Oct. 5, 1926. 1,602,227

C. T. HENTSCHEL

FUSE HOLDER

Filed July 9, 1924

Fig. 1.

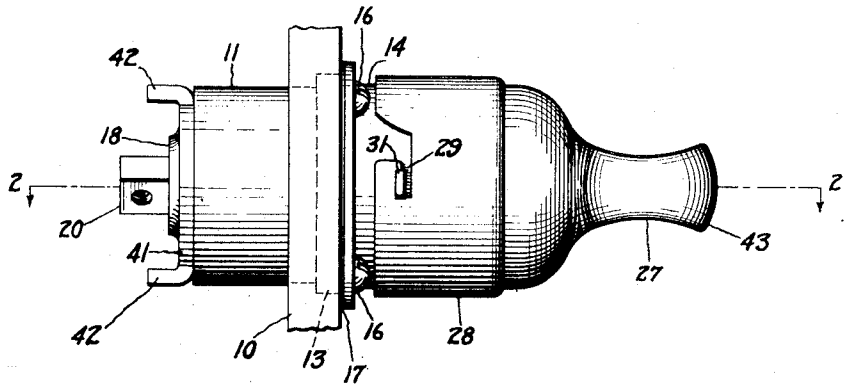
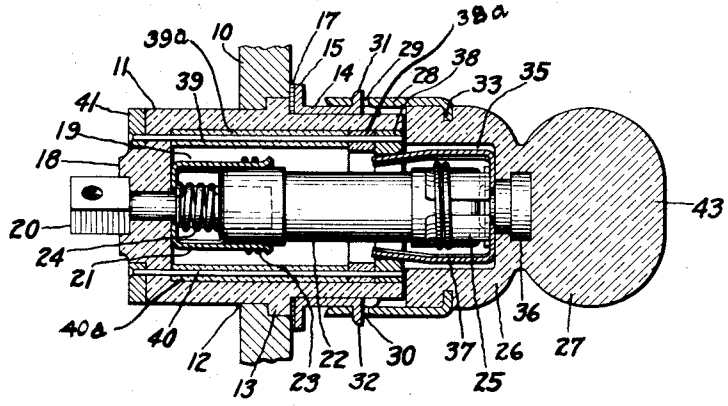


Fig. 2.



Inventor:
Charles T. Hentschel,
by Alexander S. Lunt
His Attorney.

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UNITED STATES PATENT OFFICE.

CHARLES T. HENTSCHEL, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

FUSE HOLDER.

Application filed July 9, 1924. Serial No. 725,059.

My invention relates to fuse holders and has for its object the provision of a fuse holder embodying a closed protective casing for the fuse and contact parts such that the fuse may be easily and quickly inserted and removed.

My invention has particular application in installations in which it is desired for purposes of accessibility to mount the fuse in an exposed position, such as on the front of a switchboard. In carrying out my invention I mount the fuse in a casing provided with a quickly detachable cover, the contact clips for the fuse being secured to the casing and cover respectively and being so arranged that the fuse may be inserted and removed with the cover.

For a more complete understanding of my invention, reference should be had to the accompanying drawing in which Fig. 1 is a side elevation view of a fuse holder embodying my invention; while Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1 looking in the direction of the arrows.

Referring to Figs. 1 and 2 of the drawing, I have shown my invention in one form as being mounted on a suitable support 10 which may be a switchboard panel. The fuse holder comprises a hollow cylindrical receptacle member or body 11 made of a suitable insulating material, such as a bakelized compound. One end of the body 11 is closed; as shown, the left-hand end is closed. The member 11 is mounted in an aperture 12 in the support 10 and is provided with a flange 13 which is seated on the support. It is held in place on the support by means of a tubular member 14 which is slipped over the open end of member 11 onto the flange 13 and is provided with a flanged base 15 through which screws 16 extend into the support 10 to hold the member 14 in place thereon. Preferably a gasket 17 is provided under the base of member 14 whereby the member 11 is clamped firmly in place and a water-tight joint formed.

Mounted on the bottom or end wall 18 of the member 11 is a fuse contact clip or receptacle 19 which is provided with a terminal 20 extending outward through the wall 18. As shown, the terminal 20 is provided with a head which engages the outside of wall 18 and has its inner end peened over to secure the contact clip in place. The contact clip comprises a plurality of resilient contact arms 21 arranged in the form of a cylinder. It may conveniently be stamped from a sheet of metal. The contact clip is thus arranged to seize one end of a suitable cartridge type fuse 22 which is inserted endwise into the member 11. For the purpose of assuring good contact, one or more turns of a helical spring 23 are wrapped around the contact projections of the fuse clip near their ends whereby the contacts are pressed inward against the fuse. A helical spring 24 is provided in the contact clip 19. This spring is compressed when the fuse is inserted and thus tends to force the fuse out.

The contact clip 25 for the opposite end of the fuse is carried on a cap or cover 26 which closes the member 11. This cover comprises a block of insulating material 27, such as bakelite, which fits in abutting relation on the member 11 and is provided with a metallic cylindrical skirt 28 which fits over the member 14 and is secured thereto by means of a bayonet joint consisting of suitably shaped slots 29 and 30 in the skirt with which cooperate projections 31 and 32 on the member 14. The skirt may be secured to the insulating body 27 by bending its outer end 33 inward and embedding it in the insulating body when the body is molded. In the inner end of the insulating body is a recess 35 in which the contact clip 25 is secured, for example, by riveting or otherwise securing it to a metallic body 36 which is embedded in the insulation. The contact clip 25 is similar in form to contact clip 19. Electrically connected to the clip 25 at its base are four spaced contact arms 37. These contact arms are longer than the contact projections of the clip 25 and extend into the member 11 for a short distance into engagement with a contact ring 38 of suitable electric conducting material which is seated on an insulating ring 38^a in the outer end of member 11, the member 11 being countersunk to receive the ring 38. This contact ring is secured in place by means of two or more insulated rods 39 and 40 of electrical conducting material which extend lengthwise of member 11 through insulating tubes 39^a and 40^a lying in grooves provided for them in member 11 and through the end wall 18 where the rods are riveted or otherwise secured to a terminal ring 41 provided with one or more terminal projections 42. Besides securing the rings 38 and 41 to the

member 11, the rods form an electrical connection between them. It will thus be observed that when a fuse is inserted in the cover and the cover put in place, as shown in Fig. 2, a circuit is closed from terminal 20 through the fuse, contact arms 37, contact ring 38, and the rods 39 and 40 to the terminal 42.

In inserting a fuse, the cover 26 is removed and one end of the fuse inserted in clip 25. The contact arms of the clip exert sufficient pressure to hold the fuse so that it may be inserted into the enclosing portion of the holder formed by member 11 by grasping the cover, the cover being put in place at the same time. The cover is then turned slightly to lock it. Preferably the cover is provided with a flattened projection 43 forming a finger hold to facilitate its application and removal. The removal of the fuse is facilitated by the spring 24 which tends to expel the fuse from clip 19 so that the fuse remains in the clip 25 and is removed with the cover.

In the application of my invention it is contemplated that the terminals 20 and 42 by means of which the fuse is connected in the electric circuit to be protected will be behind the panel board 10. The exposed portion of the fuse holder on the opposite side of the panel board is closed whereby the fuse and contact parts are protected. It will be observed that the fuse while completely enclosed is at the same time readily accessible so that it may be easily and quickly inserted and removed.

While I have described my invention as embodied in concrete form and as operating in a specific manner in accordance with the provisions of the patent statutes, it should be understood that I do not limit my invention thereto, since various modifications thereof will suggest themselves to those skilled in the art without departing from the spirit of my invention, the scope of which is set forth in the annexed claims.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. A fuse holder comprising an insulating body providing a chamber for the fuse, electric terminals on said body, a contact receptacle in said chamber connected to one of said terminals, a contact ring secured in the outer end of said chamber connected to the other terminal, a cover fitting on said body so as to close said chamber, a contact receptacle on said cover, a contact arm secured to said cover in electrically conducting relation to said latter contact receptacle arranged to engage said ring when said cover is placed on said chamber, and means for securing said cover on said body.

2. A fuse holder comprising an elongated receptacle for the fuse, a cover fitting on said receptacle, a pair of contact clips secured to the bottom of said receptacle and said cover respectively, said clips being arranged to receive a fuse, a ring of conducting material secured in the outer end of said receptacle, a pair of terminals secured exteriorly to the bottom of said receptacle, electrical connections between one of said terminals and the contact clip on the bottom of said receptacle, electrical connections between the other of said terminals and said ring, and a plurality of resilient contact arms secured to said cover in electrically conducting relation to the contact clip carried by said cover, said contact arms being arranged to engage said ring when said cover is placed on said receptacle, and means for securing said cover on said receptacle whereby said fuse is held in said clips.

3. A fuse holder comprising an elongated receptacle for the fuse, a cover for said receptacle, a pair of contact clips secured to the bottom of said receptacle and said cover respectively, a ring of conducting material secured in the outer end of said receptacle, a pair of terminals secured exteriorly to the bottom of said receptacle, electrical connections between one of said terminals and the contact clip on the bottom of said receptacle, electrical connections between the other of said terminals and said ring, a resilient contact arm secured to said cover in electrically conducting relation to the contact slip carried by said cover, said contact arm being arranged to engage said ring when said cover is placed on said receptacle, and a bayonet joint between said cover and said receptacle whereby said cover can be secured by turning it after it has been placed on said receptacle.

4. A fuse holder comprising an elongated receptacle for the fuse, means for securing said receptacle centrally in an aperture in a supporting body so that its closed and open ends project from opposite sides of said supporting body, a cover fitting on said receptacle, a pair of fuse clips in said receptacle secured respectively to the closed end and cover of said receptacle, a pair of electrical terminals secured exteriorly on the closed end of said receptacle, electrical connections between one of said terminals and the fuse clip on the closed end of said receptacle, a contact ring secured in the outer end of said receptacle, electrical connections between the other terminal and said ring, and a resilient contact arm secured to said cover in electrical conducting relation to the contact clip carried by said cover, said contact arm being arranged to engage said ring when said cover is put in place.

In witness whereof, I have hereunto set my hand this 8th day of July, 1924.

CHARLES T. HENTSCHEL.