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(54) **Plug cabling hand tools**

(57) A jig for use in connecting a multiple core electric cable 34 to a plug 2 comprises a polypropylene body 10 hinged at one end 12 and having a snap fit closure 14 at the other. On one side there is a recess 28 for the plug, and along the opposite side a row of apertures 26 which funnel down to coincide with the connection slots of the plug. There is a colour code decal 24 to indicate the order of the cable cores in the plug, on a third side of the plug body. The separated cores 32 are inserted into the appropriate apertures 26 and the cable is pushed in until the cores enter their connection slots. The jig is then opened, and tne cores crimped to the plug. The plug backshell 4 is slid into place around part of the plug..

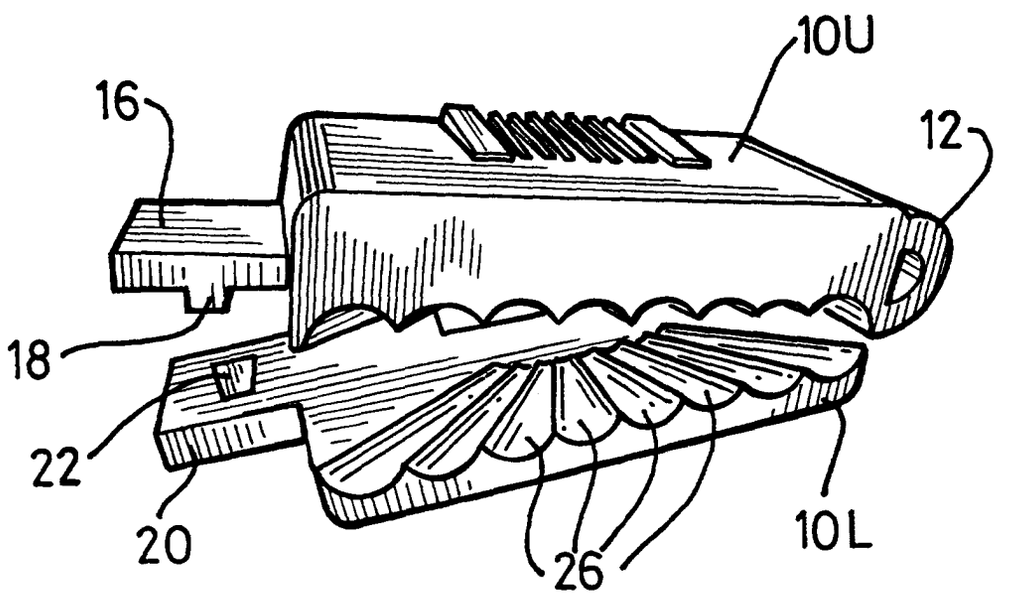


Fig. 2B

EP 1 050 937 A1

Description

[0001] This invention relates to a hand tool to be used when cabling an electric plug, especially a multi-connection plug.

[0002] In today's complex electrical equipment it is common to use a connection cable having multiple cores, each core being colour coded by its insulation, to assist connection to the correct terminal. During the connection process, an installation engineer usually needs to refer to installation notes to locate the colour of the core to be connected to the individual connections, which may be within a single plug or other termination-type device.

[0003] Errors in connection may occur, which is inefficient and forces recabling after testing.

[0004] According to the invention a plug cabling hand tool comprises an openable body having in a first side a plug recess into which an electric plug to be multiple-connected to a cable can be inserted, and in a second, opposite side a plurality of apertures spaced along the body, the apertures within the body narrowing and converging towards the plug recess.

[0005] Preferably the ends of the apertures adjacent to the plug recess are arranged so that if a plurality of electric cores of a cable are pushed into individual apertures, the cores are directed into respective connection slots of a plug within the plug recess.

[0006] Preferably the tool has on a third side a label or decal to indicate the correct order in which colour coded cable cores are to be placed in the apertures.

[0007] The invention will now be described by way of example with reference to the accompanying drawings in which:-

Figure 1 illustrates a plug attached to a cable;

Figures 2A and 2B are views of a plug cabling jig from a second side, the views showing the tool in a the closed and opened positions;

Figure 3 is a view of the jig from its first side, showing the tool in its closed position; and

Figure 4 shows the jig from its second side with cable cores after positioning.

[0008] In Figure 1 an electric plug such as a telecommunications RJ45 plug comprises a rectangular body 2 of plastics material connected to a multicore cable 3. A metal backshell 4 has a circular collar 5 which can slide along the cable and a rectangular part 6 which fits over the plug 2. After the cable cores have been crimped into position, the backshell is slid over the plug body, leaving part exposed; this exposed part carries a spring clip 7 which retains the plug in its electrical connection.

[0009] In all of Figures 2, 3 and 4, the jig comprises a rectangular body 10 made of polypropylene having on one short edge an integral hinge 12 and on the opposite short edge a snap fitting connector 14, comprising a first tongue 16 with a projection 18, and a second tongue 20 with an aperture 22 into which the projection 18 snap fits to keep the tool closed and to allow easy opening.

[0010] On the upper surface of the jig is a decal 24 on which the solid or shaded lines 25 indicate lines of different colour.

[0011] Figure 2A shows that along one long edge of the body 10 between the hinge 12 and the snap fitting 14 there is a row of circular apertures 26. Reference to figure 2B shows that the apertures are funnel shaped, narrowing and converging within the body 10; the apertures together form a fan shape.

[0012] Referring now to figure 3, on the side of the body 10 opposite to the apertures 26 is a rectangular plug recess 28 the dimensions of which match the plug 2. A rear wall 30 of the recess acts as a stop.

[0013] The jig is made of polypropylene and comprises upper and lower matching parts 10L, with half of the converging apertures 26 and half of the plug recess 28 being formed in each part. Alternatively the jig can be cast metal such as aluminium.

[0014] In use, an RJ45 plug, which has eight connection slots, is placed in the recess 28 against the stop 30 and the body 10 is closed. A cable for connection has its outer insulation stripped to expose its colour coded cores. The cores are separated and placed one in each aperture 26, in the correct order as indicated by the coloured line 25. There is no need for the installation engineer to look away from the task to refer to installation notes. The cable is pushed into the body, and the cores are guided by their respective funnel shaped apertures 26 into the plug in recess 28 until each core is in its correct connection slot where it is held captive by friction. The snap fitting 14 is opened and the plug and cores removed from the jig. The cores are then crimped in position in the plug 2.

[0015] Figure 4 shows the plug 2 with the eight cores 32 of a cable 34 after they have been pushed through the funnel shaped apertures and into their positions in the plug. The backshell 4 is shown on the cable 34. After the cores have been crimped, the shell is slid to place.

[0016] While the invention has been described with respect to an 8-core cable and plug, when substantial savings in time to insert a core can be achieved , it can be applied to plugs with more cores, and even for plugs with fewre than eight cores the tool may be beneficial in reducing connection time.

[0017] Instead of an adhesive decal 24, the body 10 could be provided with slots to allow interchangeable colour coded labels to be used. if this should be considered cost effective.

[0018] An additional practical function is that a dimension of the jig can be used to indicate the length of outer cable sheath which must be removed for correct connection to the plug for which the jig is designed. For example, the jig can be dimensioned so that when the plug

is inserted in the recess 28, the length of the jig plus the plug projecting from the jig indicates the length of outer cable sheath to be stripped.

Claims

1. A plug cabling hand tool characterised by an openable body (10) having in a first side a plug recess (28) into which an electric plug (2) to be multiple-connected to a cable (34) can be inserted, and in a second, opposite side a plurality of apertures (26) spaced along the body, the apertures within the body narrowing and converging towards the plug recess (28).

2. A tool according to claim 1 in which the ends of the apertures (26) adjacent to the plug recess (28) are arranged so that if a plurality of electrical cores (32) of a cable (34)are pushed into individual apertures (26), the cores are directed into respective connection slots of a plug (2) within the plug recess (28).

3. A tool according to claim 1 or claim 2 having on a third side means (24, 25) to provide a colour indicator to indicate the correct order in which colour coded cable cores (32) are to be placed in the apertures (26).

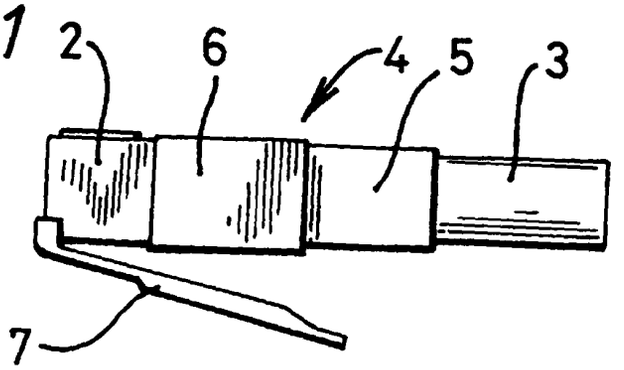
4. A tool according to any preceding claim which is openable for removal of a plug (2) in the plug recess (28) and cable cores (32) in the apertures (26).

5. A tool according to claim 4 comprising matching parts (10U,10L), half of each narrowing, converging aperture (26) being formed in each part.

6. A tool according to claim 4 or claim 5 having a hinge (12) on a fourth side and a snap fitting (10) on a fifth side.

7. A tool according to any preceding claim which is made of polypropylene.

Fig. 1



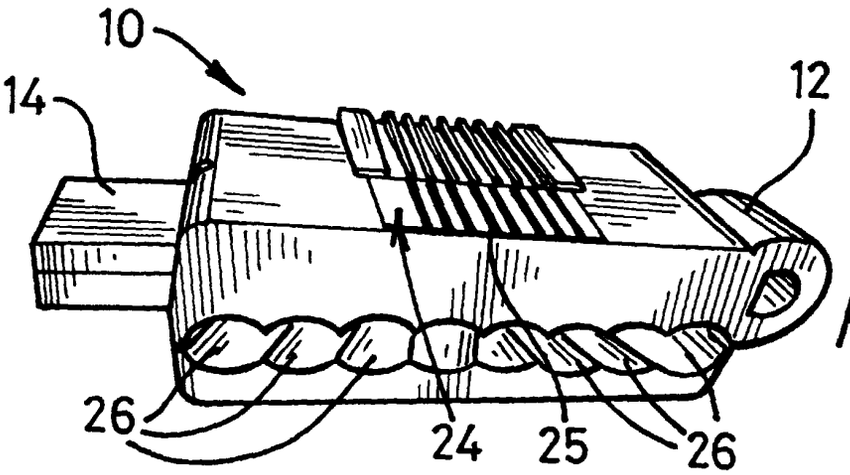


Fig. 2A

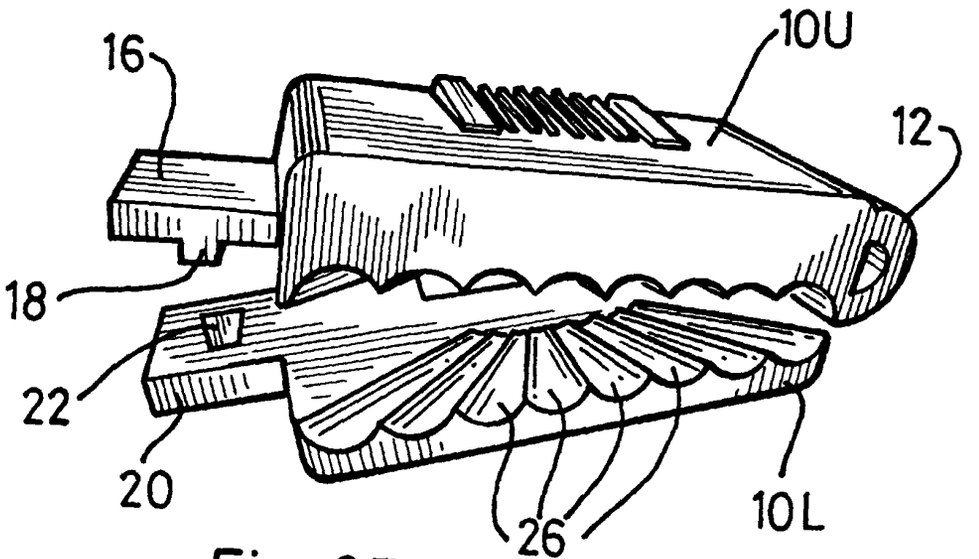
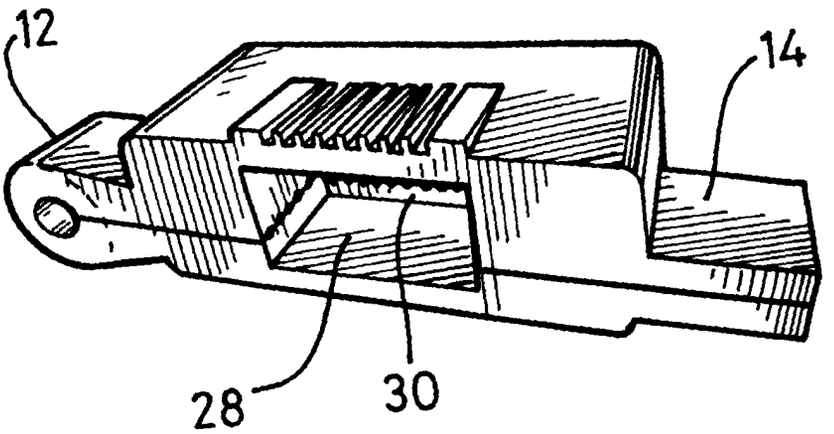


Fig. 2B

Fig. 3



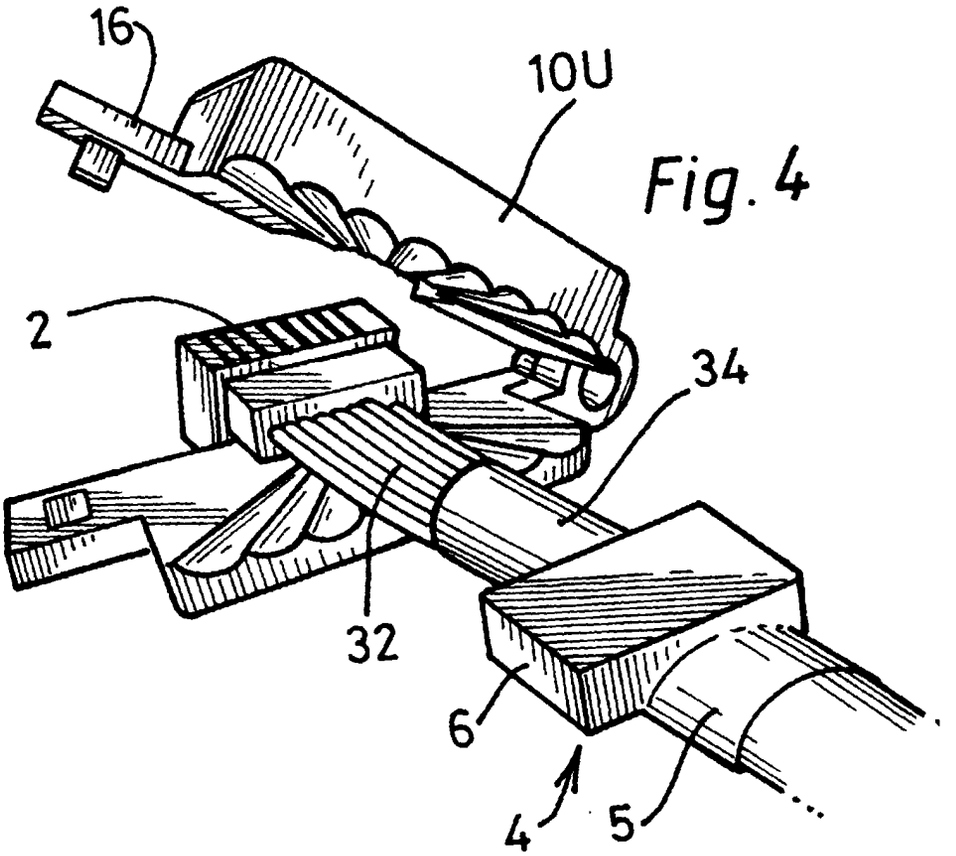


Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 99 30 3484

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			H01R

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	22 October 1999	ALEXATOS G.

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