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**H2E ECAGC ECBD ECJP ECJT**

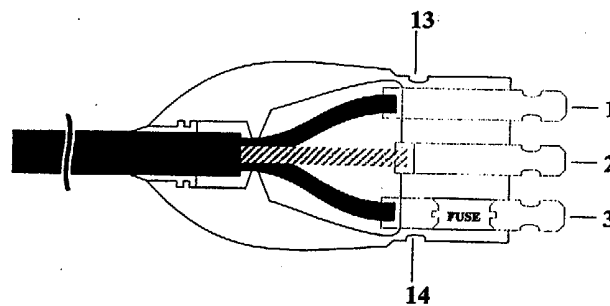
(56) Documents Cited  
**GB 2351394 A**                    **GB 2215918 A**  
**GB 2201306 A**                    **GB 1586190 A**  
**GB 0612642 A**                    **GB 0566384 A**  
**US 6086388 A**                    **US 5688132 A**

(58) Field of Search  
UK CL (Edition V ) **H2E**  
INT CL<sup>7</sup> **H01R**  
Other: Online: **WPI, EPODOC, JAPIO**

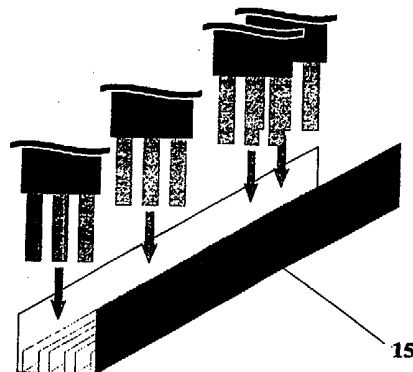
(54) Abstract Title  
**Compact mains plug**

(57) A compact mains plug accepts wires cut to the same length, and has a spade-type fuse mounted in one pin. The wires are connected by a wedge-shaped terminal (4, 5, Fig 2) so that the wire need not be stripped, and the cable is also clamped by a wedge-shaped clamp (6, 7, Fig 3). The plugs plug into a bank of sockets 15. The system is useful where many devices need to be plugged in, such as a home entertainment system or computer system.

**Fig 1.**



**Fig 5.**



**GB 2 386 260 A**

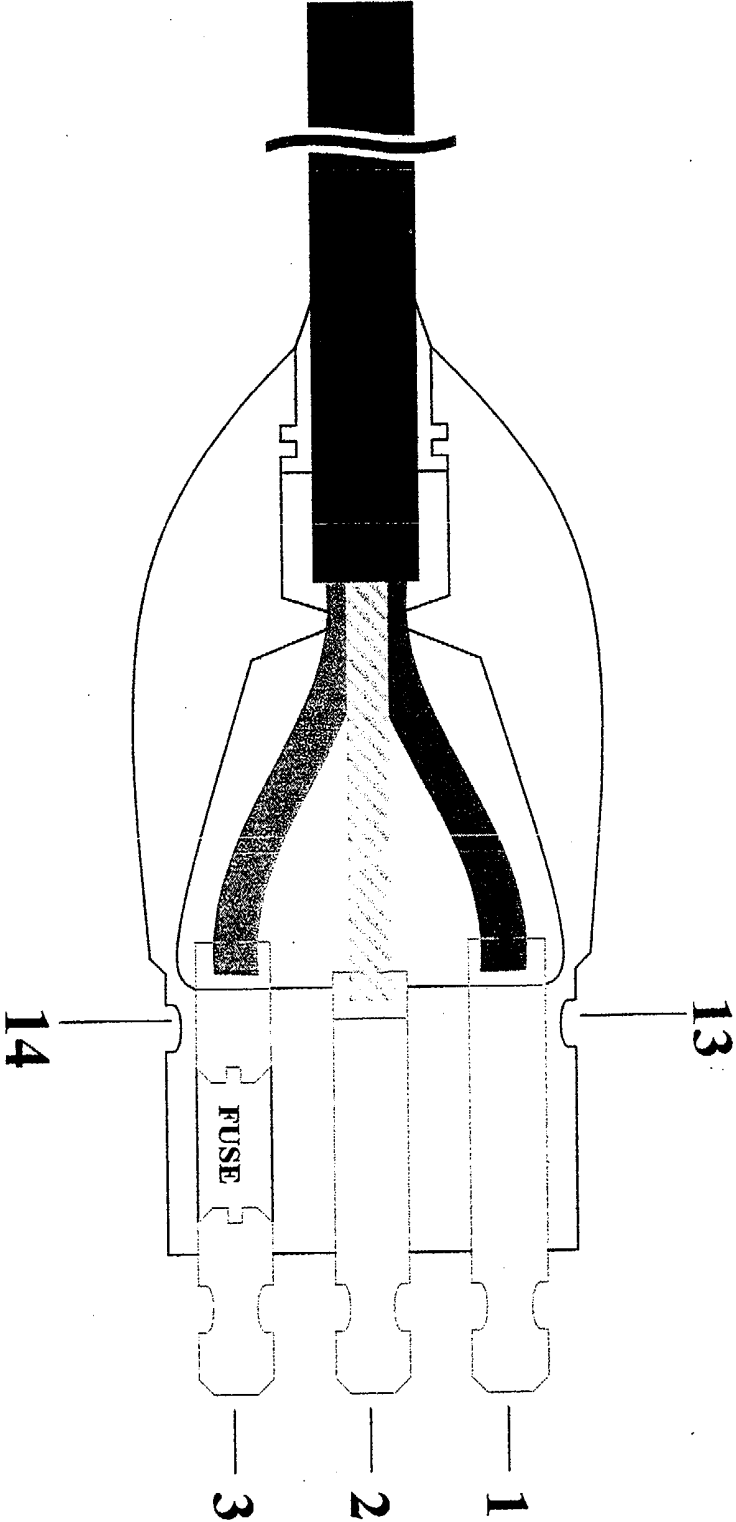
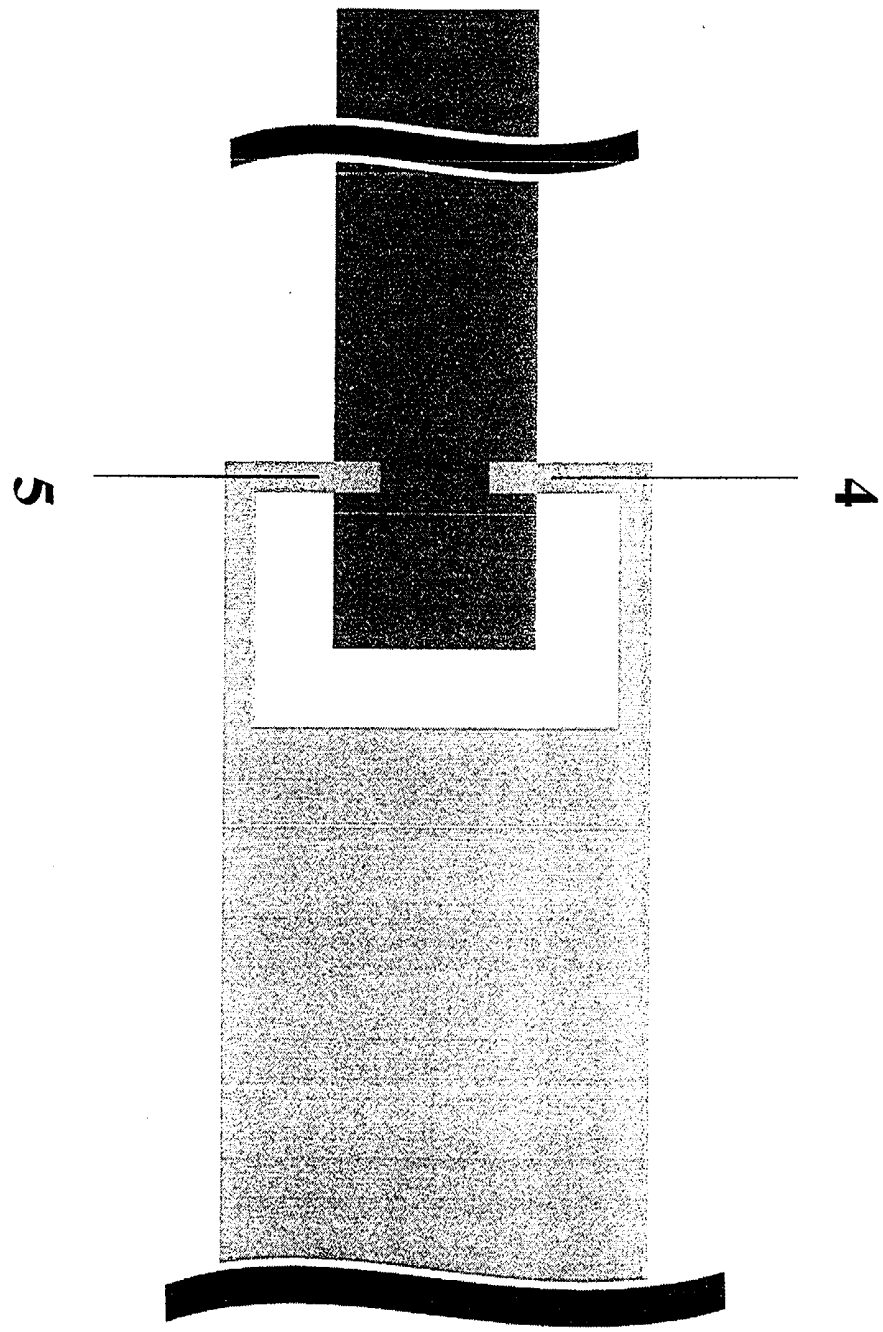


Fig 1.

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**Fig. 2.**

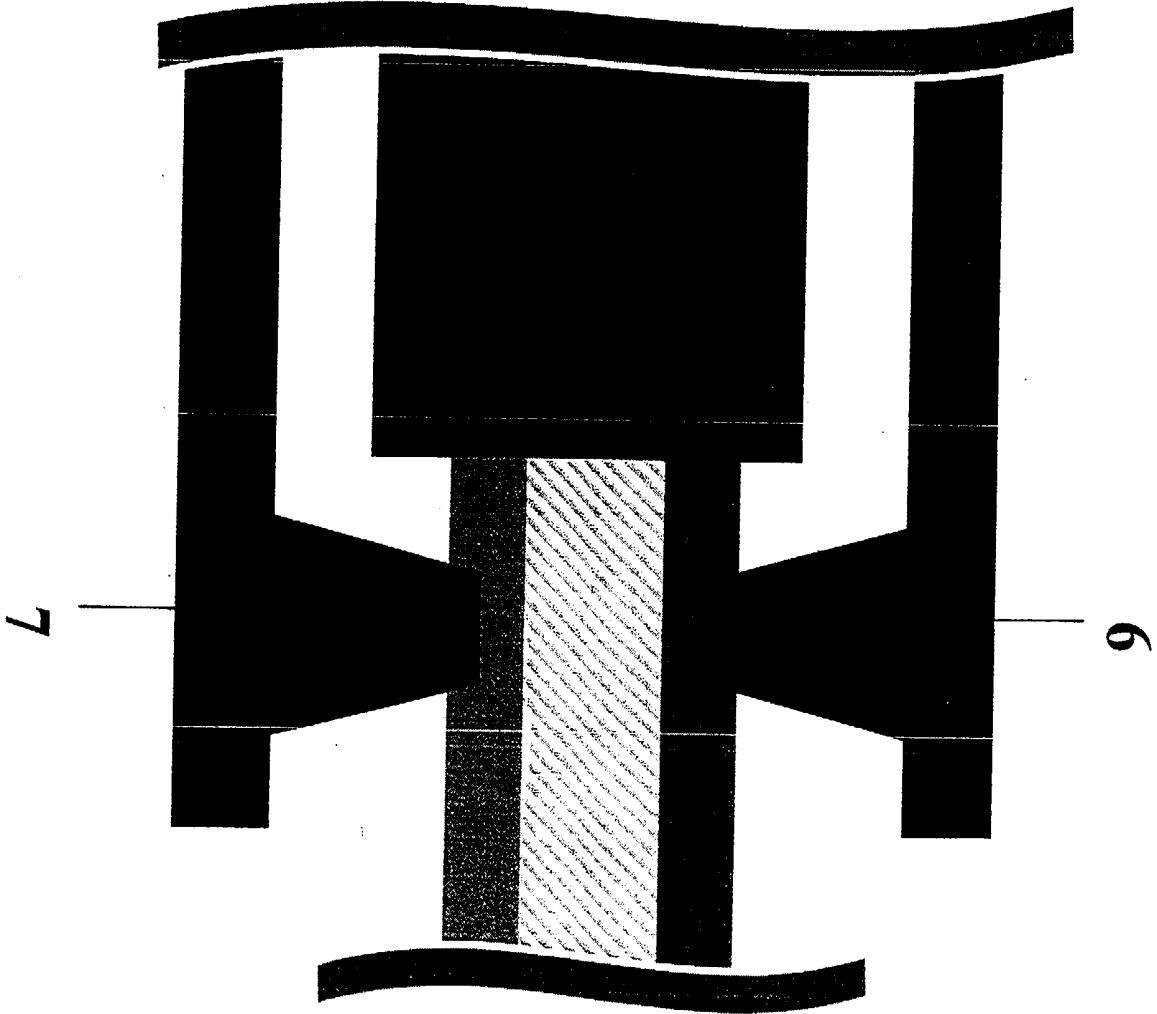


Fig 3.

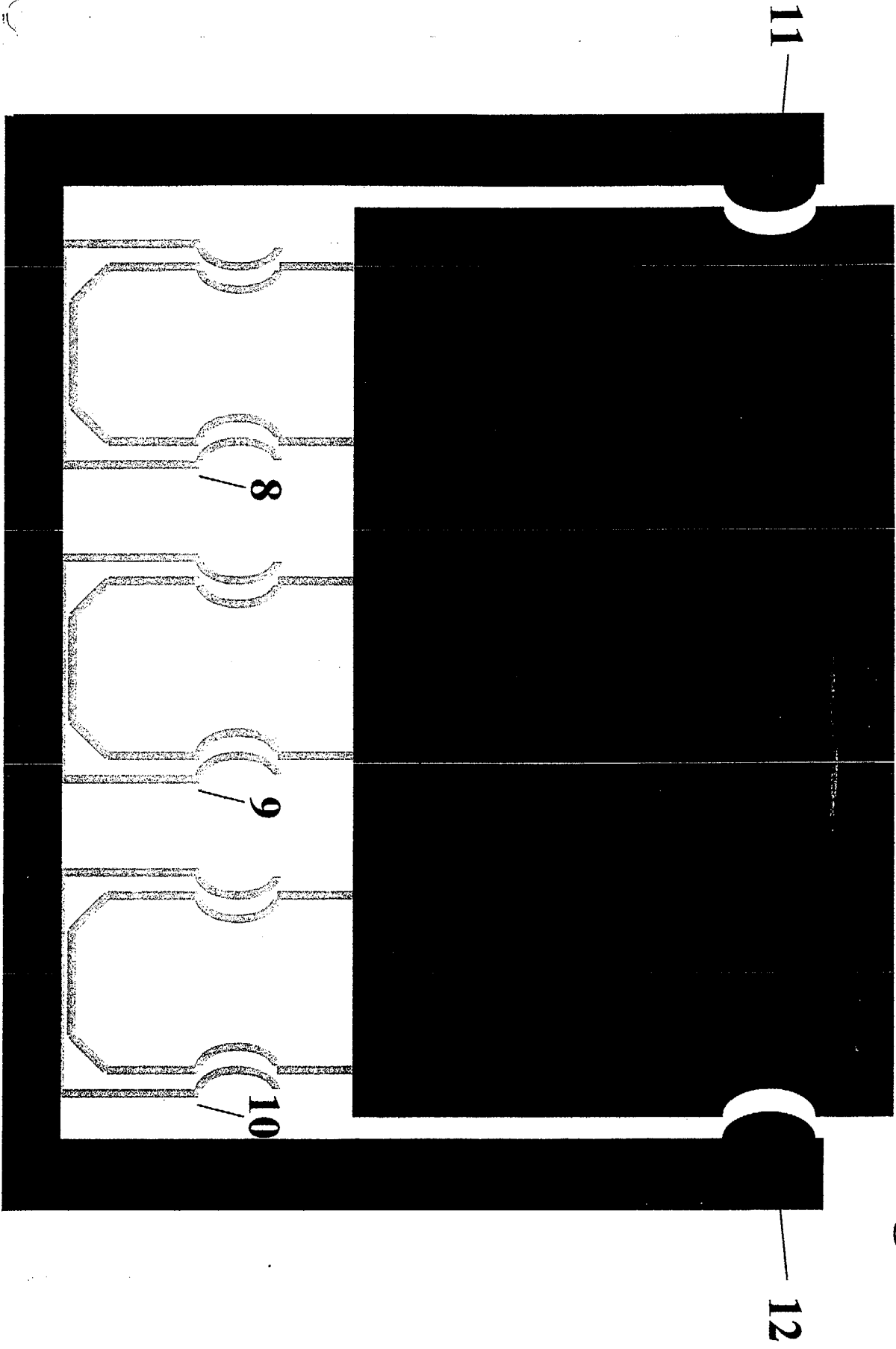


Fig 4.

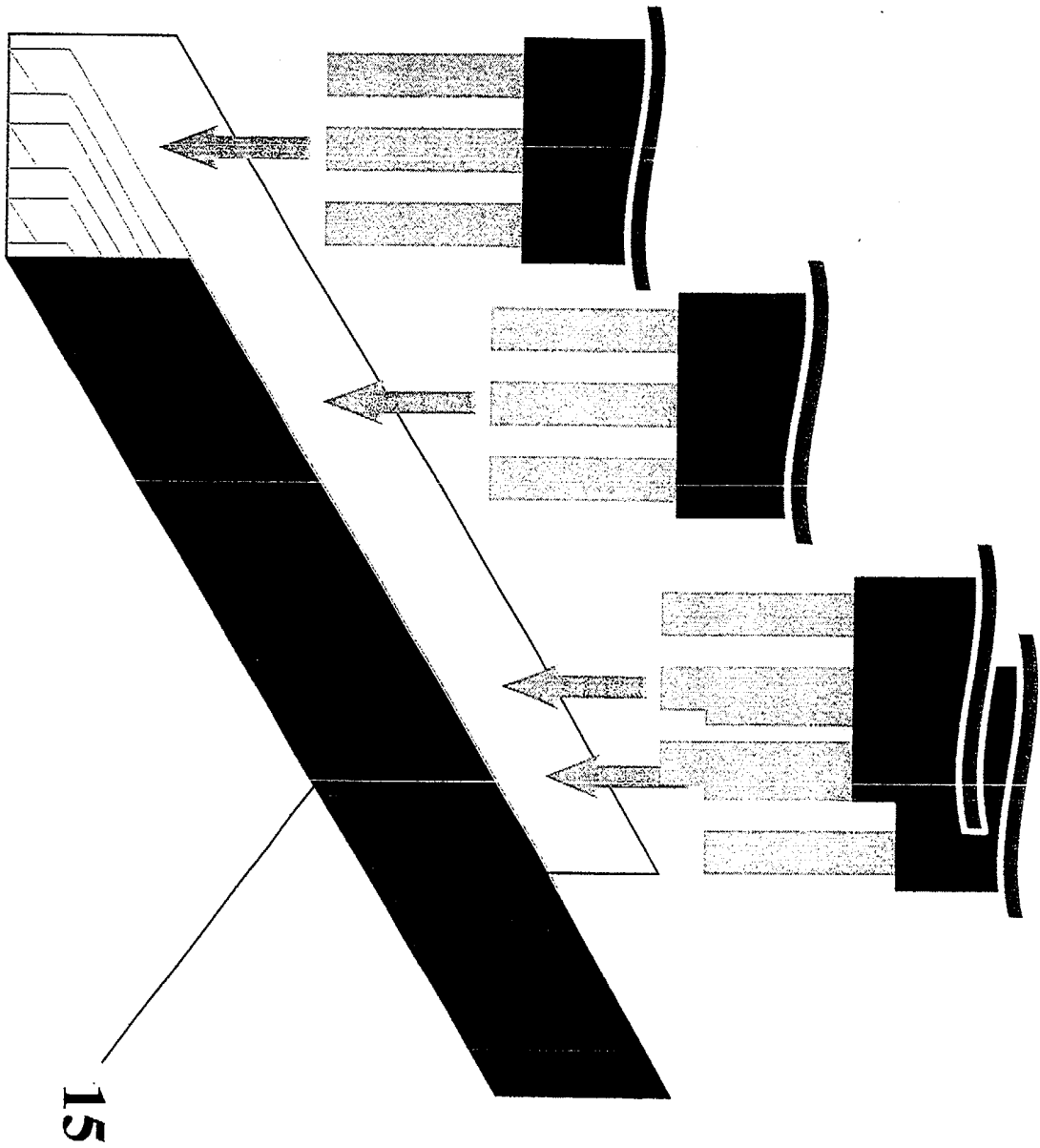


Fig 5.

## Design for Compact Electrical Plug & Socket

Plugs are obviously in wide use throughout the UK and the rest of the world for all electrical appliances. Plugs and sockets vary dependant on the country of use and the type of product. The compact plug is a design to enable the easier and tidier instalment of groups of electrical appliances, such as computer systems (where usually 3 – 7 plugs are in use at one time) or home entertainment centres (television, video, satellite receiver, DVD player and stereo). In both instances there are several power sources needed at the same time.

The compact plug has been designed for multiple uses. It has relatively small dimensions compared with regular plugs and can be fitted to existing devices very easily. The plug will also be fitted to a much smaller bank of sockets with the design requiring much less space.

As you can see in Fig 1 all three connectors (Positive, Negative and Earth) are designed in a line, enabling all three wires to be cut to equal lengths for ease of installation.

As illustrated in Fig 2 the wires are fitted to the prongs (1, 2 & 3) by simply pushing the wire into the two wedges (4 & 5). This dismisses the need to strip the ends of all the wires to correct lengths prior to installation.

Fig 3 shows the wedges 6 & 7 that work in much the same way as wedges 4 & 5 to hold the whole cable in place, replacing the regular system of a clamp and screws.

The fuse in Fig 1 will be of the spade variety as used in cars in place of the conventional fuses currently used in plugs. The fuse will have the ability to be changed without needing to open the main plug body.

Fig 4 shows a cross section of the socket illustrating how the prongs 1 2 & 3 will fit into the connectors 8 9 & 10 with the curved clamp in the top of the connector hooking onto the recesses in the prongs 1 2 & 3. Also the two lobes (11 & 12) fit into the two recesses in the plug body (13 & 14). Both of the features illustrated in Fig 4 show how the plug will be held firmly in place.

In Fig 5 you are able to see how the bank of sockets (15) can have plugs placed along it's length at any interval that is convenient for the appliances needing power, as opposed to being dictated by the pre determined spacing of the sockets.

The bank of sockets (15) as shown in Fig 5 will have a length of standard electrical flex with a standard plug fitted to the end to enable the entire design to be fitted to existing power sources. The socket bank can also be pre mounted onto furniture such as computer tables or television units (not illustrated).



## Claims

- 1) Due to the size of the compact plug, it makes for a very compact system for powering domestic and commercial systems.
- 2) The compact plug is able to be mounted neatly out of the way without the awkward bulk of existing systems.
- 3) Home entertainment centres and computers can be taken from country to country (i.e. People with homes abroad or people requiring the use of computers abroad) with the only requirement being a single international plug adaptor as opposed to several.
- 4) By pre fitting a socket bank to a piece of furniture, electrical appliances can be powered by connecting at convenient places along the socket bank with only one lead being on display as opposed to between three and seven leads being coiled around each other.
- 5) Due to the design of the compact plug it is far simpler to connect than existing plugs as there is no need to cut each wire (positive, negative and earth) to different lengths and there is no need to strip wires to fit the plug, which can be a difficult task.



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Application No: GB 0205040.9  
Claims searched: 1 - 5

Examiner: Paul Nicholls  
Date of search: 2 April 2003

### Patents Act 1977 : Search Report under Section 17

#### Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
-	-	US 6,086,388 A (SLOEY et al) - Circuit breakers 30 can be plugged into busses 41a-41c, see figures 3 and 4
-	-	US 5,688,132 A (ROGERS et al) - See figures - plug 10 makes contact with conductors L1 and L2
-	-	GB 1,586,190 A (ITT) - Connector 2 can connect to track 1 at any point
-	-	GB 2,215,918 A (CURTIS) - Note that all three wires are cut to the same length, also note wedge-type cable clamp IC
-	-	GB 2,201,306 A (IDC PLUGS) - Note that all three wires are cut to the same length, also note wedge-type cable clamp 12
-	-	GB 612,642 A (DORMAN & SMITH and LUND) - See figure 2 - plug 12 has a fuse 14 in one pin
-	-	GB 566,384 A (DORMAN & SMITH and ATHERTON) - See figure 1 - plug 8 has a fuse 14 in one pin
-	-	GB 2,351,394 A (HSING CHAU) - See terminal 7 in figure 3

#### Categories:

X Document indicating lack of novelty or inventive step	A Document indicating technological background and/or state of the art.
Y Document indicating lack of inventive step if combined with one or more other documents of same category.	P Document published on or after the declared priority date but before the filing date of this invention.
& Member of the same patent family	E Patent document published on or after, but with priority date earlier than, the filing date of this application.

#### Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>v</sup>:

H2E

Worldwide search of patent documents classified in the following areas of the IPC<sup>7</sup>:

H01R



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The following online and other databases have been used in the preparation of this search report:

WPI, EPODOC, JAPIO