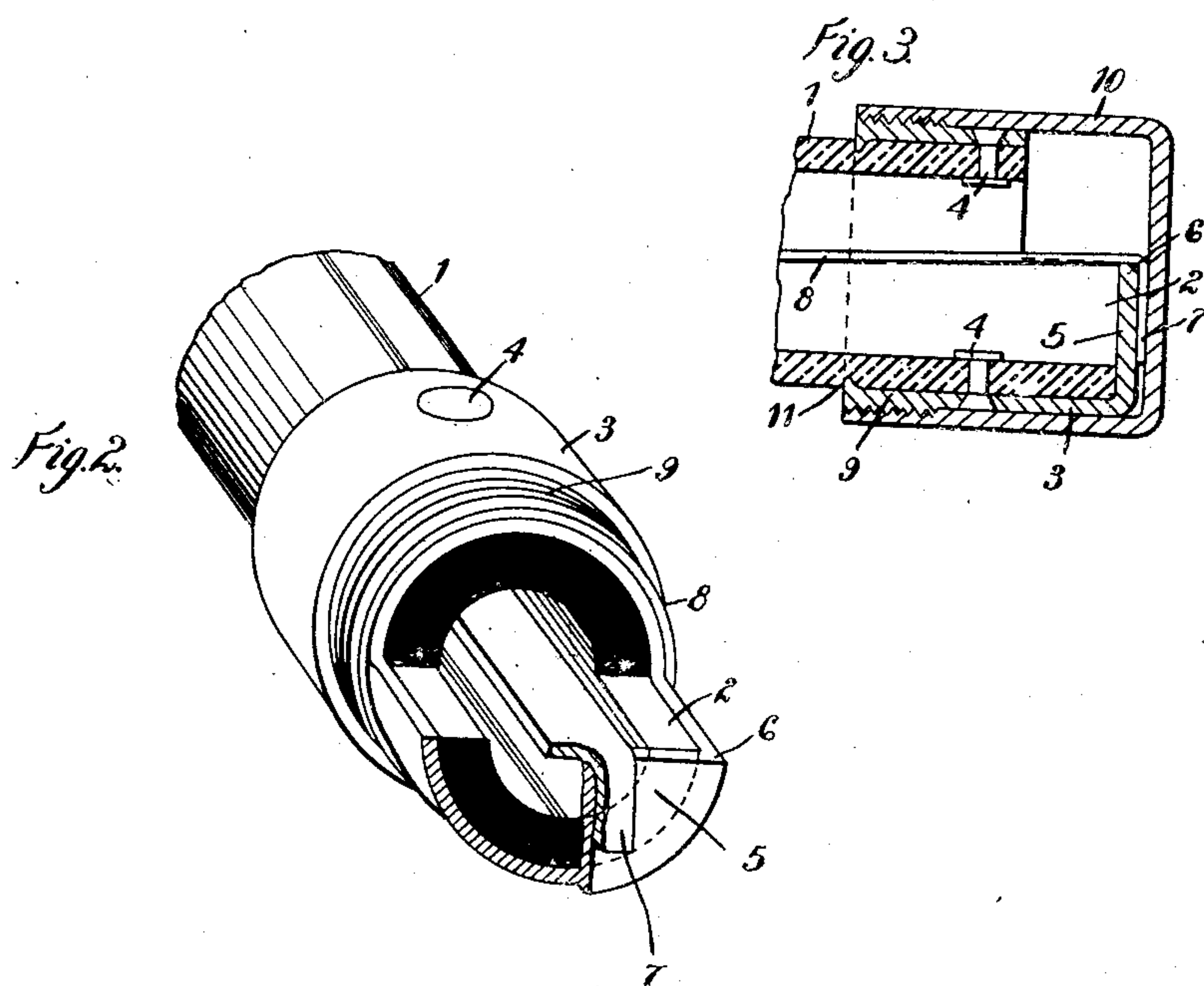
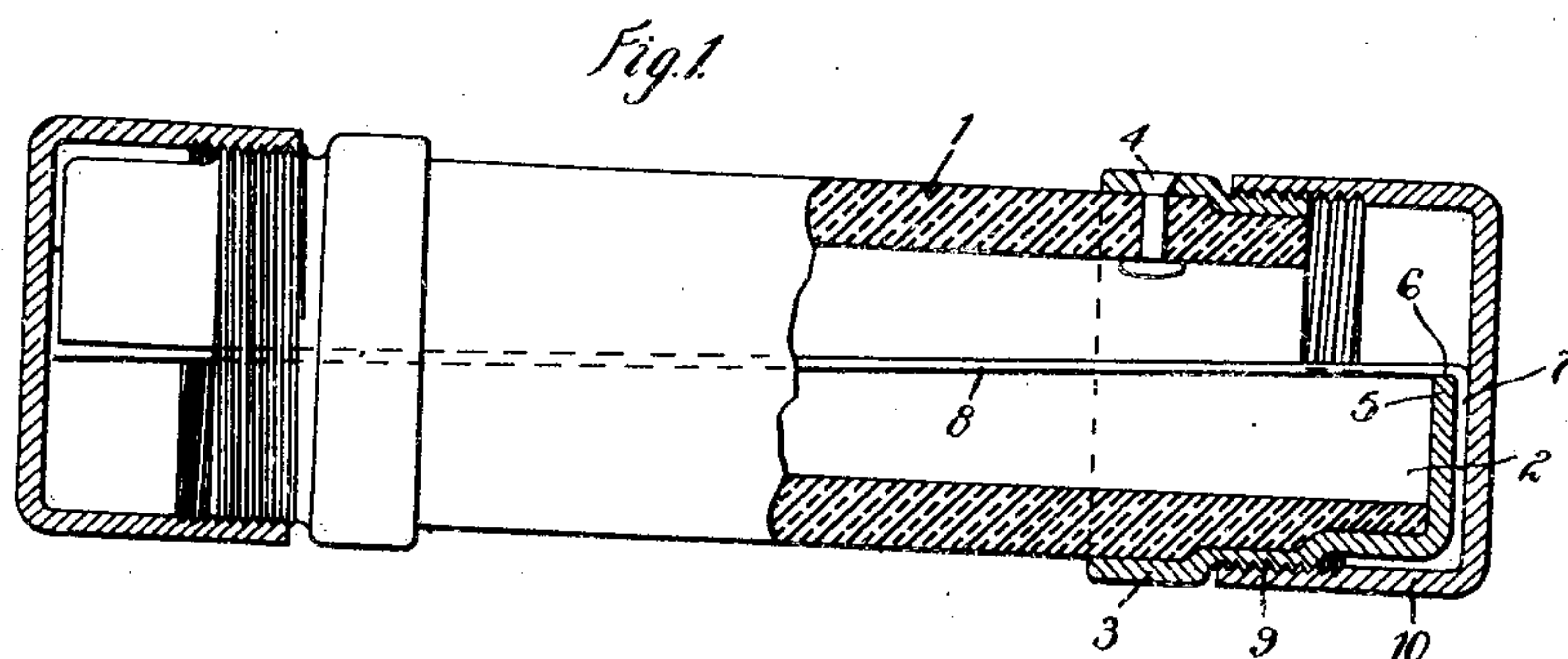


Jan. 2, 1923.

A. H. BAKKEN,  
REFILLABLE FUSE.  
FILED JUNE 19, 1918.

1,440,433



WITNESSES:  
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## UNITED STATES PATENT OFFICE.

ANDREW H. BAKKEN, OF EDGEWOOD PARK, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

## REFILLABLE FUSE.

Application filed June 19, 1918. Serial No. 240,850.

*To all whom it may concern:*

Be it known that I, ANDREW H. BAKKEN, a citizen of the United States, and a resident of Edgewood Park, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Refillable Fuses, of which the following is a specification.

My invention relates to fuses and particularly to refillable fuse structures of the cartridge type.

The object of my invention is to provide refillable fuse cartridge in which the end of the enclosing casing is of such configuration as to permit the permanent disposal thereon of terminal members having portions extending across the entrance to the casing and at the same time permit a clear view through the same, facilitate the removal of volatilized metal therefrom and effect a rugged, durable and accessible connection with the fusible element.

In practising my invention, I provide a metallic sleeve that embraces, and is permanently secured to, the end of a cylindrical insulating casing. The sleeve is adapted to receive a cooperating removable ferrule and has a semi-cylindrical extension and a semi-discoidal transverse web portion at the outer end of the extension. The arrangement is such as to provide a rigid and durable seat member for the end of a fusible element and to permit a free view of the same and the interior of the casing.

Fig. 1 of the accompanying drawings is a longitudinal view, partially in elevation and partially in section, of a fuse device embodying my invention, Fig. 2 is a perspective view of a portion of the same, with the ferrule removed, and Fig. 3 is a longitudinal sectional view of a portion of a modified form of fuse device embodying my invention.

In Figs. 1 and 2, an initially hollow cylindrical casing 1 of fibre or other suitable material is so cut away at its ends as to form substantially semi-cylindrical extensions 2 that are displaced 180° from each other about the axis of the casing 1. Rivets 4, or other suitable means, secure a sleeve or member 3, initially of cup shape, to each end of the casing 1. Each of the sleeves 3 has a portion so cut away that the remaining

material thereof constitutes substantially a metal jacket for the end of the casing from a position where it embraces a portion of the cylindrical body of the same to the end of the extension 2. The sleeve 3 further has a substantially semi-discoidal wall or web portion 5 that extends across the end of the extension 2 and constitutes a terminal seat, over the edge 6 of which an end 7 of the fusible element 8 may be bent to rest against the outer face thereof. An intermediate annular section 9 of the sleeve 3 is exteriorly screw-threaded to receive a partially interiorly screw-threaded end ferrule 10 and is of such outer diameter as to cause the outer faces of the remaining annular portion of the sleeve and the ferrule 10 to be flush.

By advancing the ferrule 10 toward the center of the casing 1 on the sleeve 3, the end 7 of the fusible element 8 may be securely clamped against the outer face of the web 5.

The cut-away portion at each end of the casing and the annular displacement of said portions permit a clear view through the casing during the operation of renewing a ruptured element and also permit the ready removal of particles of a volatilized element or other foreign particles.

The web portion 5 of the sleeve 3 serves as a rigid and durable support or seat for the element 8 as well as a direct conducting means to the terminal jaws or clips (not shown) of any circuit in which it may be desired that a fuse be located.

Further, the relation of the ferrule 10 to the sleeve 3 and the configuration of the latter furnish durable wearing surfaces between the same that may be frequently separated and joined and permit their placement in standard clips or jaws in the same manner as would be permitted with the ferrule disposed directly on the casing 1.

In Fig. 3, the screw-threaded portion 9 is at the inner end of the sleeve 3 that has an annular inner projecting flange or crimped edge 11 to assist in securing the same to the casing 1. In this form of device, the ferrule 10 wholly embraces the sleeve 3.

While I have shown and described a particular form of my invention, changes may be effected therein, without departing from the spirit and scope thereof, as set forth in the appended claims.



I claim as my invention:

1. A fuse device comprising a tubular casing having an end portion extending beyond the tubular portion thereof, a jacket for the extending portion, and a cap member disposed over the jacket and the end of the casing.

2. A fuse device comprising a cylindrical casing having a substantially semi-cylindrical extension at an end thereof and an annular member embracing said casing adjacent said extension, said annular member having a portion conforming to the outer surface of said extension and a portion constituting a transverse web across the end of the same.

3. A fuse device comprising a cylindrical casing having a substantially semi-cylindrical extension at an end thereof, an annular member embracing said casing and having a portion conforming to the outer surface of said extension and a portion constituting a semi-discoidal transverse web across the end of the same and a cap member embracing said annular member.

4. A fuse device comprising an initially cylindrical casing, an initially closed-end cylindrical cap member secured to an end thereof, said casing and said cap member being so similarly cut as to have registering substantially semi-cylindrical extensions at their outer ends for the purpose of providing a readily observable terminal for a fusible element and a removable co-operating ferrule disposed on said cap member.

5. A fuse device comprising a tubular casing and a semi-tubular fuse supporting member projecting from the end thereof.

6. A fuse device comprising a tubular casing, a fusible member, a metal semi-cylindrical supporting member extending beyond the end of the tubular casing and so supporting the fusible member that a portion thereof between the tubular casing and the

supporting member is visible, and a metal cap for enclosing the fusible member and for connecting it to the supporting member.

7. A fuse device comprising a tubular casing, a fusible element, a metal supporting member extending beyond the end of the tubular casing and so supporting the fusible member that a portion thereof between the tubular casing and the supporting member is visible, and a metal cap threaded upon the supporting member and adapted to be drawn into clamping engagement with the fusible element when the cap is rotated with respect to the supporting member.

8. A fuse device comprising a tubular casing, a fusible member and a metal semi-cylindrical supporting member extending beyond the end of the tubular casing and having a transverse supporting element for engaging the fusible member and for supporting it at a point beyond the end of the tubular casing.

9. A refillable fuse comprising a fusible element, a tubular casing for enclosing the fusible element and having a portion of its wall cut away adjacent the end thereof to expose a portion of the fusible element at a point within the casing and a transverse support on the casing for supporting the fusible element centrally of the casing.

10. A refillable fuse comprising a tubular member, a fusible element, a support for the fusible element secured to the tubular member and so constructed that an opening is provided between the support and the tubular member through which the operative section of the fusible element is visible for inspection and a cap for closing the said opening and for clamping the fusible element to the support.

In testimony whereof, I have hereunto subscribed my name this 29th day of May, 1918.

ANDREW H. BAKKEN.