No. 745,694. PATENTED DEC. 1, 1903.

M. R. UTLEY & B. J. CLEMENTS.

FUSE BLOCK.

APPLICATION FILED JULY 11, 1903.

NO MODEL.

Fig 1

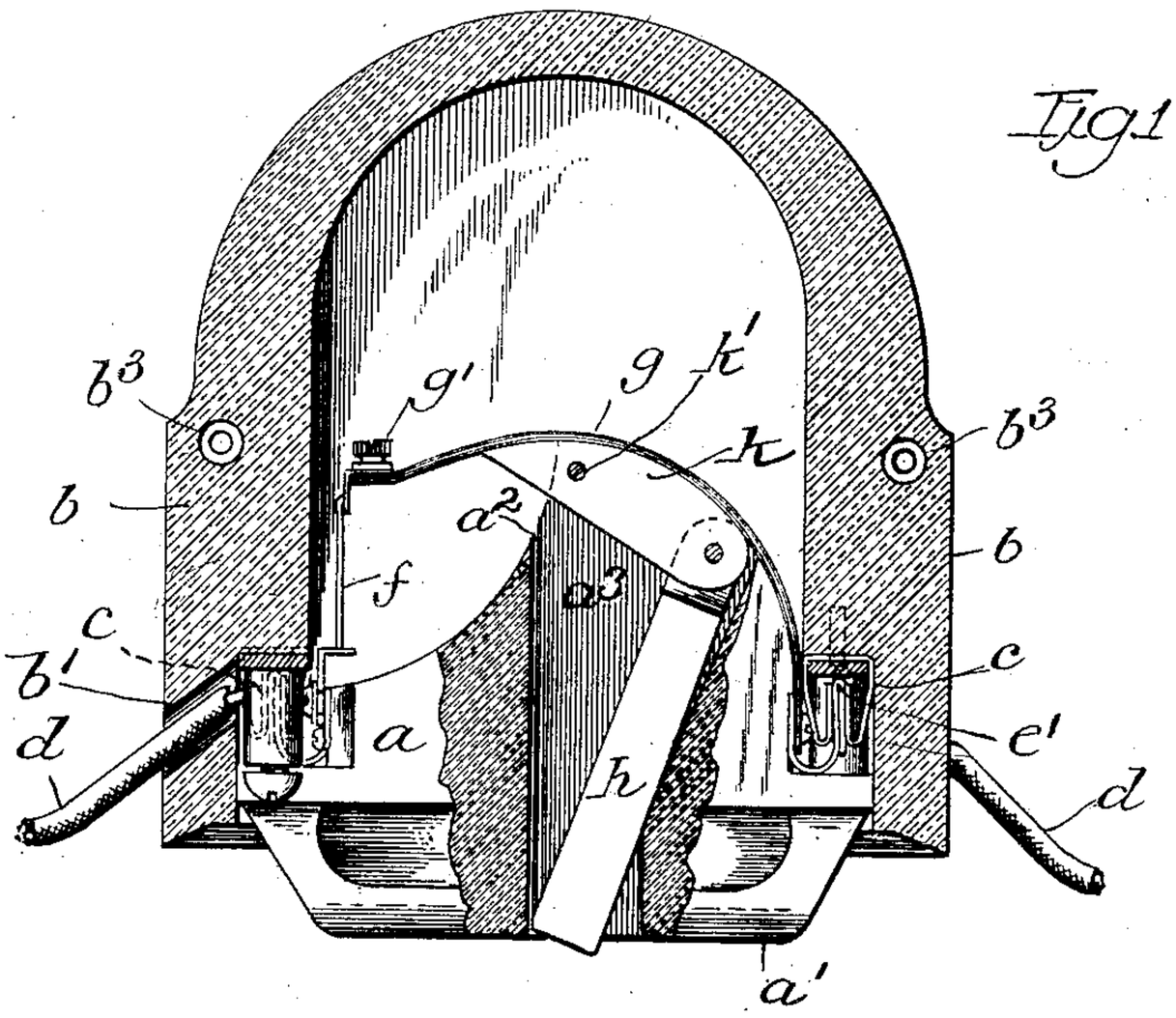


Fig. 2

Fig. 3

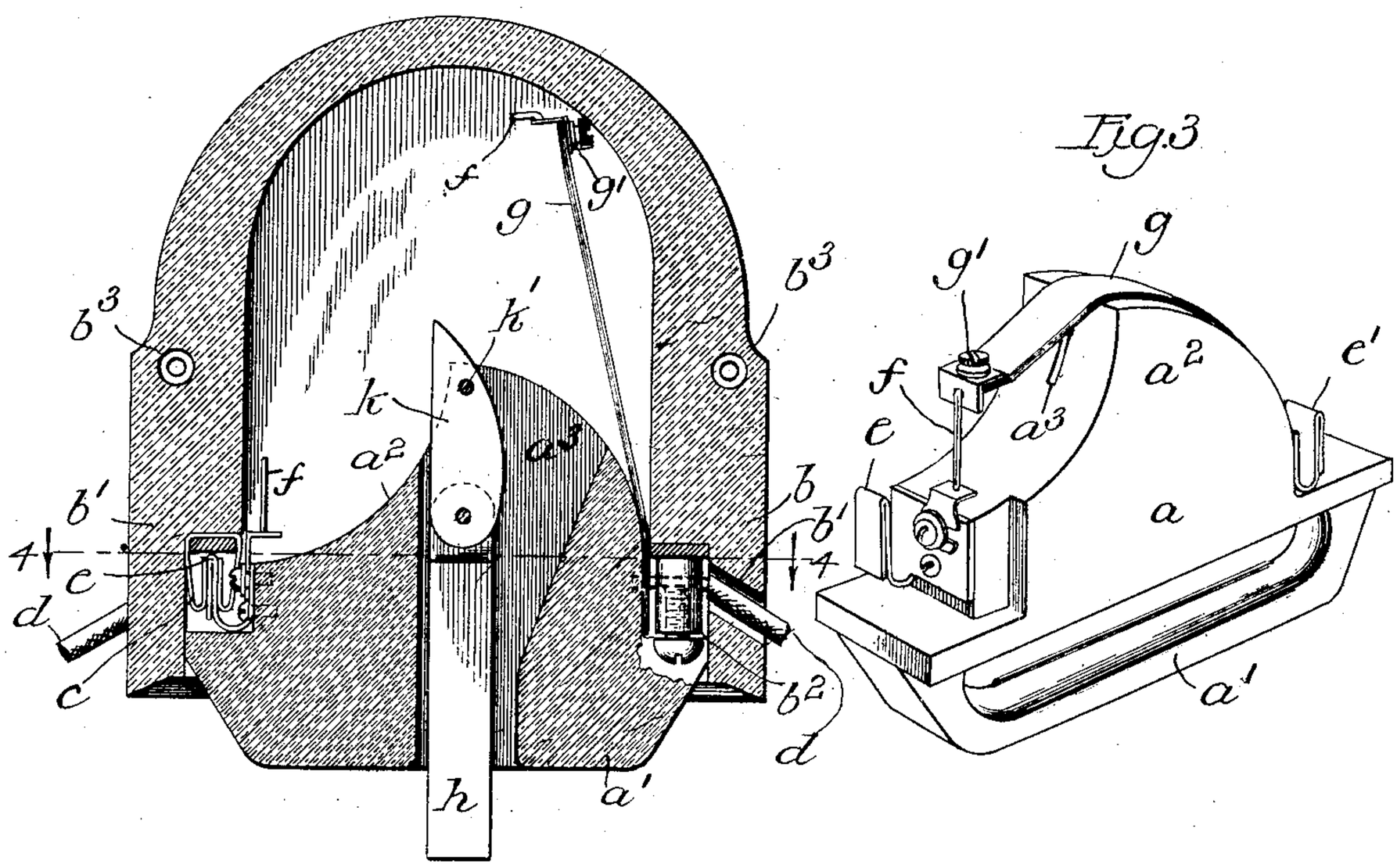
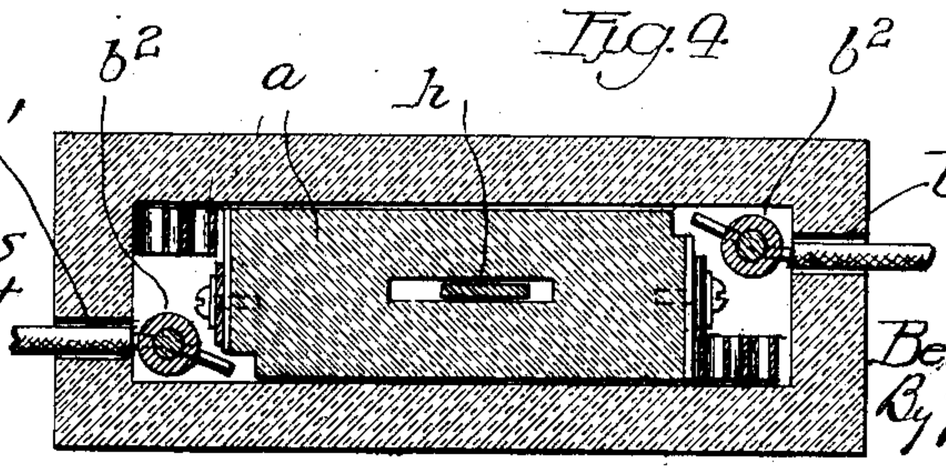


Fig. 4



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No. 745,694. Patented December 1, 1903.

UNITED STATES PATENT OFFICE.

MILTON R. UTLEY AND BENJAMIN J. CLEMENTS, OF CHICAGO, ILLINOIS, ASSIGNORS OF ONE-THIRD TO SAMUEL INSULL, OF CHICAGO, ILLINOIS.

FUSE-BLOCK.

SPECIFICATION forming part of Letters Patent No. 745,694, dated December 1, 1903.

Application filed July 11, 1903. Serial No. 165,040. (No model.)

To all whom it may concern:

Be it known that we, MILTON R. UTLEY and BENJAMIN J. CLEMENTS, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Fuse-Blocks, of which the following is a full, clear, concise, and exact description.

Our invention relates to a fuse-block or strong-current protector for electric circuits; and its object is to provide an improved device of simple construction which will be especially adapted for outdoor use in connection with high-tension circuits.

Our invention contemplates a structure in which the fuse-block is inclosed by a protecting-case, and a special feature lies in a construction whereby an observer can tell at a glance without opening the case whether or not the fuse has been blown.

Further features of our invention lie in certain details of construction and combinations of parts hereinafter to be set forth.

We will describe our invention more particularly by reference to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of a fuse-block and its inclosing case constructed and operating in accordance with our invention. Fig. 2 is a similar view showing the parts in the alternative position they would occupy when the fuse is blown. Fig. 3 is a detail perspective view of the fuse-block removed from the case, and Fig. 4 is a sectional plan view on line 4 4 of Fig. 2.

The same letters of reference are used to designate the same parts wherever they are shown.

The fuse-block a and its inclosing casing b are made of insulating material, preferably porcelain. The fuse-block is adapted to fit snugly into the downwardly-opening mouth of the casing b and is provided with a projecting handle portion a', by which it may be inserted and withdrawn. Spring terminal clips $c\,c$ are provided within the mouth of the casing in position to engage upwardly-projecting tongues or terminal contact-pieces at the end of the fuse-block. These spring-contacts are adapted not only to hold the fuse-block in position within the mouth of the casing, but also serve to extend electrical connection from the connection-terminals in the casing to the operating parts of the fuse-block. The wires $d\,d$ are led into the casing through openings $b'\,b'$ and are secured to the binding-posts $b^2\,b^2$ therein. The clips $c\,c$ are mounted upon the same conducting-base with said binding-posts, so that said clips form, in effect, the switch-terminals of the wires $d\,d$. The tongues or contact-pieces $e\,e'$ upon the fuse-block are adapted to fit into the clips $c\,c$, so as to make electrical connection therewith and also to be held mechanically thereby, as before stated. The clips and contact-pieces are so arranged that the fuse-block is reversible—that is, it may be inserted in the casing with either the tongue e or the tongue e' in engagement with a given one of the clips $c\,c$.

The fuse-block is constructed with an upwardly-projecting segmental lug a^2 in the upper portion thereof, as shown most clearly in Fig. 3. A fuse-holding spring, which is preferably made of several strips of copper laminæ fastened together, is secured at one end to the base of said segmental lug, and the free end is provided with a binding-screw g', to which one end of the fuse f is adapted to be connected. The other end of said fuse is anchored to the base-plate of the contact-terminal e in such a way as to hold the spring normally bent under tension against the curved edge of the segmental lug a^2, as shown in Fig. 1.

A slot or channel a^3 is cut through the central portion of the fuse-block from the top of the segmental lug a^2 clear through the handle portion a', and a target-lever h is hung in this slot upon a trigger k, which is also pivoted at k' in said slot near the top of said segmental lug. Normally when the fuse-holding spring is in its position of tension it engages the end of the trigger k and holds the same in the position shown in Fig. 1, so that the target-lever h is concealed within the fuse-block.

Current entering at one of the wires d passes by way of the corresponding clip and contact through the fuse and fuse-holding spring and thence by way of the other clip

and contact out through the other wire *d*. When the current in the circuit becomes strong enough to melt the fuse *f*, the spring *g* being released flies up into the position shown in Fig. 2, so that the distance between the free end of said spring and the terminal plate *e* is so great that no arc can persist. At the same time the trigger *k*, which controls the display of the target *h*, is released, so that said target falls down into the position shown in Fig. 2.

In practice the device is usually secured to the cross-arm of a pole by bolts passing through holes b^3 b^3 in the casing. The fuse-block being totally inclosed by the casing *b* is well protected from the weather and is of course concealed from view; but if the fuse should be blown from any cause this fact will be at once apparent to any one upon a mere glance at the device, since the blowing of the fuse is indicated upon the outside of the casing by the projecting of the tongue *h* through the bottom of the handle.

It will be appreciated that the device herein described may be easily and cheaply manufactured and will not be apt to get out of order because of its extremely simple construction. The conducting parts are thoroughly insulated from each other and separated by the maximum distance. The fuse-block is easily inserted and withdrawn from the box; but frequent withdrawal for mere purposes of inspection is rendered unnecessary, because the blowing of the fuse will always be indicated by the display of the target *h*.

We claim—

1. In a strong-current protector, the combination with a pair of fuse-terminals and a fuse normally held under tension between them, one of said terminals being movable and actuated by a spring to separate the terminals and break the arc when the fuse blows, an inclosing case, and a target normally held concealed within the case by said movable fuse-holder, said target being adapted to be released by the movement of the fuse-holder and to fall by gravity into a position of display, whereby the blowing of the fuse is indicated outside the case, as set forth.

2. In a protective device for electric circuits, the combination with an inclosing case, and terminal pieces mounted in said case and adapted for connection with the sides of the circuit, respectively, a removable fuse-block fitting into said inclosing case and having contact-terminals adapted to make connection with the terminal pieces of the case, respectively, a spring fuse-holder and a fuse normally holding the same under tension, mounted upon said fuse-block and included in the electric circuit between the contact-terminals of said block, and a target normally held concealed within the fuse-block by the fuse-holder and adapted to be displayed outside the block by said fuse-holder when released, whereby the blowing of the fuse is indicated, as described.

3. In a protective device for electric circuits, the combination with an inclosing case having a mouth at the bottom, of a fuse-block fitting into said mouth and having a projecting handle portion by which it may be inserted and withdrawn, connection-terminals for the wires within said case, clip-contacts adapted to hold said block in position and to extend electrical connection from said terminals to the operating parts, a segmental lug upon the top of the block, a fuse-holding spring fastened at one end to the base of said lug, a fuse connected to the free end of said spring and anchored to hold said spring under tension against the curved edge of said lug, a target mounted within the fuse-block and adapted to fall into a position of display below the handle portion thereof, and a trigger mounted in said lug in position to be engaged by said spring fuse-holder when under tension, controlling the display of said target.

In witness whereof we hereunto subscribe our names this 9th day of July, A. D. 1903.

MILTON R. UTLEY.
BENJAMIN J. CLEMENTS.

Witnesses:
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