Jan. 7, 1930. E. DE BRUIJN 1,743,016

SAFETY FUSE PLUG AND RECEPTACLE THEREFOR

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Fig. 1.

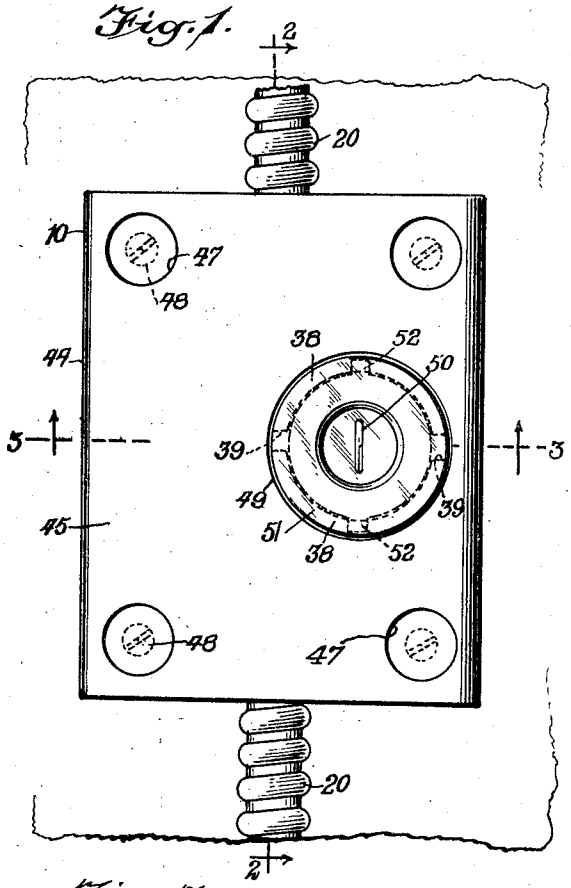


Fig. 2.

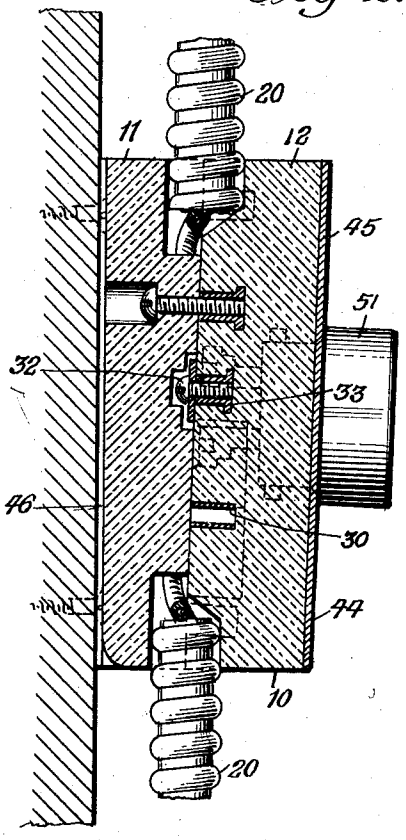


Fig. 3.

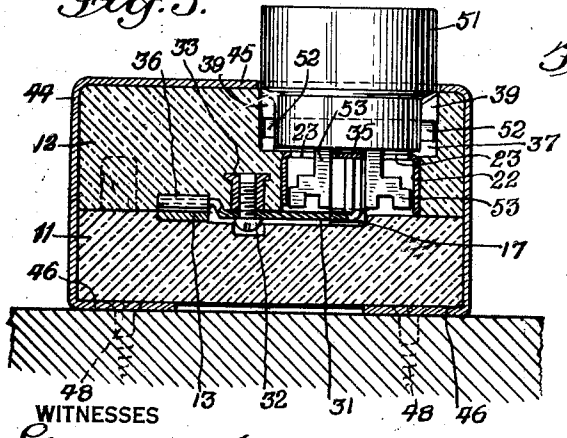
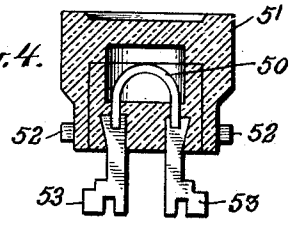


Fig. 4.



WITNESSES

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Fig. 5

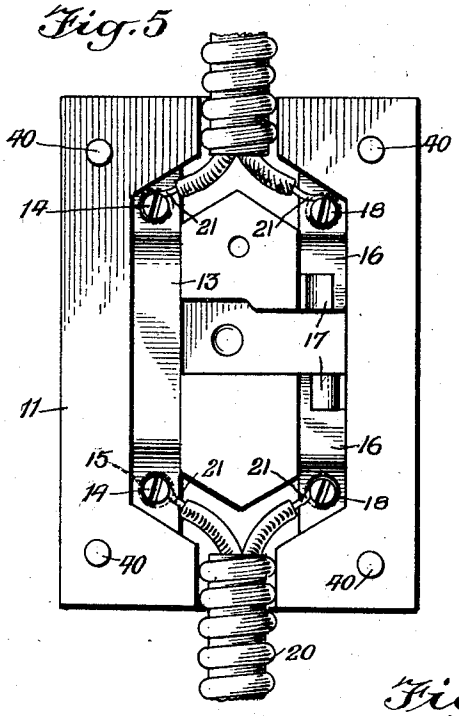


Fig. 6.

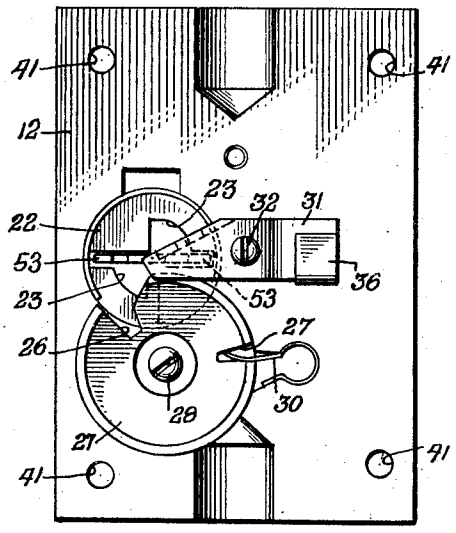


Fig. 8.

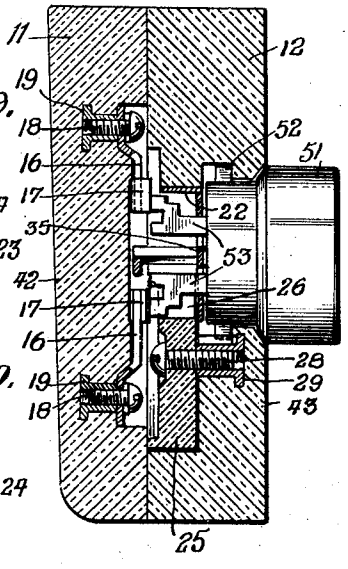


Fig. 9.

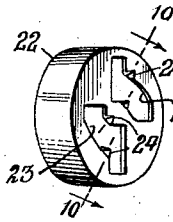


Fig. 10.

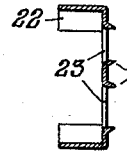


Fig. 7.

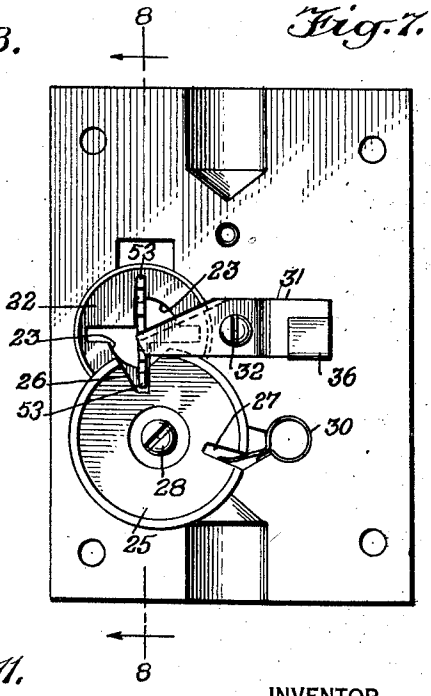
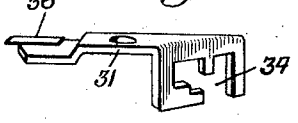


Fig. 11.



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UNITED STATES PATENT OFFICE

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SAFETY FUSE PLUG AND RECEPTACLE THEREFOR

Application filed April 13, 1928. Serial No. 269,777.

This invention relates to safety appurtenances or devices used in connection with electrical circuits.

One of the important objects of the invention is the provision of safety means to prevent an electrical installation of known potential and amperage, from being impaired or blown out by the use of divers improper substitutes for fuses.

Another object of the invention is the provision of a fuse plug receptacle embodying improved features of construction to obtain the above mentioned result.

Another object of the invention is to provide an improved form of electrical fuse and plug.

Another object of the invention is to provide novel means for assembling the electrical and insulator appurtenances of a fuse plug receptacle.

The nature of the invention and its distinguishing features and advantages will appear when the following specification is read in connection with the accompanying drawing, in which—

Figure 1 is an elevation of the fuse plug receptacle, and fuse plug in place.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1, showing the fuse plug before being turned.

Fig. 4 is a sectional view through the fuse plug.

Fig. 5 is an elevation of one section of the fuse plug receptacle.

Fig. 6 is an elevation of the other section of the fuse plug receptacle.

Fig. 7 is a view similar to Fig. 6, but showing the fuse plug in place; the fuse terminals being shown in circuit closing positions.

Fig. 8 is a sectional view through the fuse plug receptacle, the section being indicated by the line 8—8 of Fig. 7.

Fig. 9 is a perspective view of the guard member of the receptacle.

Fig. 10 is a sectional view taken on the line 10—10 of Fig. 9.

Fig. 11 is a perspective view of the other guard member of the receptacle.

In accordance with one feature of the present invention, use is made of a special type of fuse plug receptacle 10. The said receptacle 10 includes base members 11 and 12 of suitable insulating material such as fiber or porcelain, or any other preferred material. The base member 11 has a recess which accommodates a bridge member 13 of conducting material, held in place by screws 14 respectively received in threaded sockets 15 embedded in the base member 11. The base member 11 also has a recess which accommodates members 16 of conducting material each having a spring contact 17. Each member 16 is held in place by a screw 18 received in a threaded socket 19 embedded in the base member 11. The base member 11 has a recess at each end in order to provide an opening for the reception of the end of a flexible cable indicated at 20 which protects the insulated electrical conductors 21, the terminals of which are respectively connected with the screws 14 and 18.

The base member 12 is provided with a recess which accommodates a guard member 22 of conducting material. The guard member 22 is in the form of a flanged disk and has openings 23, and burrs 24 for a purpose to appear. The base member 12 also has a recess which accommodates a disk 25 having a notch 26 in the peripheral edge thereof, and also a notch 27 in the peripheral edge thereof. The disk 25 is turnable on a screw 28 received in a threaded socket 29 embedded in the base member 12. The base member 12 also has a recess which accommodates a spring 30, one end of which is disposed in the notch 27 in the disk 25. A guard member 31 of conducting material is held in place on the base member 12 by a screw 32 received in a threaded socket 33 embedded in the base member 12. The member 31 has a key slot 34 of any preferred shape. A portion of the member 31 is in contact with the member 22 as at 35, and said member 31 has a spring contact 36 which is engageable with the bridge member 13 when the base members 11 and 12 are brought together. The base member 12 has a socket 37 in axial alignment with the guard member 22. The socket 37 has arcuate shoulders 38

on the wall thereof which present notches 39 diametrically opposite each other. The base member 11 is provided with studs 40 respectively at the corners thereof, and the base member 12 is provided with holes 41 respectively at the corners thereof, the arrangement of the holes 41 being similar to the arrangement of the studs 40, such as to insure the proper association of the base member 12 with the base member 11.

The side faces 42 and 43 respectively of the base members 11 and 12 bear a diverging relationship.

In order to properly support the base members 11 and 12 in association with each other in a fixed position on a suitable support or a wall, there is provided a holder 44 of sheet metal or other suitable material. The holder 44 is in the form of an open ended casing or shell having a front wall 45 and rear flanges 46. The front wall 45 has holes 47 for the accommodation of a screw driver which may be used for driving home screws, indicated at 48, which extend through the flanges 46, and take into the support or wall. The holder 44 is thus held in place, and the flanges 46 and front wall 45 bear a diverging relationship. It will now be apparent that the receptacle 10 in its entirety may be positioned in the holder 44 from the top, and will be held in place by the walls of the holder 44, as shown most clearly in Figs. 2 and 3. The front wall 45 has an opening 49 with which the socket 37 registers.

In accordance with another feature of the invention, there is provided a novel form of fuse element 50 and plug 51 which carries the fuse element 50. The plug 51 is made of insulating material, preferably glass, and is designed to fit in the socket 37. The plug 51 is provided with lugs 52 arranged diametrically opposite each other which are receivable respectively in the notches 39, and are engageable under the shoulders 38 to hold the plug in place. The fuse element 50 has key terminals respectively connected or formed integral with the opposite ends thereof. The key terminals are designated 53, and each will be so formed as to provide a ward appropriated to the slot 34 in the member 31. The terminals 53 are so disposed as to be received in the openings 23 in the guard member 22, when the plug 51 is being inserted in the socket 37. When the plug 51 has been pushed fully into the socket 37 it may be turned substantially 90°. One of the terminals 53 of the fuse element passes through the key slot 34, while the other terminal 53 enters the notch 26 in the disk 25, during the turning movement of the plug 51. The disk 25 is prevented from turning beyond a certain point by engagement of one of the lugs 52 with socket 29 therefore limiting the turning movement of the plug 51, to a position in which the terminals 53 of the fuse element 50 will be in engagement with the contacts 17, thereby completing the circuit.

It is to be understood that the fuse element 50 will be suitable to carry the amperage of the circuit in which it is used, and that when the fuse element 51 blows for any reason, it will be necessary to replace the same by the use of a similar plug and fuse element carried thereby. This precaution is taken to prevent the use of divers improper substitutes for fuses. For instance it will prevent the use of lead or tinfoil between the terminals 53 of the plug 51 after the fuse element 50 has blown, because it then will make contact with guard member 22 causing a dead short circuit. In case tinfoil or other conducting material, while positioned between the terminals 53, is covered by insulation tape or the like, the burrs 24 on the guard member 22 will puncture the same, and will make contact with the tinfoil, creating a dead short circuit. Furthermore a short circuit will be caused through the bridge member 13, guard member 22, and guard member 31. It will also be apparent that the guard member 22 prevents the insertion of nondescript articles into the receptacle 10 for the purpose of bridging the contacts 17. It will be apparent that in order to properly recondition the circuit, a fuse plug and fuse element of a certain type as described will have to be used, thus providing a safeguard against impairing an electrical installation, and from blowing out main fuses, and otherwise short circuiting the installation.

I claim:

1. As a new article of manufacture, an insulator plug, an electrical fuse element carried by said plug, said fuse element extending within said plug having terminal means in the form of keys projecting from the plug, and adapted to be passed through irregular holes or openings in an electrical receptacle, to make an electrical connection with the contacts thereof.

2. As a new article of manufacture, an insulator base, spaced electrical contacts arranged in a recess in one face of the base, and a guard member positioned on the base with relation to the contacts, said guard member having irregular shaped openings therein, through which the determinate shaped terminals respectively of an electrical fuse element may be passed.

3. A device having electrical contacts, a socket, a guard member having openings therein positioned in said socket with respect to said contacts, and a second guard member having an irregular shaped notch therein positioned with respect to said contacts, and in combination, a plug having a fuse element, said fuse element having terminals projecting from said plug, said plug being re-

ceivable in said socket, each of said terminals having a key ward corresponding to the shape of said notch, so that when the plug is being inserted into said socket, the terminals respectively, will pass through the openings in the first guard member, and so that when the plug, while in the socket, is being turned, one of said terminals will pass through the notch in the second guard member, so that both terminals respectively will be engageable with said contacts.

4. A fuse plug receptacle comprising an insulator base, a bridge member on said base, contacts on said base, a guard member on said base in guarding position with respect to said contacts, and a second guard member on said base in electrical engagement with said bridge member and first guard member, and also in guarding position with respect to one of said contacts.

5. The combination with a fuse plug receptacle having a socket, contacts secured to said receptacle and disposed in a recess therein adjacent said socket, and guard means interposed with respect to the socket and contacts; of a fuse plug adapted to be inserted into the socket, a fuse element on said plug having terminals each of definite shape to clear said guard means, to be brought into engagement with said contacts, in the insertion of the plug in said socket.

6. In combination an insulator base having contacts disposed in a recess therein, and a socket juxtaposed with respect to said contacts; a member secured to said base and having a guard portion which projects into said recess adjacent one of said contacts; a plug adapted to be inserted into said socket, said plug being made of insulating material and having a conducting element with terminals projecting from the plug, and said plug adapted to be turned while disposed in the socket to bring the terminals into engagement with the contacts to bridge the same, each of said terminals being of definite shape to clear said guard portion.

7. The combination of an electrical receptacle adapted to accommodate an electrical plug, an open ended holder adapted to be attached to a suitable support, said receptacle and holder having complemental shapes to permit the receptacle to be inserted into the holder from one end, to be held in place by the walls of the holder.

8. The combination of a sectional electrical receptacle having a plug socket, an open ended holder adapted to be attached to a suitable support, said receptacle and holder having complemental shapes to permit the receptacle to be inserted into the holder from one end to be held in place by the walls of the holder, said holder having an opening in one wall which registers with said socket when the receptacle is in the holder so that an electrical plug may be inserted in said socket through said opening.

Signed at New York, in the county of New York and State of New York, this 11th day of April, A. D. 1928.

EMIL DE BRUIJN.