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(54) Title: AN ACCESSORY FOR AN ELECTRICAL FITTING

(57) Abstract

An accessory for an electrical fitting such as an electrical plug comprises a cable retainer (12) for retaining an insulated electrical cable (22) to the fitting and an insulator stripping blade (10) for stripping insulation from the cable. The blade is supported on the cable retainer. The fitting includes a housing in which the cable retainer is mounted.

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(56) Documents cited: DE, A1, 3 701 810 GB, A, 2 086 149

BACKGROUND TO THE INVENTION

This invention relates to an accessory for an electrical fitting, and in particular to an accessory for an electrical plug.

The wiring up of a domestic electrical plug is a common everyday task. A number of inventions have directed themselves towards simplifying this task. For example, in order to avoid the use of a separate knife or insulation stripper, UK Patent Application GB 2086149 A discloses a plug housing which has an integral wire stripper formed therein. It is clear from the plug illustrated in the above-mentioned patent application that the plug housing has to be modified considerably to accommodate the wire stripper, which is mounted permanently in the outer surface of the plug housing in the exposed position.

SUMMARY OF THE INVENTION

According to the invention there is provided an accessory for an electrical fitting comprising a cable retainer for retaining in position an insulated electrical cable which is connectable to the fitting, an insulation stripping blade for stripping insulation from the insulated electrical cable being located on the cable retainer, and mounting means being provided within a housing for the electrical fitting for accommodating the cable retainer.

In a preferred form of the invention, the electrical fitting is an electrical plug, and the mounting means is located adjacent a cable opening in the plug housing.

The blade is preferably mounted within the supporting cable retainer so as to have an effective cutting depth which matches the thickness of the insulation it is designed to cut.

The mounting means conveniently comprises a pair of opposed slots located adjacent an opening in the plug housing, the opening being adapted to accommodate the insulated electrical cable.

The housing may be formed from a base and a lid, and pairs of slots may be provided in both the base and the lid for holding the cable retainer and the blade in position.

Conveniently, the cable retainer is movable within the mounting means between an exposed position, in which the blade is able to sever the insulation from the insulated electrical cable, to a safe position in which the cutting edge of the blade is concealed and the cable retainer is positioned to hold the cable in position.

The cable retainer may be in the form of a support having a substantially H-shaped cut-out formed therein so as to define a pair of adjacent resiliently deformable flaps separated by a gap.

The flaps may have contact edges adjacent the gap with cable-engaging corners for biting into the insulation of the cable.

The invention extends to an accessory for an electrical fitting arranged to be connected to an insulated electrical cable comprising an insulation stripping blade, a blade support for holding the stripping blade and mounting means being provided within the housing, for detachably mounting the blade support the support being movable within the mounting means between an exposed position, in which the blade is able to sever the insulation from the insulated electrical cable, and a concealed safe position, in which the cutting edge of the blade is concealed.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows a front view of a cable retainer and insulation stripping blade of the invention;

Figure 2 shows a cross-section on the line 2-2 of Figure 1;

Figure 3A shows a cross-section on the line 3-3 of Figure 1;

Figure 3B shows a cross-section similar to that of Figure 3A with a cable being held in position by the cable retainer;

Figure 4A shows a top plan view of the base of a plug housing with the cable retainer and stripping blade of Figures 1 to 3 mounted in position;

Figure 4B Shows an underplan view of the lid of the plug housing corresponding to the base of Figure 4A;

Figure 5 shows a front view of the base of a plug housing in the direction of arrow A in Figure 4 with the insulation stripping blade in the exposed position, and

Figure 6 shows a cross-sectional view on the line 6-6 in Figures 4A and 4B with the insulation stripping blade in the concealed position.

DESCRIPTION OF EMBODIMENTS

Referring to Figures 1,2 and 3, a cable retainer and stripping blade comprises a stainless steel blade 10 embedded in a blade-holding portion or support 12 formed from a plastics material such as reinforced nylon. The blade-holding portion 12 doubles as a cable retainer by incorporating cable retention means in the form of first and second resilient flaps 14 and 16 which are defined by an H-shaped cut-out 18 formed in the blade support 12. As can be seen more

clearly in Figures 3A and 3B, the flaps 14 and 16 have squared edges having rectangular leading edge corners 21. A cable 22 is passed through the flaps 14 and 16 so as to deform the resilient flaps inwardly, as is shown in Figure 3B. If an attempt is made to retract the cable 22 in the direction of arrow 23, the edge corners 21 bite into the insulating sheath of the cable, thereby holding the cable firmly in position.

The distance "d" between the shoulder 24 of the blade holding portion and the cutting edge 26 of the blade is such that it equals the thickness of the sheath 27 surrounding the insulated three-core cable 22, as can be seen in Figure 5.

Referring now to Figures 4A, 4B, 5 and 6, the blade 10 and the blade-holding portion 12, with its integral cable retainer, is mounted within a pair of opposed vertically extending slots 28 formed in the base 30 of a three-pin domestic plug housing between the rear face of a front wall 32 of the base, within which is formed a semi-circular cut-out 34 for accommodating the three-core cable 22, and a pair of inwardly extending tongues 36. The lid 38 has similar tongues 40 defining vertically extending slots 42 which coincide with the slots 28, the slots 28 and 42 firmly anchoring the cable retainer 12 in position.

In order to remove the sheath 27 from the three-core cable 22 so as to permit the insulated leads to extend individually to the terminal pins 44 which are located in the base 30, the lid 38 of the plug housing is removed. The blade support 12 is subsequently moved from an inverted position, as is indicated in Figure 6, with the blade 10 concealed in a groove 46 formed in the base 30 of the plug housing, to an exposed position, as is shown in Figure 5. The end portion of the sheath 27 of the three-core cable is severed from the remainder of the sheath by pressing the cable downwards onto the blade 10 in the desired position and rotating it, the gauged depth "d" of the blade 10 ensuring that only the insulating sheath 27 is severed, and not that insulation surrounding the three central cores 48.

After the sheath 27 has been removed, the blade support 12 is moved back to the inverted concealed position shown in Figure 6 and the three-core cable is inserted through the gap 48 provided by the flaps 14 and 16, in the manner illustrated in Figure 3B. The blade support 12 may be completely removed for performing this operation. Alternatively, the blade support 12 may be left in the position indicated in Figure 5, with a groove 50 formed in the upper wall of the lid 38 accommodating and concealing the exposed blade 26.

Once the individual leads have been connected to the pins 44, the lid 40 of the plug housing is locked into position. The lid 40 is also provided with slots similar to the slots 28 to hold the blade support firmly in position.

An advantage of the invention is that a separate blade or insulation stripper is not required when connecting an insulated cable to a plug. Furthermore, by combining the blade and cable retainer into a single removable component, very little modification to an existing plug housing is required. As the blade is normally mounted in an unexposed, safe position, it does not present a safety hazard.

CLAIMS

1. An accessory for an electrical fitting comprising a cable retainer for retaining in position an insulated electrical cable which is connectable to the fitting, an insulation stripping blade for stripping insulation from the insulated electrical cable, the blade being supported on the cable retainer, and mounting means being provided within a housing for the electrical fitting for accommodating the cable retainer.

2. An accessory as claimed in claim 1 in which the electrical fitting is an electrical plug, and the mounting means is located adjacent a cable opening in the plug housing.

3. An accessory as claimed in either one of the preceding claims in which the blade is mounted within the cable retainer so as to have an effective cutting depth which matches the thickness of the insulation it is designed to cut.

4. An accessory as claimed in any one of the preceding claims in which the mounting means comprises a pair of opposed slots located adjacent an opening in the plug housing, the opening being adapted to accommodate the insulated electrical cable.

5. An accessory as claimed in claim 4 in which the housing is formed from a base and lid, and pairs of slots are provided in both the base and the lid for holding the cable retainer and the blade in position.

6. An accessory as claimed in any one of the preceding claims in which the cable retainer is movable within the mounting means between an exposed position, in which the blade is able to sever the insulation from the insulated electrical cable, to a safe position in which the cutting edge of the blade is concealed and the cable retainer is positioned to

hold the cable in position.

7. An accessory as claimed in any one of the preceding claims in which the cable retainer comprises a support having a substantially H-shaped cut-out formed therein so as to define a pair of adjacent resiliently deformable flaps separated by a gap.

8. An accessory as claimed in claim 7 in which the flaps have contact edges adjacent the gap with cable-engaging corners for biting into the insulation of the cable.

9. An accessory for an electrical fitting arranged to be connected to an insulated electrical cable comprising an insulation stripping blade, a blade support for holding the stripping, blade and mounting means being provided within the housing for detachably mounting the blade support, the support being movable within the mounting means between an exposed position, in which the blade is able to sever the insulation from the insulated electrical cable, and a concealed safe position, in which the cutting edge of the blade is concealed.

Dated on this 13 Day of December 1991.

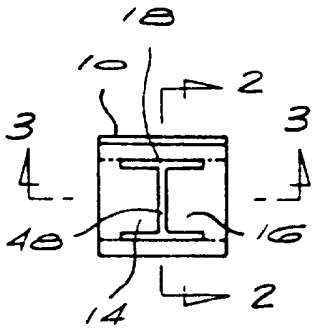


FIG 1

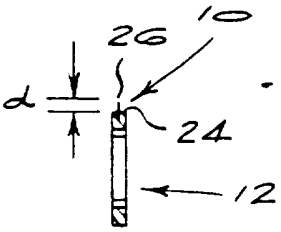
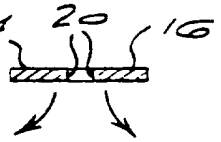


FIG 2

FIG 3A



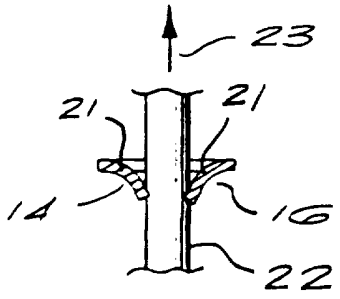


FIG 3B

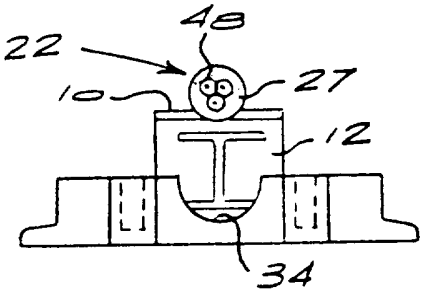


FIG 5

FIG 4A

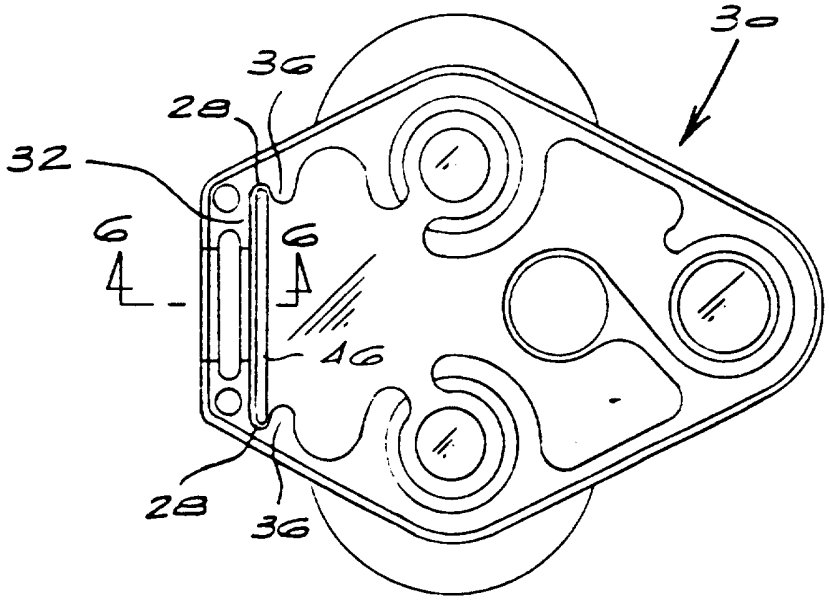


FIG 4B

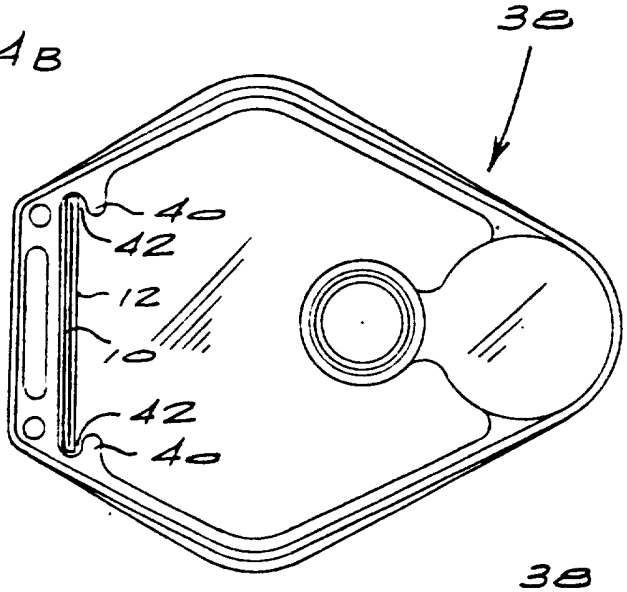


FIG 6