T. E. MURRAY, Jr.

ELECTRIC FUSE.

APPLICATION FILED APR. 22, 1912.

1,073,619. Patented Sept. 23, 1913.

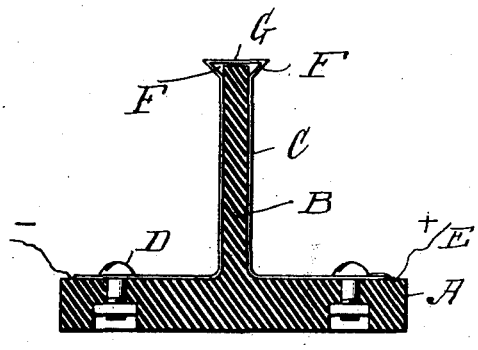

Fig. 1.

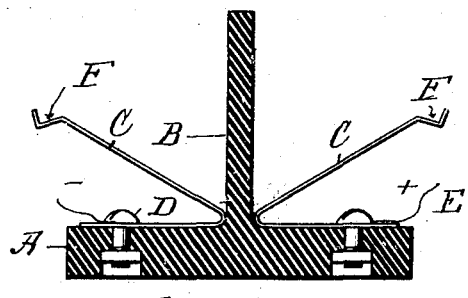

Fig. 2.

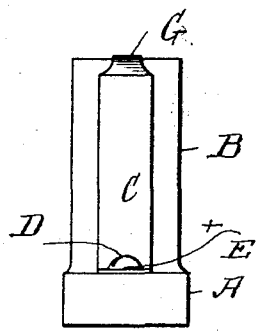

Fig. 3.

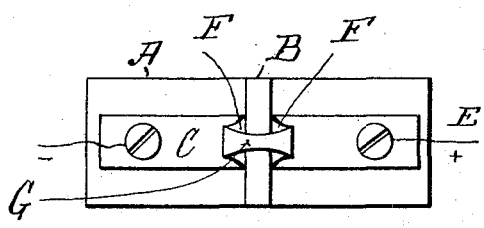

Fig. 4.

Witnesses:
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UNITED STATES PATENT OFFICE.

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ELECTRIC FUSE.

1,073,619. Specification of Letters Patent. Patented Sept. 23, 1913.

Application filed April 22, 1912. Serial No. 692,258.

To all whom it may concern:

Be it known that I, THOMAS E. MURRAY, Jr., a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Electric Fuses, of which the following is a specification.

The invention relates to electric fuses. As such fuses are commonly constructed, the circuit connections are attached to the plug, casing or other support for the strip, and arranged so that a new strip can be substituted for a strip which has blown. Where the explosion not only destroys the strip, but also melts or injures the circuit terminals, it is obvious that not only a new fuse strip but a new support or plug must be provided.

My invention has for its object to localize the blowing of the fuse to a predetermined fractional part of the fuse strip itself, and thus to prevent the destructive effect of the explosion from extending to said circuit terminals, to which the strip is connected at its ends.

My invention depends upon a principle which I believe I am the first to discover, namely, that a body of refractory insulating material extending from a circuit terminal over a fraction of the length of the strip and in contact with said strip—so that beyond said body the fuse strip is exposed—will cause the explosion to occur in the exposed part of the strip, and will prevent the traveling of the destructive effect thereof to the circuit terminal.

I may embody my invention in many forms of fuse. I herein show one practical and operative embodiment which I have constructed and used with successful results.

In the accompanying drawings Figures 1 and 2 are vertical sections of fuse strip and support, showing respectively the strip before and after blowing. Fig. 3 is an end elevation, and Fig. 4 is a top view of the same.

Similar letters of reference indicate like parts.

A is a base of refractory insulating material, such as porcelain. A wall B is preferably formed integral therewith.

C is a fuse strip in U-form, placed over the wall B and having its ends connected to the screw bolts D on the base, which bolts serve as binding posts and hence as circuit terminals for a line conductor, indicated at E. In the fuse strip and at the top or outer face of the wall are formed two loops F. The strip throughout its effective length is in contact with the base and wall, except at the loops F, which are outwardly projecting and hence are separated from said wall.

When the fuse strip is overloaded, it will blow at the loops F. The destruction may include the part G, which may be reduced in width, and which extends over the upper or outer face of the wall, but it will not extend but for a short distance between the loops and the circuit terminals, and hence will not reach said terminals. It is, of course, to be understood that the length of the strip from either loop to the adjacent terminal is to be greater than the short distance of destruction above noted.

The us of two loops F, one in each arm of the strip, is preferable, because the effect of the explosion is not only to break the strip but to throw the remaining parts of the fuse outwardly, as shown in Fig. 2, thus insuring a complete separation of said parts. The current in the arms of the stirrup or U-shaped fuse strip moves in relatively opposite directions. Hence the fields around said arms mutually repel. This repulsion, as the current augments to the blowing point of the fuse, creates a tension on the cross bar G, so that when the explosion occurs, as described, at the loops F and bar G, the ends of the fuse arms, as represented in Fig. 2, move asunder. Obviously, one of the loops F may be omitted, and this loop may be located in any desired position, regard being had to a proper length of fuse on each side of it, intervening between said loop and the circuit terminals, in order to prevent the destruction reaching said terminals, as before explained.

I claim:

1. A fuse strip in U-form, having a loop in each arm, circuit terminals connected to the ends of said arms, and a body of refractory insulating material extending between said terminals, disposed between the arms of said strip, bridging said loop and in contact with said strip throughout the remaining effective length thereof.

2. A base of refractory insulating ma-

terial, a wall of refractory insulating material thereon, circuit terminals on said base on opposite sides of said wall, and a fuse strip provided with a loop and having its ends connected to said terminals and extending over said wall; the said wall bridging said loop and in contact with said strip throughout the remaining effective length thereof.

3. A base of refractory insulating material, a wall of refractory insulating material thereon, circuit terminals on said base on opposite sides of said wall, and a fuse strip provided with a loop in each arm, having its ends connected to said terminals and extending over said wall; the said wall bridging said loops and in contact with said strip throughout the remaining effective length thereof.

4. A fuse strip in U-form, having its blowing point localized in its cross bar, and its arms parallel and in proximity, and circuit terminals connected to the ends of said arms: whereby upon the blowing of said fuse the mutual repulsion of the fields surrounding said arms shall cause said arms to move asunder.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS E. MURRAY, JR.

Witnesses:
GERTRUDE T. PORTER,
MAY T. MCGARRY.