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FUSE HOLDER

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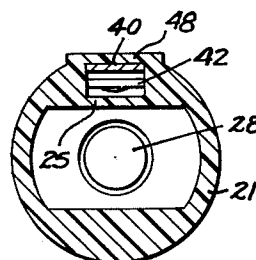
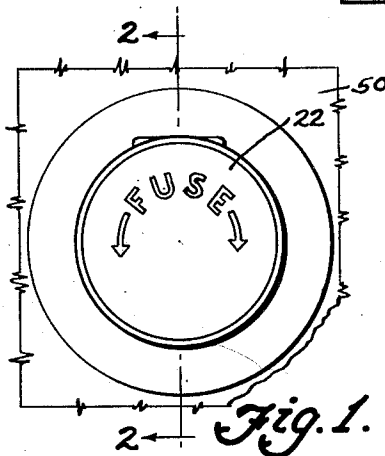
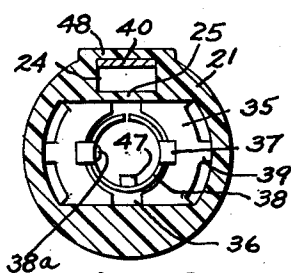
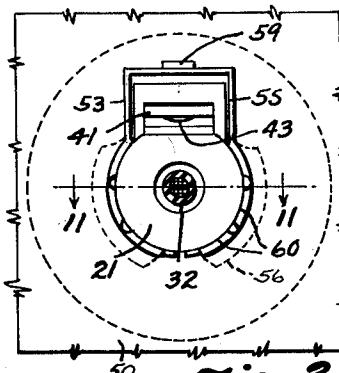
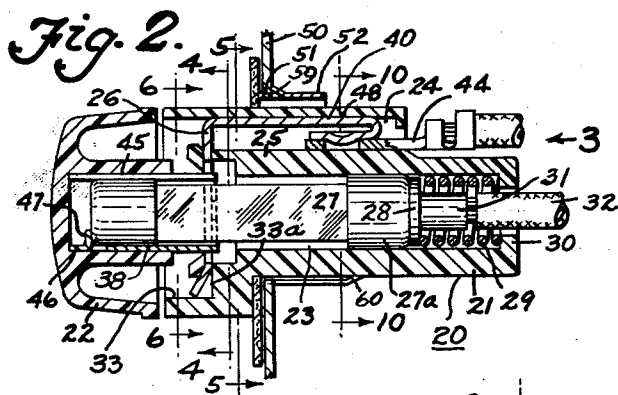


Fig. 4.

Fig. 1.

Fig. 5.

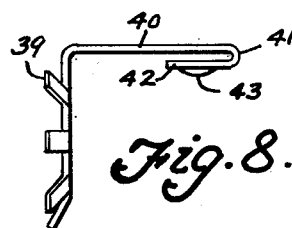
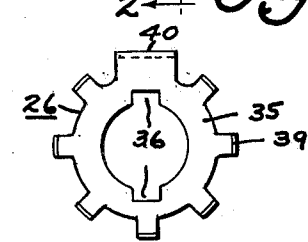
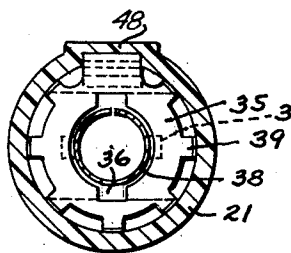


Fig. 6.

Fig. 7.

Fig. 8.

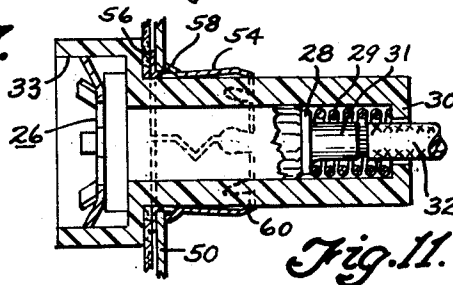
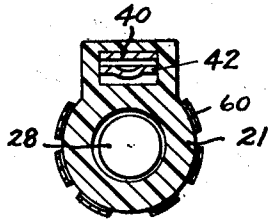
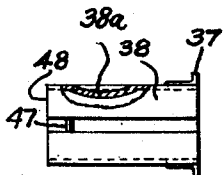


Fig. 9.

Fig. 10.

Fig. 11.

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FUSE HOLDER

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This invention relates to improvements in fuse container and particularly to containers for use in electric circuits.

An object of the present invention is to provide a simple and compact receptacle including a cartridge type fuse which is particularly adapted for completing an electric circuit from one end of one conductor to the end of another. This and other objects are attained in accordance with the present invention by providing a receptacle of two parts with one of the parts having means adapted to lock the two parts together in an operative position and unlock the parts upon a slight turning movement of the one part to permit separation of the parts so that the fuse can be easily removed for renewal and also a connecting arrangement such that one of the conductors may be readily connected or disconnected.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred embodiment of the present invention is clearly shown.

In the drawings:

Fig. 1 is a top plan view of the fuse receptacle embodying the present invention and drawn on an enlarged scale.

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

Fig. 3 is a rear view of the fuse receptacle looking in the direction of arrow 3 in Fig. 2.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 2.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 2 with the removable fuse and the terminal removed.

Fig. 6 is a sectional view taken on line 6—6 of Fig. 2.

Figs. 7 and 8 are top and side views, respectively, of a ring contact used in the present invention.

Fig. 9 is a side view of a contact sleeve embodied in the present invention.

Fig. 10 is a sectional view taken on line 10—10 of Fig. 2.

Fig. 11 is a detail in section, with certain parts in elevation, showing a means for securing a receptacle to a support.

Referring to the drawing, 20 designates a fuse housing or receptacle including a body 21 and a cap or knob 22 of molded insulating material. The body 21 is provided with a pair of through passages or openings 23 and 24 with a common wall 25 therebetween. The opening 23 receives a contact ring 26, a cartridge type fuse 27, a contact

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28 and a coil spring 29. The spring 29 has one end bearing against the back of the flange on contact 28 and the other end resting on an internal annular shoulder 30 formed at one end of the passage. The contact 28 has a reduced portion 31 having a recess to receive bared ends of an insulated conductor 32. The reduced portion 31 is swedged against the bared ends to provide a good electrical connection between the contact and the conductor. The insulation of the conductor cable extends loosely through the restricted portion of the passage formed by the annular ledge or shoulder 30. The passage 23 is enlarged at 33 to provide a shoulder 33a upon which rests the contact ring 26, as best shown in Figs. 7 and 8.

The contact ring 26 is preferably a one-piece member punched from conducting sheet metal. As best shown in Figs. 7 and 8, the contact ring 26 includes a flat annular portion 35 having diametrically opposed slots 36 to provide a bayonet joint connection with radial ears 37 on a split sleeve contact member 38 to be described. The outer periphery of the flat portion 35 of the ring is notched or cut-away to provide a series of integral spaced radial tangs 39 bent to one side of the portion 35 at an obtuse angle, as viewed in Fig. 8, so as to make the tangs 39 yieldable. The diameter of the enlarged portion 33 of the passage 23 is less than the cross dimension of the contact ring 26 in its deformed state. Thus when the contact ring 26 is pushed into the enlarged portion 33 of the passage 23, the tangs 39 will yield. When the ring engages the shoulder 33a and the pushing force is released, the tangs will bite into the cylindrical wall to hold firmly the ring contact within the enlarged portion 33 of passage 23. The ring 26 is formed with an integral arm 40 bent at an angle to the other side of the ring portion. This arm is in turn bent back on itself at the bend 41 to form a yieldable extension 42. This construction forms a hook-like end. A detent 43 is formed in the extension 42. When the ring is fixed in the opening, the arm 41 with the hook-end will extend into the passage 24, as clearly shown in Fig. 1. Fig. 1 also shows the application into the opening of a spade type terminal 44 having an opening to receive the detent 43 which assists in locking the terminal in the passage 24. By this arrangement the prong 44 with an insulated conductor attached thereto forms the other end of the circuit.

By having the hook-type end on the end of the arm 40, the insertion of the prong 44 will cause the arm 40 to be forced against the wall 48 of passage 24 and the prong 44 against the

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wall 25. Further, by having the hook-type end, the prong or plug 44 can slide between the arm and the wall 25 more easily.

For the purpose of holding the fuse in the passage 23 and also for completing the circuit connection between the terminal 28 and the contact ring 26, the cap 22 is provided with a recess or pocket 45 for receiving frictionally one end 46 of the longitudinally split sleeve 38. This sleeve is provided with a stop 47 adjacent the end 46 for limiting the movement of the fuse within the sleeve 38. In order to hold the cap end of the fuse more firmly, the sleeve is formed with spring detents 38a for preventing the fuse from dropping out of the sleeve when the cap is separated from the body and it will firmly clamp against the sleeve to make a good electrical contact and also to prevent rattling of the fuse within the sleeve. In this instance the stop 47 is formed by a struck-in portion of the sleeve. The other end 48 of the sleeve is provided with the radial ears 37 which are received by the notches 36. When the sleeve is inserted through the ring contact 26 and rotated slightly in either direction, the ears will be out of registry with the notches 36 and be interlocked with the contact ring 26.

With the parts thus assembled, it will be obvious that the cap ends of the cartridge type fuse 27 will, respectively, engage the terminal 28 and the stop 47. Since the ears 37 are located beyond the contact ring 26, the ears will be moved firmly against the contact ring by the action of spring 29. When the cap or knob 22 is in the position shown in Fig. 1, the circuit connection between contact 28 and contact ring 26 is completed through the fuse 27 and sleeve 38.

The body portion 21 of the receptacle is held to a support 59 having an opening 51 by a clip or liner 52. The liner is mounted in the opening 51 in the support 59. The opening 51 is provided with a notch 53 extending radially from the marginal wall of the opening. The liner 52 comprises a one-piece strip of metal deformed to provide arcuate portions 54 and a U-shaped section 55 complementary to the contour of the notch 53. The arcuate portions 54 of the liner 52 are provided with flanges 56 which engage the outer face of the support, see Fig. 11, to limit the inward movement of the liner. The arcuate portions are each provided with struck-out tangs 58 which yield when the liner is forced into the opening 51. When the liner is forced into the opening, these tangs 58 will snap outwardly beyond the marginal wall of the opening, thus the liner is locked with the support. The yoke of the U-section is also formed with a struck-out tang 59 which will also engage the rear of the support.

The other end of the arcuate portions 54 of the liner is provided with resilient projections or prongs 60 bent inwardly. These prongs grip the outer surface of the body 21 to frictionally hold the body in position to the support.

The body 21 is extended radially from one side thereof and this extension is rectangular in shape and fits in the yoke of the liner, thus the body is prevented from turning within the opening.

With the parts constructed and assembled in the manner above described, the receptacle 21 may be quickly applied to the support. This is done by simply forcing the receptacle in the liner.

It will be seen that with this fuse holder a good electrical connection may be inserted in an extension circuit. Also the connection for

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supplying current to an electrical device is provided with a fuse to protect it and this fuse may be readily removed and replaced when the fuse is burned out.

While the embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted.

What is claimed is as follows:

1. A fuse holder comprising; a body of insulating material having a main passage and an auxiliary passage; a movable contact within the main passage; resilient means for resisting movement of the contact; a ring contact anchored within the main passage and normally spaced longitudinally from the movable contact, said ring contact having an integral arm extending radially from the ring and having its free end bent so that it will extend into one end of the auxiliary passage, said arm adapted to grip yieldingly a terminal inserted in the other end of the auxiliary passage; a knob having a recess; a metal split sleeve having one end frictionally supported within the recess and having the other end adapted to pass through the ring contact, said sleeve having radial portions capable of underlying the ring contact; a cartridge type fuse having one cap thereof frictionally received by the sleeve to connect same electrically with the ring contact when the sleeve and fuse are inserted in the main passage with the other cap of the fuse in electrical contact with the movable contact, said resilient means urging the radial portion against the ring contact to establish an electrical connection between the contacts through the fuse.

2. In a fuse holder assembly, comprising a body of molded insulating material having a pair of spaced passages extending therethrough, one of said passages having a restriction to provide a shoulder; a biased contact assembled in the said one passage adjacent the shoulder; a stationary contact anchored to the body, said stationary contact having a ring-portion provided with oppositely disposed internal notches disposed over said one passage and having an integral resilient arm disposed in the other passage, said arm adapted to grip a conductor inserted in said other passage from outside the body; a knob including a metal split sleeve slidable in the ring portion of the stationary contact, said sleeve having retaining portions adapted to pass through the notches in the ring portion of said sleeve when slightly turned, said retaining portions are capable of engaging the ring portion to provide an electrical connection therebetween; a fuse having one end electrically connected with the sleeve and having the other end engaging the biased contact to complete a circuit between the contacts, said biased contact urging the sleeve in one direction so that the retaining portions will bear against the ring portion of the stationary contact.

3. A fuse holder assembly comprising, a body of insulating material having a through passage therein; a biased contact located at one end of said passage adapted to be connected to a circuit conductor; a ring contact having tangs, said ring contact being insertable into said passages, said tangs biting into the annular wall of said passage for retaining the ring contact in position within the passage; a fuse including a metal cap at each end thereof, one cap adapted to engage the biased contact; and a removable fuse carrying member including a yieldable sleeve

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adapted to grip the other cap of the fuse, said sleeve having lateral ears passing through internal notches in said ring contact so that when the carrying member is rotated slightly the ears will underlie the ring contact to prevent removal of the carrying member, said biased contact urging the fuse and the sleeve in one direction so that the ears will engage the ring contact to establish an electrical connection of said contacts through said fuse.

4. In a fuse holder of the class described, a molded body of insulating material having a pair of through passages therein; a biased contact located in one of said passages; a contact member having a ring portion provided with peripheral tangs extending in one direction and a resilient arm extending in the opposite direction, said contact member being insertable into said passages, said arm extending into one of said passages and the ring porting into the other passage, said tangs biting into the annular wall

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of said other passage for retaining said contact in position and also for retaining the biased contact within said one passage.

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