, of a spherical form of block.

This invention is adapted for use in almost every instance where safety-catches are required. It is designed more especially to be used in places where but small spaces are available, such as in the fittings of electroliers and brackets. In the last-mentioned apparatus there is usually a canopy or cup-shaped shield surrounding the stem where it emanates from the walls or ceiling. It has been necessary to make these shields of an ungainly and unsightly size in order to accommodate the safety-catch or catches which are placed usually within them. The ordinary form of catch usually consists of a block of insulating material carrying at least four screws or binding-posts, and with an intermediate fusing strip, mica and copper conductors, &c. In drawing a comparison between these catches and the one herein described as my invention the advantages of the latter will be at once apparent.

Referring to the drawings by letter, A represents a block of insulating material, preferably of some material which will not be injured by the formation of an electrical arc or by the molten metal. It is of general cylindrical shape with flat ends. In each end is formed a cylindrical hole a, extending some distance into the block and arranged on the opposite sides of its axis. These holes accommodate the ends of the copper conductors. The block will probably be molded of some kind of material or compound, and in its process of manufacture a threaded nut a' will be embedded in each end of the block, in the manner shown in Fig. 1. They will be so located that the threaded hole through them will be at right angles to the holes a and open into them. Above these nuts or on the sides opposite the holes a cavities a^2 will be formed to admit the head of the binding-screws a^3, which will engage with the nuts to hold the conductors in place. These cavities will be of sufficient depth to allow the heads of the screws to drop below the surface of the block and thus to as fully protect them as possible. The cavities a^2 a^2 are formed at the opposite ends and on the opposite sides of the block A, and they communicate with each other through a spiral groove a^4, formed on the exterior surface of the block, as shown in Fig. 2. This groove is of sufficient capacity to bury the fusible strip b beneath the surface of the block. The fusible strips are at each end bent around the shank of the screws a^3 and rest in grooves cut in the outside of the nuts a', as shown in Fig. 1. This method of connection provides broader contact-surface for the ends of the fusible strip. In order to be sure that the ends of the fusible strip will always be held in this groove and in good contact with the nut a', a short spiral spring is inserted between the strip and the under side of the head of screws a^3. This spring always bears upon the strip, no matter how far the screws penetrate into the openings a. It will be observed that by running the fusible strip through a spiral groove on the outer surface of the block I am able to get a very long distance between the connected ends of the conductor with the use of a very small block.

In Fig. 1 I show the block surrounded by

a thin sleeve C of insulating material, such as paper. This is a continuous sleeve, and is provided to prevent any possible connection between the two binding-screws through external agencies. The sleeve will also prevent the molten metal from falling out when the strip fuses. When this sleeve is used, I form notches or small grooves leading from the cavities a^2 through to the ends of the block, thus providing a vent for gases which may be generated in the groove when the fuse melts.

The groove shown in Fig. 2 extends only half around the circumference of the block; but in Fig. 3 an elongated groove is shown extending one and a half times around the block. This illustrates how the greatest circumferential distances may be obtained between the screws with the kind of block described.

In Figs. 5 and 6 the block is shown spherical in shape, with the binding-screws projecting inward at diametrically-opposite points and the spiral assuming the shape shown in Fig. 5.

In Fig. 4 I show the fusible strip passing through a longitudinal hole parallel to the axis of the block. This form also gives a lengthened fusible strip; but the one hereinbefore described is preferred.

Having thus described my invention, I claim—

1. A safety-catch for electric circuits, consisting of a block of insulating material, binding-screws at each end thereof and located on opposite sides of the block, the block being provided with a groove in its surface extending from one binding-screw to the other, and a fusible strip connecting the two binding-screws and located in the groove, substantially as set forth.

2. A safety-catch for electric circuits, consisting of a cylindrical block of insulating material having binding-screws for the line-conductors at each end and located upon its opposite sides, the block being provided with an external spiral groove for the fusible strip running from one binding-screw to the other.

3. A safety-catch for electric circuits, consisting of a cylindrical block of insulating material provided with cavities formed in the opposite ends thereof to accommodate the line-conductors and other cavities formed substantially at right angles thereto, binding-screws, and an external groove extending between the two last-mentioned cavities, for the purpose described.

4. A safety-catch for electric circuits, consisting of the block A, provided with the cavities a a and having embedded in it the nuts a' a', the screws a^3, working in said nuts, and a fuse-strip connected with each screw and running around the outside of the block, substantially as described.

5. A safety-catch for electric circuits, consisting of a block of insulating material provided with binding-screws at each end, and a spiral groove running around the block from one binding-screw to the other, said groove adapted to receive the fusible strip.

6. A safety-catch for electric circuits, consisting of a block of insulating material, binding-screws located at opposite ends and at diametrically-opposite points thereon, and a fusible strip extending from one binding-screw to the other.

In witness whereof I have has hereunto signed my name in the presence of two subscribing witnesses.

EVERETT W. LITTLE.

Witnesses:
THOMAS K. TRENCHARD,
WM. A. ROSENBAUM.