April 19, 1932. G. L. BLADHOLM 1,855,086

MULTIPLE ELECTRIC FUSE

Filed Dec. 19, 1930

Fig. 1.

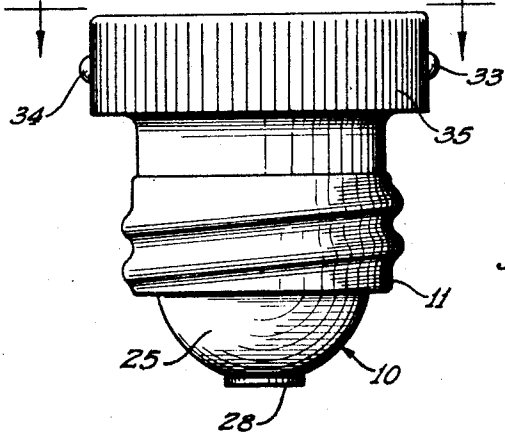


Fig. 2.

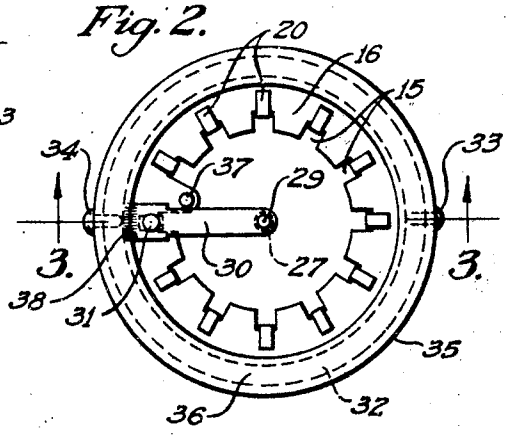


Fig. 3.

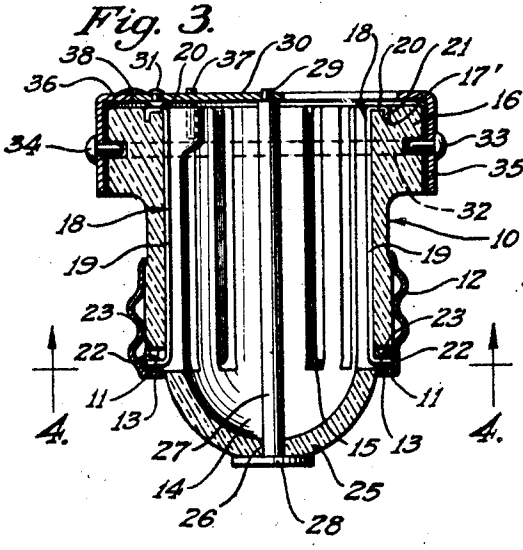


Fig. 4.

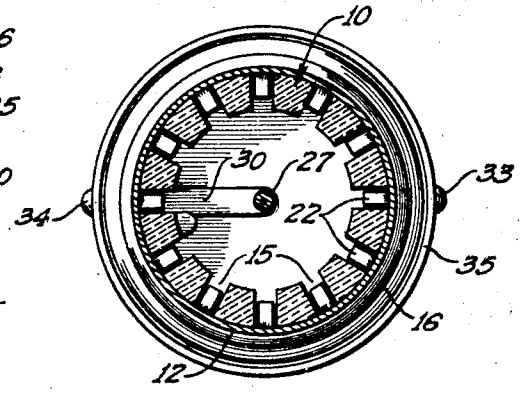


Fig. 5.

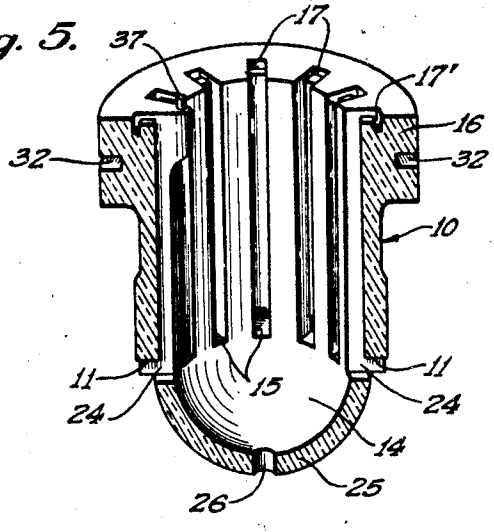
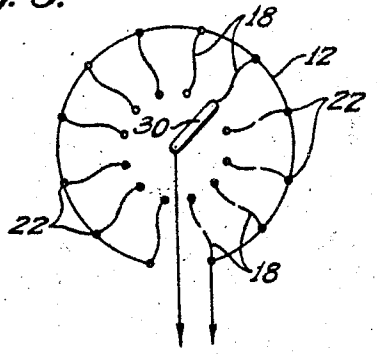


Fig. 6.



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UNITED STATES PATENT OFFICE

GEORGE L. BLADHOLM, OF CHICAGO, ILLINOIS

MULTIPLE ELECTRIC FUSE

Application filed December 19, 1930. Serial No. 503,595.

This invention relates to certain novel improvements in multiple electric fuses, and has for its principal object the provision of an improved construction of this character which will be highly efficient in use and economical in manufacture.

The salient object of this invention is to provide an improved electric fuse construction of the character described herein embodying a plurality of fusible strips.

Another object of the invention is to provide an improved multiple fuse construction of the character described herein which will be convenient in use and which will eliminate the trouble of testing for a burnt fuse; the invention embodying a rotatable member adapted to make contact selectively with one of a plurality of fuse strips so that the fuse plug need not be removed until all of the fuse strips have been burnt out.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings, showing the preferred form of construction and in which:

Fig. 1 is a side elevational view of a preferred form of construction of the invention;

Fig. 2 is a top plan view taken substantially on the line 2—2 in Fig. 1;

Fig. 3 is a sectional detail view taken substantially on the line 3—3 in Fig. 2;

Fig. 4 is a sectional detail view taken substantially on the line 4—4 in Fig. 3;

Fig. 5 is a sectional view of the insulating shell embodied in the invention; and

Fig. 6 is a schematic view of the circuit arrangement embodied in the invention.

Referring to the drawings wherein a preferred form of construction of the invention is depicted, generically indicated at 10 is a porcelain or the like insulating body on which is provided an annular shoulder 11. A corrugated band 12 is disposed about the body 10 so that the fuse plug may be inserted into the usual electric socket, and this band 12 includes an inwardly extending flange 13 which is disposed below the shoulder 11.

Provided on the inner wall 14 of the body 10 is a plurality of parallel grooves 15. The body 10 includes the annular head portion 16 in which are provided radially extending grooves 17 which are continuous with the grooves 15 and each of these grooves 17 has continuous therewith a recess 17′ which extends parallel to the grooves 15.

A plurality of fusible strips 18 are provided and each of these strips includes a main body portion 19 which extends through one of the grooves 15, a portion 20 which extends through corresponding grooves 17, and a portion 21 which is disposed in the corresponding recess 17′. The lower ends of the strips 18 are bent, as at 22, below the shoulder 11 and these end portions 22 are soldered to the band 12 as at 23, it being apparent that these lower end portions 22 extend through openings 24 in the side wall of the insulating body 10 below the shoulder 11.

In the substantially semi-circular base 25 of the body 10, a centrally disposed opening 26 is provided, and extended through this opening and through the center of the fuse plug is a pin 27, integral with the lower end of which is the contact member 28. At the upper end of the pin 27 a constricted portion 29 is provided and revolvably mounted upon this portion 29 is a conductive arm 30, in the outer end of which is mounted a contact element 31 which is adapted for selective contact with the portions 20 of the fuse strips 18.

Extending circumferentially around the outer periphery of the head portion 16 of the insulating body 10 is an annular groove 32. Slidably mounted on the head portion 16 by means of guiding elements 33 and 34 which include portions that travel in the groove 32 is a ring 35, the outer side of which is preferably knurled to facilitate movement thereof by the fingers. The ring 35 includes a flange 36 which overhangs the outer end of the head portion 16, and the arm 30 is soldered to this flange 36 as at 38. A stop 37 is provided on the upper or outer end of the head portion 16 of the body 10.

The operation of the fuse is as follows: When the fuse plug is screwed into the standard base or socket current will flow through the corrugated band 12, fuse strip portion 22, the body 19 of one of the fuses 18, portion 20 of the fuse strip, contact element 31, arm 30, portion 29 of pin 27, through pin 27 to contact member 28. Manifestly, therefore, when one of the fuse strips 18 burns out the ring 35 may be grasped by the fingers and rotated so as to position the arm 30 in contact with the next adjacent fuse strip portion 20, and so on until all of the fuse strips 18 have been burned out, there being twelve fuse strips 18 in the present instance, though it is apparent that any suitable number may be provided. When the last fuse strip 18 has been burned out the arm 30 will engage the stop 37 and hence the ring 35 will be prevented from further rotation, thus notifying the user of the fuse plug that all of the fuse strips 18 have been burned out.

From the foregoing description of the invention it is apparent that I have provided an improved fuse plug which is economical in manufacture and convenient in use.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

1. A multiple electric fuse comprising a shell of insulating material, a conductive band disposed on the exterior of said shell, fusible members radially arranged about the inner periphery of said shell, a pin extending through said shell and having a contact portion at one end thereof, a conductive contact arm having its inner end rotatably mounted on said pin, a ring rotatable about said shell and having the outer end of said arm secured thereto, whereby said ring may be rotated to selectively contact said arm with the outer end of any one of said fusible members, said fusible members having the inner ends thereof connected to said band.

2. A multiple electric fuse plug comprising an insulating shell having grooves at radial intervals on the inner periphery thereof, fusible members in said grooves, a conductive band about said shell having the inner ends of said fusible members connected thereto, a pin extended through said shell, and including a contact portion at one end thereof, a conductive arm having one end rotatably mounted on the other end of said pin, a ring rotatably mounted on said shell and having the other end of said arm secured thereto, whereby said ring may be rotated to selectively contact said arm with any one of said fusible members.

3. A multiple electric fuse plug comprising an insulating shell including an annular head portion having slots formed at radial intervals therein, said shell having a plurality of parallel grooves on the inner periphery thereof, fusible members in said grooves with portions in said slots, a conductive band about said shell having the inner ends of said fusible members connected thereto, a pin extended through said shell and having a contact at the inner end thereof, an arm having the inner end thereof rotatably mounted on the outer end of said pin, a ring rotatably mounted on said head portion and having the outer end of said arm secured thereto, and a contact member on said arm, whereby said ring may be rotated to selectively contact said contact member with any one of said portions of said fusible members, said head portion having an annular grove therein, and guiding means carried by said ring and movable in said annular groove.

4. A multiple electric fuse plug comprising an insulating shell including an annular head portion having slots formed at radial intervals therein, said shell having a plurality of parallel grooves on the inner periphery thereof, fusible members in said grooves with portions in said slots, a conductive band about said shell having the inner ends of said fusible members connected thereto, a pin extended through said shell and having a contact at the inner end thereof, an arm having its inner end rotatably mounted on the outer end of said pin, a ring rotatably mounted on said head portion and having the outer end of said arm secured thereto, a contact member on said arm, whereby said ring may be rotated to selectively contact said contact member with any one of said portions of said fusible members, said head portion having an annular groove therein, guiding means carried by said ring and movable in said annular groove, and a stop member in said head portion engageable by said arm for preventing movement of said ring after all of said fusible members have been fused.

In testimony whereof I affix my signature.

GEORGE L. BLADHOLM.