

(No Model.)

L. A. FERGUSON.
SAFETY FUSE.

No. 597,969.

Patented Jan. 25, 1898.

Fig 1

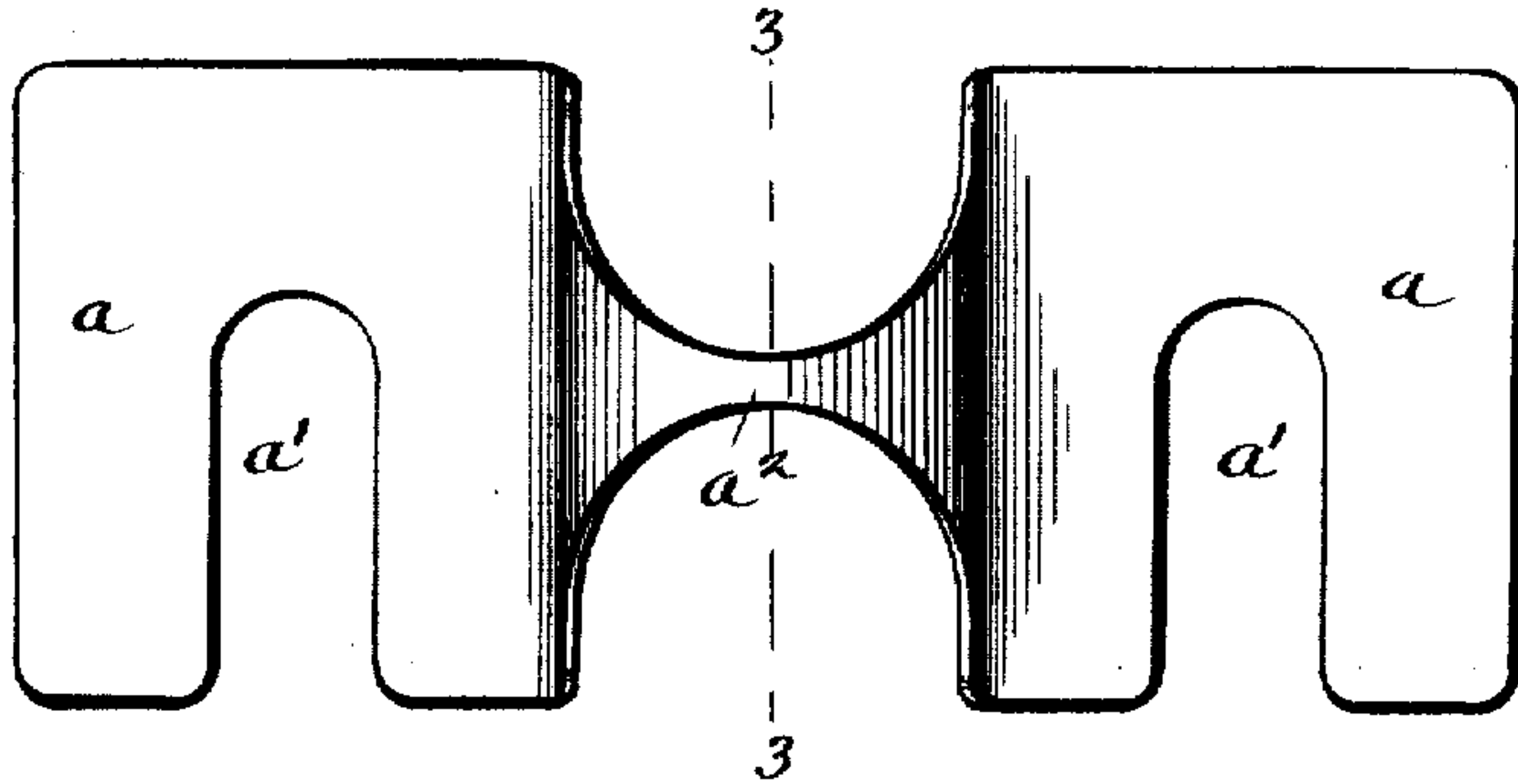


Fig. 2.

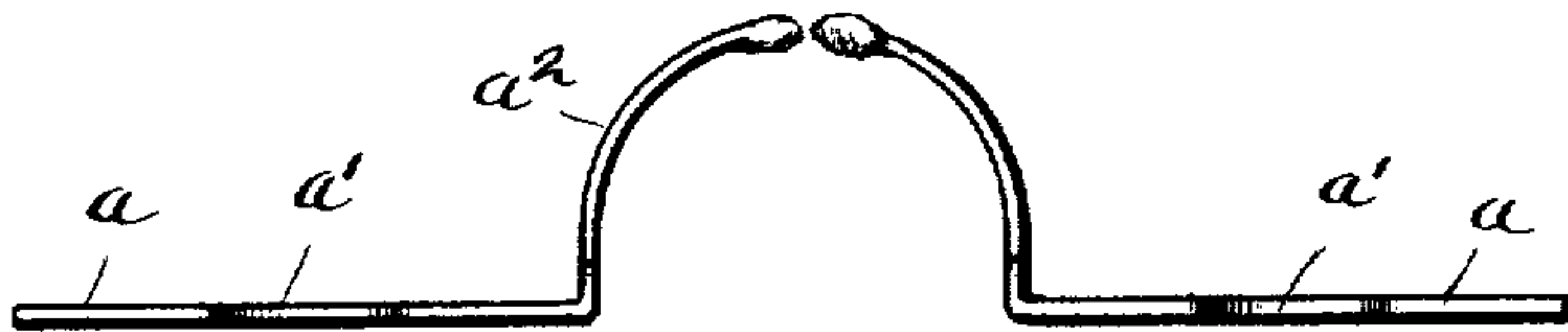


Fig. 3.

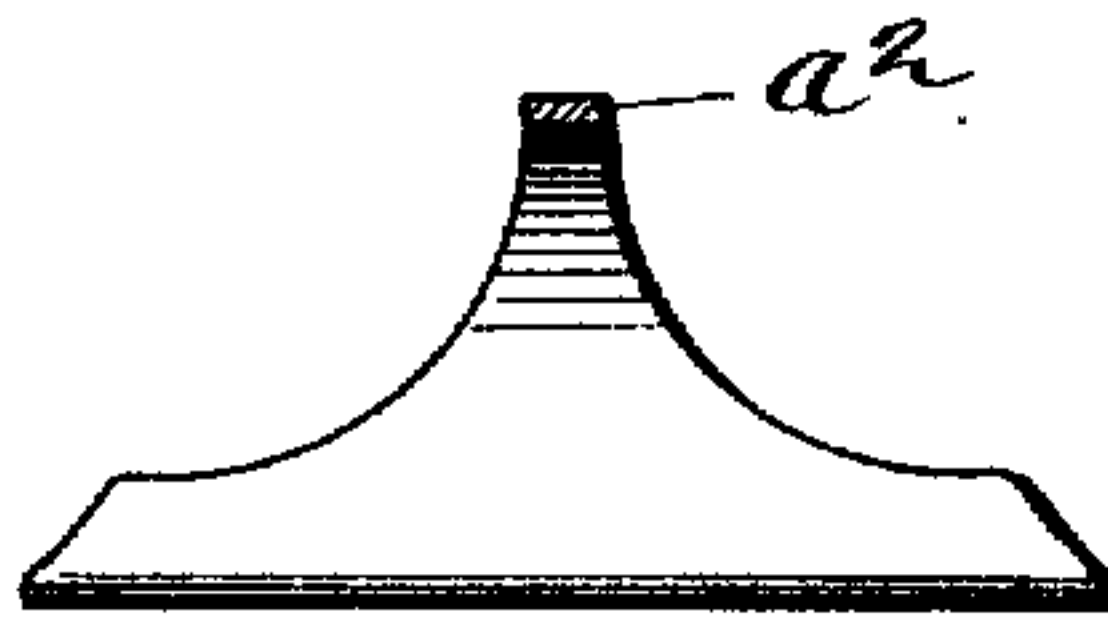
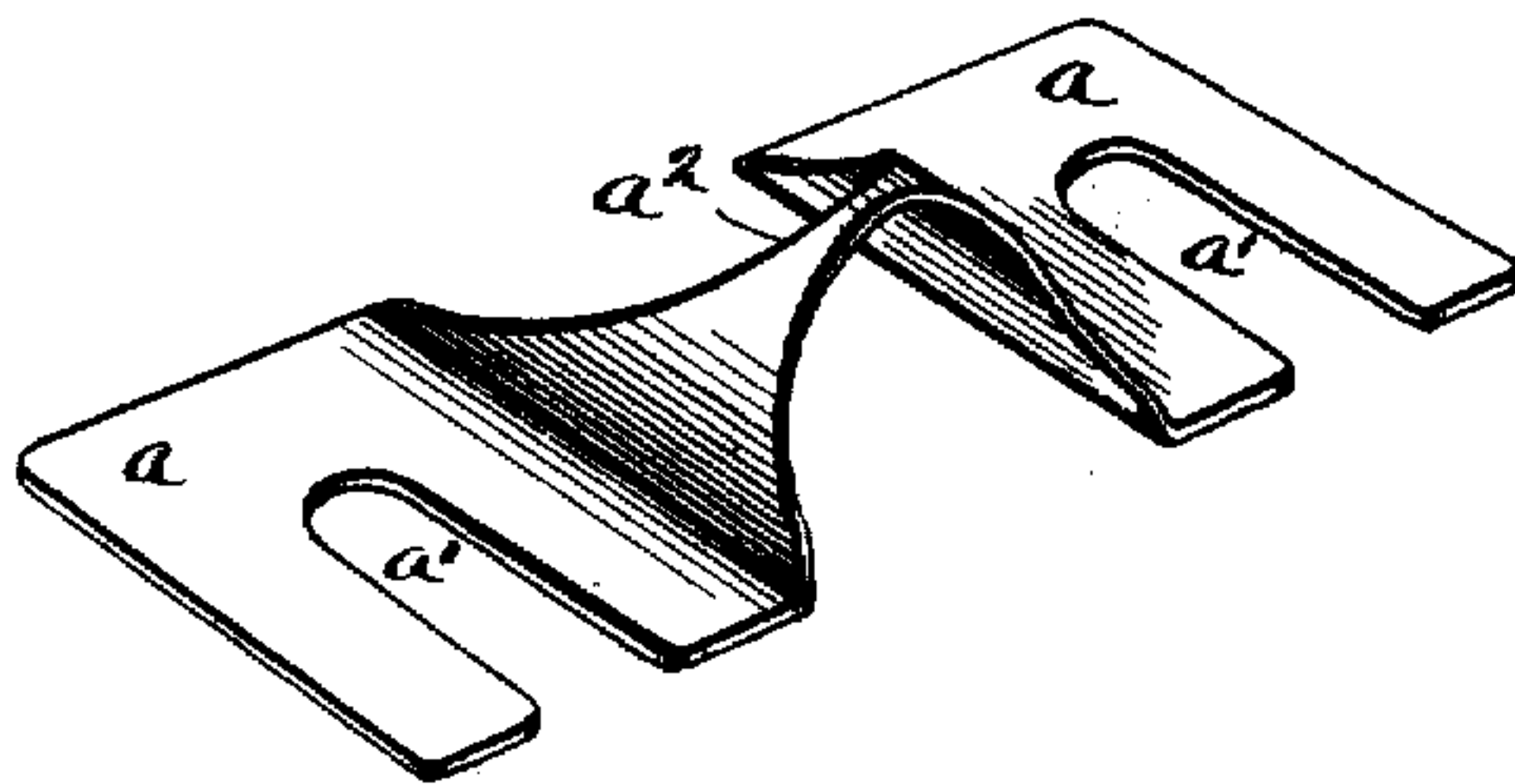


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

LOUIS A. FERGUSON, OF EVANSTON, ILLINOIS.

SAFETY-FUSE.

SPECIFICATION forming part of Letters Patent No. 597,969, dated January 25, 1898.

Application filed May 24, 1897. Serial No. 637,873. (No model.)

To all whom it may concern:

Be it known that I, LOUIS A. FERGUSON, a resident of Evanston, in the county of Cook and State of Illinois, have invented certain
5 new and useful Improvements in Safety-Fuses for Electrical Conductors, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of
10 this specification.

The present invention has relation to that class of safety fuses or catches that are now commonly employed for connecting the terminals of electric conductors, more especially
15 in underground systems, the fuses being so constructed as to melt at a predetermined amperage and thus protect the systems against dead short circuits and against overloads.

This invention comprises a safety-fuse of
20 such character that the ends or terminals of the fuse shall be connected by an arch, a small portion of the length of which arch is contracted to constitute the point at which the rupture of the fuse will occur in case of the
25 passage of excess current between the terminals, the portions of the arch adjacent the fuse-terminals being expanded.

In carrying out my invention the precise details of construction hereinafter set forth may
30 be varied; but I shall describe what I regard as the preferred embodiment of the invention, the exact scope of the invention being particularly pointed out in the claim at the end of the specification.

35 Figure 1 is a plan view of a safety fuse or catch embodying my invention. Fig. 2 is a view in front elevation of such fuse or catch after the contracted portion has been melted by passage of excess current. Fig. 3 is a view
40 in section on line 3 3 of Fig. 1. Fig. 4 is a perspective view of the safety fuse or catch.

My improved fuse is shown as formed from a single piece of metal, (preferably copper,) with broad ends or terminals a , having
45 suitable slots a' therein to straddle the terminals of the conductors with which they will be connected. The ends or terminals a of the fuse are united by the arch a^2 , the sides of this arch a^2 being expanded at its base and
50 a small portion of the length of the arch being contracted to form the point at which the rupture of the fuse will occur under passage

of excess electric current. The area of the contracted portion of the arch will determine the amount of current that can pass through
55 the fuse without melting the same, and ordinarily each fuse will be marked with the number of amperes for which it is adapted. When electric current in excess of that for the transmission of which the fuse is proportioned
60 passes through the fuse, (as will occur in the case of a dead short circuit or an overload of the conductor,) a rupture of the fuse will occur at the contracted point of the arch, thereby breaking the circuit through the fuse.
65 By forming the arch with a contracted portion of limited length and by forming the base of the arch with expanded ends it follows that a very small portion of the arch becomes heated under passage of excess current,
70 the intense heating of the contracted part of the arch under normal loads being prevented by radiation of the heat through the expanded portions of the arch. So, also, by forming the fuse so that the melting-point
75 shall invariably occur at the limited contracted part of the arch the rupture of the fuse will take place with the least possible melting of the metal, thus avoiding all danger of the melted metal flowing onto the terminals,
80 as is apt to be the case with composition fuses heretofore employed. By uniting the ends of the fuse by an arch having a short contracted portion and an expanded base sufficient extent of metal is provided to form
85 not only a limited contracted part at which the rupture of the fuse shall occur, but also ample metal is provided at each side of this contracted part of the arch to prevent the excess heating of the contracted part of the
90 arch except under extreme conditions.

With composition fuses such as have been heretofore employed the melting-point of the compositions has necessarily been so low that
95 the fuses are frequently melted because of the heat generated by reason of poor contacts between the ends of the fuses and the conductor-terminals even under normal loads; but with my improved fuse no such melting or rupture of the fuse is possible.
100

A further important advantage of my improved construction is that the reduced or contracted portion of the arch renders the same quite flexible, so that the ends of the

fuse can be readily contracted, spread apart, or otherwise adjusted in order to compensate for any variation between the conductor-terminals to which the fuse is to be attached.

5 Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A safety-fuse having broad ends to engage the conductor-terminals, said ends being connected by an arch, a small portion of the

length of which arch being contracted to constitute the point at which the rupture of the fuse will occur, the portions of said arch adjacent the fuse-terminals being expanded, substantially as described.

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Witnesses:

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