Sept. 18, 1956 J. F. HEALY 2,763,846

CORD GRIP FOR ELECTRICAL DEVICES

Filed Aug. 17, 1953

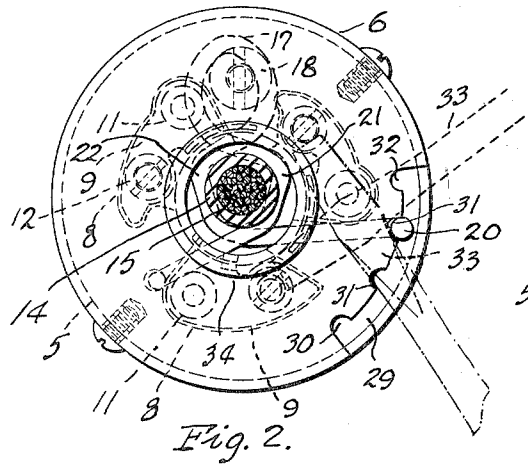


Fig. 2.

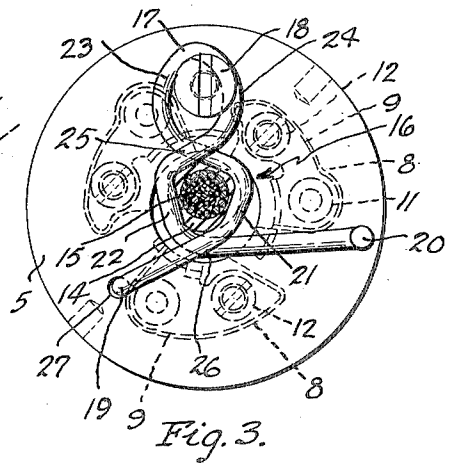


Fig. 3.

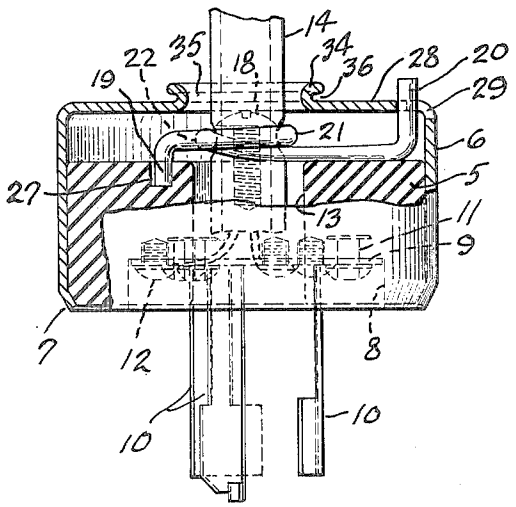


Fig. 1.

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United States Patent Office

2,763,846

Patented Sept. 18, 1956

2,763,846

CORD GRIP FOR ELECTRICAL DEVICES

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Application August 17, 1953, Serial No. 374,724

6 Claims. (Cl. 339—103)

This invention relates to a cord grip for electrical devices, and has for an object to provide a simple and effective means for gripping the insulated cord containing the insulated lead wires or conductors connected to the contacts of an electrical device, such, for example, as a connector receptacle or attachment plug, to relieve the strain on the connection of conductors through the contacts by a pull on the cord.

Another object is to provide such a grip which will automatically grip the cord, but may be readily released for inserting or removing the cord.

With the foregoing and other objects in view, I have devised the construction illustrated in the accompanying drawing forming a part of this specification. It is, however, to be understood that the invention is not limited to the specific details of construction and arrangement shown, but may embody various changes and modifications within the scope of the invention.

In this drawing:

Fig. 1 is a partial side elevation and partial section of an attachment plug cap showing this improvement applied thereto;

Fig. 2 is a top plan view thereof, and

Fig. 3 is a top plan view of the outer shell or casing removed.

The invention is shown in the drawing as applied to an electrical device comprising an attachment plug cap for plugging into an outlet receptacle or a similar connection to make electrical connection therewith for operating a motor or other device, but this particular device is used merely by way of example, as it will be understood the grip may be used for other electrical devices, such, for example, as electrical receptacle connectors and the like.

The device shown comprises an insulating body member 5 enclosed in a metal shell or protective casing 6 which is secured to the body by bending or folding in its free edge 7 over one end or bevelled edge of the body. In one side of the body member 5 are recesses 8 in which are mounted bases or feet 9 of projecting contact blades 10 for insertion into the inlet slots of an electrical receptacle (not shown), to engage the contacts therein and establish electrical connection therewith. The feed of these contacts are secured to the body member by any suitable means, such as the rolled-over rivets 11 anchored in the body member, and the feet carry suitable means for securing conductor wires or leads to these contacts, such, for example, as a binding post screw 12 threaded into the bases or feet for clamping the conductor wires thereto in a well known manner. The body member 5 is provided with an opening 13 leading from the opposite side thereof to these recesses and the contacts therein for passage of the insulating cord 14 carrying the insulated conductor wires or leads 15 to be secured by the binding post screws 12 to the contact blades 10.

To relieve strain on the conductor wires and their connection to the blades 10 by a pull on the cord, a grip is provided which is carried by and connected to the body member 5 and enclosed in the casing 6. This

comprises a wire clamp or grip 16 made of spring wire so that it is resilient, and it is bent into an intermediate loop 17 which is anchored to the body member 5 by a suitable pin or screw 18 mounted in the body member, the head of the screw overhanging the loop so as to prevent it from shifting away from the body member. This grip is mounted in the casing 6 on the opposite side of the body 5 from the contact blades 10. The two sides of the wire on opposite sides of the loop 17 and between this loop and the free ends 19 and 20 of the wire are bent in opposite directions, as shown at 21 and 22 to form bends or open-sided loops or recesses in alignment with the opening 13 in the body member and on opposite sides of the cord 14, the wire being crossed, as indicated in Fig. 3, so that as viewed in this figure the bend 21 between the left-hand side 23 of the intermediate loop 17 and its free end 19 is on the opposite or right-hand side of the cord, and the bend or open loop 22 between the right hand side 24 of the loop 17 and its free end 20 is on the opposite side of the cord so that the two are opposed, and by the spring action of the wire will grip the cord as shown in the figures of the drawing. The two wires on opposite sides of the cord are crossed oppositely so that strain on the cord will not tend to separate them and thus tend to release the grip on the cord. Thus, as shown at 25 in Fig. 3, the right hand portion crosses over the left-hand portion above the cord and adjacent the loop 17; while as shown at 26 this right-hand portion of the wire leading to the free end 20 passes under the left-hand portion leading to the free end 19. This free end 19 is anchored to the body member 5, a simple and effective means being to laterally bend this free end downwardly, as shown in Fig. 1, and seat it in a socket or opening 27 in the body member 5.

Means is also provided for holding the clamp or grip in a released position. For this purpose the end or top wall 28 of the shell or casing 6 is provided with an elongated slot 29 at one side through which the free end 20 of the wire projects, this end being bent upwardly, as shown in Fig. 1, to extend through this slot and project above the top wall 28. The inner edge of this slot is provided with a notch 30 to receive this upwardly bent free end 20 to retain the clamp or grip in a released or open position with the gripping portions or loops 21, 22 spaced from the cord 14 to release it. This will permit insertion or removal of the cord 14 in connecting it to or disconnecting it from the contact blades 10. By shifting the free end 20 from the notch 30 the spring action of the wire will cause it to grip the cord 14 between the bent portions 21, 22, as shown in the drawing, the free end 20 in this action moving along the slot 29. Other notches 31 and 32 may be provided in the inner edge of the slot 29 and spaced from the notch 30 to lock the clamp in different gripping positions. These notches, however, are not necessary, as the spring action of the wire will effectively grip the cord, but the use of such notches is preferred to lock the clamp in the gripping position against accidental release in use. The spring clamp is so made that the resiliency of the wire tends to shift the upwardly extending free end 20 inwardly or toward the center of the device so that it will automatically seat itself in and retain itself in the notches 30, 31, 32 when it is shifted to a position opposite these notches. Therefore, in shifting this free end to either release the clamp or grip or to permit it to grip the cord, it is necessary to shift this free end 20 out of the notch in which it may be seated against the spring action of the wire. This may be done by means of a suitable tool, such, for example, as a screw driver bit 33 inserted between the free end 20 and an upwardly extending flange 34 provided on the top wall 28 of the housing about an opening 35 in alignment with the opening 13 in the body

member through which the cord 14 passes, and this flange is preferably provided with an overhang or flare, as shown at 36, under which the free end of the screw driver bit may be seated to hold the screw driver from jumping out by a strain on it when setting or releasing the clamp. In the arrangement shown in dot and dash lines in Fig. 2, the screw driver is in position to release the free end 20 of the wire grip from the upper notch 31 and permit the grip to move further to the gripping position. In releasing the grip the screw driver may be reversed, as indicated in the dotted lines, to thus remove the free end 20 from the notch 31 and to shift it to the lower end of the slot 29 to cause it to seat in the notch 30 during which shifting movement of the free end 20 the grip will be opened or released from its gripping action on the cord 14 by separating the gripping portions 21, 22.

It will be seen from the above that this provides a very simple cord grip for electrical devices which will automatically grip and maintain the grip on the cord by the spring action of the gripping means, and will thus relieve strain on the connections between the conductor wires with the electrical contacts by a pull on the cord, but that the grip may be released or permitted to shift to the gripping position by a simple operation of a standard tool, such, for example, as a screw driver, and therefore no special tool is required.

Having thus set forth the nature of my invention, I claim:

1. In an electrical device of the character described an insulating body member, electrical contacts mounted on said member, means for securing conductor wires to the contacts, said body provided with an opening leading to said securing means for an insulated cord containing conductor wires, a grip for said cord comprising a spring wire bent into an intermediate loop and oppositely facing bends between the loop and the free ends to engage and grip opposite sides of the cord by spring action of the wire, means for anchoring one free end of the wire and the loop to the body member, and means at the opposite free end of the wire for shifting it to release the grip on the cord.

2. In an electrical device of the character described, an insulating body member, electrical contacts mounted on said member, means for securing conductor wires to the contacts, said body provided with an opening leading to said securing means for an insulated cord containing conductor wires, a grip for said cord comprising a spring wire bent into an intermediate loop and oppositely facing bends between the loop and the free ends to engage and grip opposite sides of the cord by spring action of the wire, a stud secured on the body and located in the loop to anchor the grip to the body member, said body being provided with a socket, one free end of the wire being bent laterally and seated in said socket to anchor said free end to the body, and the other free end of the wire provided with means to shift this end to release the grip.

3. In an electrical device of the character described an insulating body member, electrical contacts mounted on said member, means for securing conductor wires to the contacts, said body provided with an opening leading to said securing means for an insulated cord containing conductor wires, a grip for said cord comprising a spring wire bent into an intermediate loop and oppositely facing bends between the loop and the free ends to engage and grip opposite sides of the cord by spring action of the wire, the portions of the wire between the loop and the bends being crossed in one direction and on the opposite sides of the bends crossed in the opposite direction, means anchoring the loop and one free end of the wire to the body member, and the other free end of the wire provided with means to shift this end relative to the first free end to release the grip.

4. In an electrical device of the character described an insulating body member, electrical contacts mounted on said member, means for securing conductor wires to the contacts, said body provided with an opening leading to said securing means for an insulated cord containing conductor wires, a protective casing enclosing the sides and one end of the body and provided with a transverse end wall provided with an opening for the cord in alignment with the opening in the body, a grip for the cord between the body and said end wall comprising a spring wire bent into an intermediate loop and oppositely facing bends between this loop and the free ends of the wire to engage and grip the opposite sides of the cord by spring action of the wire, means anchoring one free end of the wire and said loop to the body member, said casing being provided with an elongated slot, the other free end of the wire projecting through said slot, and said casing provided with a notch in one edge of the slot in which said free end may be seated to retain the grip in released position.

5. In an electrical device of the character described an insulating body member, electrical contacts mounted on said member, means for securing conductor wires to the contacts, said body provided with an opening leading to said securing means for an insulated cord containing conductor wires, a protective casing enclosing the sides and one end of the body and provided with a transverse end wall provided with an opening for the cord in alignment with the opening in the body and an overhanging flange about said opening, a grip for the cord located between the body member and said end wall comprising a spring wire bent into an intermediate loop and oppositely facing bends between this loop and the free ends of the wire to engage and grip the opposite sides of the cord by spring action of the wire, means anchoring the loop and one free end of the wire, the casing being provided with an elongated slot having a notch in one edge, the other free end of the wire being located in said slot and extending above the end wall of the casing, and said flange and latter free end of the wire forming means to be engaged by a tool to shift said free end to release the grip.

6. In an electrical device of the character described an insulating body member, electrical contacts mounted on said member, means for securing conductor wires to the contacts, said body provided with an opening leading to said securing means for an insulated cord containing conductor wires, a protective casing for the body member provided with a transverse end wall, a grip for the cord between the body and said end wall comprising a spring wire bent into an intermediate loop and oppositely facing bends between this loop and the free ends of the wire to engage and grip the opposite sides of the cord, means anchoring the loop and one free end of the wire, the casing being provided with an elongated slot having a notch in one edge, and the other free end of the wire being located in said slot and adapted to seat in said notch to retain it in a given position.

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