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Electric Plugs

This invention relates to electric plugs, and in particular electric plugs of the kind which are attached to the electric leads of electrical appliances and are used for connecting the appliances to a mains supply system.

It is usual for the power supply circuit of a building to include a given number of outlet sockets installed at fixed locations. It is a common experience to find that the number of sockets at a particular location is insufficient for the number of appliances to be powered, especially when there are a number of appliances which are normally used together, for example the separate units in a hi-fi system or a computer system. As a solution to this problem there are known adaptors which plug into a socket and provide a plurality of outlets to receive respective plugs associated with different appliances. The adaptors are supported in a socket by the contact pins of the adaptor and it is often found that the adaptor becomes loosened under the combined weight of the adaptor and the plugs it carries, with the result that the current supply can be interrupted. In addition adaptors with several plugs can be unsightly. It is also known to provide an extension lead consisting of an electric cable having a plug attached at one end for connection to a mains socket, and a socket assembly

attached to the other end and providing a series, typically four socket outlets for receiving respective plugs associated with different appliances. This device can also be unsightly and can be a nuisance since the socket assembly
5 is free to move around at the end of the cable.

The present invention seeks to provide a solution to the problem mentioned above and at the same time avoid the drawbacks of the known adaptors and extension leads. According to the invention this aim is achieved in an
10 elegantly simple way by an electric plug for connecting electrical appliances to a mains supply system, comprising a body having a base and a cover, a set of contact pins carried by said base for cooperation with a mains supply socket, and a plurality of terminal sets supported in the
15 body on said base for the connection of respective electric leads, each said set including a plurality of terminals connected electrically to the respective contact pins and each adapted for securing a respective lead conductor thereto, and a plurality of cable entry openings in the
20 body, each opening being associated with a respective one of said terminal sets.

In a preferred embodiment one contact pin is connected with a terminal of each terminal set through a common fuse and a respective fuse.

25 Another embodiment would include a common fuse only and would omit the individual outlet fuses.

A plug according to the invention may be substantially lighter inweight than an adaptor in combination with a number of individual plugs and will remain firmly
30 supported by a socket. It can also be much neater in appearance.

Some plugs embodying the invention are described in more detail below with reference to the accompanying drawings, in which:-

35 Figure 1 is an end view of a first plug;

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Figure 2 is a schematic view of the plug with the cover removed;

Figure 3 is a perspective view of the plug of Figures 1 and 2; and

Figure 4 is a perspective view of a second plug.

The plug illustrated in Figures 1-3 of the drawings has a body of rectangular configuration formed by a base 1 and a removable cover 2. Projecting through the base adjacent one end is a set of contact pins consisting of earth, neutral and live pins 3-5 shaped and arranged in conventional manner in accordance with the form of socket with which the plug is to be used. The inner ends of the pins are connected to respective bus-bars 6-8 which extend along the base 1 in parallel with each other, the bus-bar 8 including a gap which is bridged by a main fuse 9. Spaced apart along the plug are four sets 10 of terminals, each set including an earth terminal 11 connected to the busbar 6, a neutral terminal 12 connected to the bus-bar 7, and a live terminal 13 connected to the bus-bar 8 through a respective secondary fuse 14. Each terminal 11-13 is equipped with means, such as a screw for clamping a cable conductor. The plug body defines a series of four cable entry openings 18 along one side and each may be provided with a cable grip (not shown) for clamping the cable to the body in well known manner.

In use the plug may be used for one, two, three or four appliances each having its own power lead. Each cable 15 is inserted through a respective one of the entry openings 18 and has its conductors 16 connected in the proper sense to the corresponding set 10 of terminals. In use each appliance is protected by its own fuse 14, and the main fuse 9 can ensure that the total current drawn by all the appliances does not exceed the rating of the supply circuit to which they are connected. It will be appreciated that the fuse 14 will normally have a lower rating than the main fuse 9.

Many modifications are possible to the plug without departing from the scope of the invention. For

example, number of cable outlets and the exact arrangement of the terminal sets, the connecting bus-bars and the cable entry openings are unimportant and may be varied as required. Although the plug is shown to be of the standard "square" pin type the invention is of course applicable to plugs with other pin shapes and arrangements. The contact pins may be located at either end or even at an intermediate position along the plug, as desired. In the plug illustrated in Figure 4 the contact pins 3-5 are disposed at a medial location along the base and are arranged so that the body will be oriented substantially vertically when the plug is fitted to a conventional socket. In addition the contact pins are carried by a part of the base which is recessed to define shoulders 20. These shoulders are adapted to engage the opposite edges of the fascia plate of the socket to assist in supporting the plug and, in particular, to resist any turning moment applied to the plug.

If required the plug of the invention could include switches for controlling the supply of electric power to the respective sets of terminals whereby individual appliances could be isolated from the main supply although others remain connected to the supply. Other modifications are also possible and will occur to skilled readers.



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CLAIMS:

1. An electric plug for connecting electrical appliances to a mains supply system, comprising a body having a base and a cover, a set of contact pins carried by said base for cooperation with a mains supply socket,
5 and a plurality of terminal sets supported in the body on said base for the connection of respective electric leads, each said set including a plurality of terminals connected electrically to the respective contact pins and each adapted for securing a respective lead conductor thereto,
10 and a plurality of cable entry opening in the body, each opening being associated with a respective one of said terminal sets.
2. An electric plug according to claim 1,
15 wherein one contact pin is connected with a terminal of each set through a common fuse.
3. An electric plug according to claim 1 or 2,
wherein one contact pin is connected to a terminal of
20 each set through a respective fuse.
4. An electric plug according to any one of claims 1 to 3, wherein the body includes means arranged to engage the fascia plate of a supply socket to assist in
25 supporting the plug when fitted to the socket.
5. An electric plug according to claim 4, wherein said means comprises shoulders provided on the body to engage opposed peripheral edges of the socket fascia.
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6. An electric plug according to any of claims 1 to 5, wherein the body is substantially rectangular and the contact pins are located at a medial position along the body.
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7. An electric plug according to any one of the preceding claims, wherein one contact pin is connected to a terminal of each set through a respective switch for selectively interrupting said connection.

8. An electric plug substantially as herein described with reference to the accompanying drawings.
