

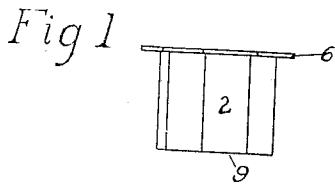
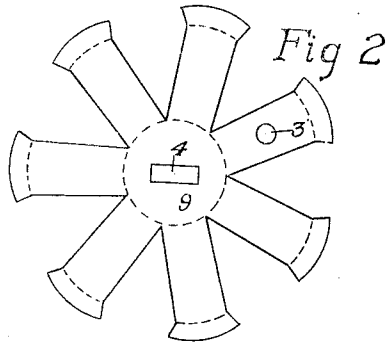
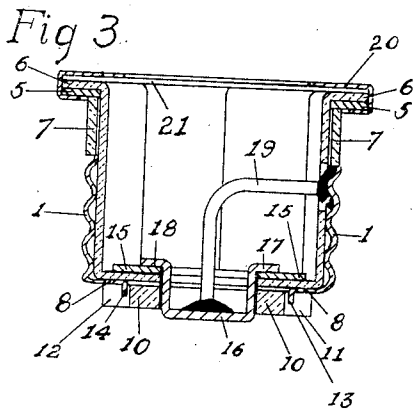
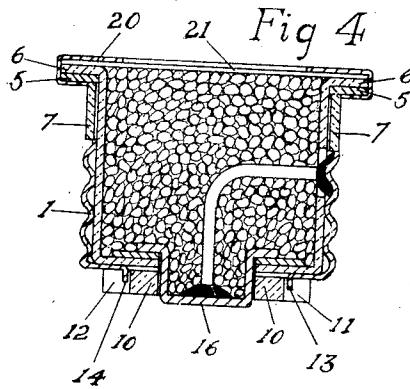
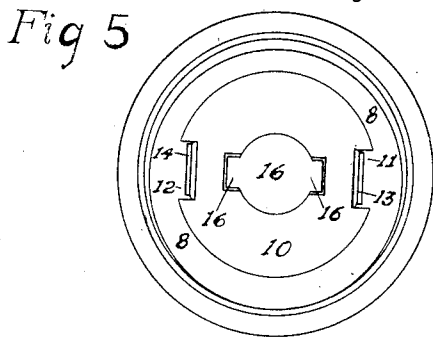
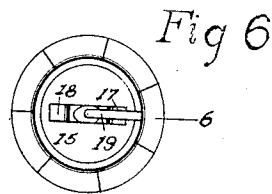
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N. W. NUTT

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ELECTRIC FUSE

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UNITED STATES PATENT OFFICE.

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ELECTRIC FUSE.

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To all whom it may concern:

Be it known that I, NORMAN W. NUTT, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented a new and useful Improvement in Electric Fuses, of which the following is a specification.

My invention has for its objects the production of a safe and efficient electric fuse at a moderate cost of manufacture, and the provision of means therein for preventing the rupture of the device by the gases generated within it upon the burning-out of the fuse therein by excessive current, and the visible external indication of the destruction of the fuse when such destruction occurs.

In the accompanying drawings, forming a part of this specification, Fig. 1 is a side elevation of the insulating member of the casing of the device as the same appears when completely formed for assemblage with the other elements of the structure; Fig. 2 shows said insulating member in plan view before it is completely formed for such assemblage; Fig. 3 is a vertical central sectional view, on an enlarged scale, of my device when assembled without a filling of refractory material; Fig. 4 is a similar view on a like scale, disclosing the structure provided with a filling of granular refractory material; Fig. 5 is a plan view, on enlarged scale, of the contact-end of the device; and Fig. 6 is an interior view of the device with the cap removed.

In constructing my device, I provide a threaded metal terminal, 1, within which is placed the insulating member, 2. This insulating member is made, preferably, of vulcanized fibre and is cut or stamped out of a blank in the form shown in Fig. 2 of the drawings, a circular opening, 3, being formed in one of the radiate portions for the passage therethrough of the fuse, and an oblong opening, 4, for securing an end-terminal, being formed in the centre of the insulating member. This stamped fibre is then bent into the form shown in Figs. 1 and 6, flexures of the body being effected at the places marked by dotted lines in Fig. 2, so that the radiate portions form a flanged circular wall which, when subjected to internal pressure, will expand slightly and present slight interstices between the panels formed by the radiate portions. A thin an-

nular steel washer, 5, is adjusted against the under side of the fibre flange, 6, and a fibre annulus, 7, is placed upon the outer side of the circular wall of the fibre insulating member, 2, so as to abut against and hold to its place the annular washer, 5; and the threaded terminal, 1, is then passed over the fibre member, 2, and its upper edge is brought into contact with the lower edge of the fibre annulus, 7, while its inwardly-extending flange, 8, embraces and covers the edge of the circular end-wall, 9, of the insulating member, 2. A fibre disc, 10, having diametrically opposed peripheral notches, 11, 12, and a central aperture corresponding in size and form with the central opening, 4, in the insulating member, 2, is positioned to overlie the closed end of said member, 2, with its central aperture registering with the aperture, 4, and to embrace within its peripheral notches, 11 and 12, respectively, the upturned projections, 13 and 14, of the flange, 8, of the threaded terminal, 1. A thin metal disc, 15, having a central opening to correspond and register with the aperture, 4, in the insulating member, 2, and the central opening in the fibre disc, 10, is placed upon the inner face of the end-wall, 9, of the insulating member, 2, and the metal end-terminal, 16, provided with ears, 17 and 18, is adjusted to said fibre disc, 10, so as to cover the central opening therein, and said ears are passed through the three said central apertures in the end-wall, 9, fibre disc, 10, and metal disc, 15, and are bent or clinched over the inner face of the disc, 15, to clamp said elements firmly together, as shown in Figs. 3 and 6 of the drawings. The fuse, 19, is then soldered at its ends to the threaded terminal, 1, and the end-terminal, 16, and the structure is closed by the metal annulus, 20, embracing the mica disc, 21, said annulus being turned and clamped upon the flange, 6, so as to embrace and firmly hold together the metal washer, 5, and the flange, 6, of the insulating member, 2.

By the construction described and shown, I produce a fuse device with an interstitial casing which withstands the disruptive effects of the explosions consequent upon the burning-out of the fuse by excessive current. An explosion, when it occurs, forces the panels of the fibre members, 2, slightly apart; and the gases generated by the burning

of the fuse are enabled to escape from the fuse chamber through the interstices between the panels and through the thread of the terminal, 1, and any slight crevices between the other assembled parts of the device; but all flame is confined entirely within the fuse chamber, while a portion of the products of combustion of the fuse is deposited upon the inner face of the mica disc, 21, and accords visual evidence of the burning-out of the fuse.

By uniting the threaded terminal, 1, with the end terminal, 16, with intervening insulating members, in the manner described, I prevent all relative movements of the two terminals and consequent weakening or rupture of the fuse or separation thereof from either terminal.

If desired, the fuse chamber may be filled with granular refractory material obtained, preferably, from broken pottery saggars or a burnt clay product of similar character, such filling tending to absorb the force of an explosion of gases within the fuse chamber and to smother or absorb the flame produced thereby.

Having thus described my invention, I claim:—

1. An electric fuse comprising a retaining member and an expansible lining positioned and expansible within said retaining member.

2. An electric fuse comprising a retaining member and an expansible lining therefor, the respective parts of which are capable

of rearrangement to present interstices therebetween.

3. An electric fuse comprising a retaining member having an expansible interstitial lining provided with flanges at its upper and lower ends, and means for reinforcing said flanges.

4. An electric fuse comprising a retaining member having an insulating expansible lining, a terminal at the lower end thereof, a screw terminal, a metallic reinforcement at the upper end of the casing, and an insulating annulus interposed between the screw terminal and reinforcement.

5. An electric fuse comprising a retaining member having an insulating expansible lining, a terminal carried thereby, an insulating disk locked to the terminal and a screw terminal locked to the disk.

6. An electric fuse comprising a retaining member having an insulating expansible lining, a terminal carried thereby, an insulating disk locked to the terminal and a screw terminal locked to the disk, said disk having notches therein and said screw terminal having lugs engaged in said notches.

7. In an electric fuse, an insulating expansible lining having a perforated bottom, a sectional side wall and sectional flanges integral with the sections of the side wall.

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Witnesses:

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