

TITLE

MODULAR POWER DISTRIBUTION DEVICE

FIELD OF THE INVENTION

The present invention relates to a modular device for distributing electrical power from a single power supply source to a plurality of power demand sources.

BACKGROUND TO THE INVENTION

It is known to use a single power supply source, such as a wall socket, to provide electrical power to a plurality of devices by the connection of multi-socket power distributors. In their simplest form, such distributors have a single plug portion for connection into the wall socket and two power outlet sockets. These may be arranged in a side-by-side fashion or may be angularly displaced.

Where more than two power outlets are desired, it is possible to "piggyback" several distributors on top of each other. This presents dangers to users, however, as the resultant structure is bulky, and each distributor is solely supported by its connection through its plug portion. It is easy for a distributor to become partially dislodged, thus exposing live electrical elements.

A more complex form of power distributor comprises a rigid casing containing several (typically four or six) power outlet sockets, with a single cable extending from the casing and having a plug portion for connection into a wall socket. Such distributors are bulky, and lack flexibility. In some cases, where all power outlet sockets are not in use, unused sockets remain exposed and electrically live, presenting

a hazard. Further, where additional power outlets are required, it is necessary to join subsequent distributors through the use of further cables. This is undesirable.

The present invention attempts to overcome at least in part some of the aforementioned disadvantages of previous electrical power distributors.

SUMMARY OF THE INVENTION

In accordance with one aspect of the present invention there is provided a device for distributing electrical power, the device including a power receiving portion, a first power supplying portion and a second power supplying portion, the power receiving portion being complementary in shape to the second power supplying portion such that a first device may be rigidly connected to a second device by connection of the second power supplying portion of the first device to the power receiving portion of the second device, whereby the respective first power supplying portions of the first and second devices are substantially co-planar when the devices are connected.

Preferably, the first power supplying portion is an electrical socket.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of two devices for distributing electrical power in accordance with the present invention; shown in an unconnected state;

Figure 2 is a perspective view of the two devices of Figure 1 shown in a connected state;

Figure 3 is a top plan view of one of the devices of Figure 1;

Figure 4 is a bottom plan view of the device of Figure 3; and

Figure 5 is a side view of the device of Figure 4.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to the Figures 1 and 2, there is shown a first device 10 and a second device 12 for distributing electrical power. Each device 10, 12 is substantially cylindrical in shape, having a height approximately equal to its radius.

Each of the devices 10, 12 include a first power supplying portion 14. In the embodiment of the drawings the first power supplying portion 14 of each device 10, 12 is an electrical socket arranged to receive a plug of an electrical appliance (not shown). The power supplying portion 14 is contained within an outward face 16 of the device 10, 12.

Each device 10, 12 further includes a power receiving portion 18 located at a first side 20 of the device 10, 12 and a second power supplying portion 22 located at an opposed second side 24 of the device 10, 12.

The device 10, 12 includes first and second recesses 26, 28 located at the first and second sides 20, 24 respectively. Each of the first and second recesses 26, 28 is substantially L-shaped in cross section, and extends inwardly through the device 10, 12 in an arc 30. The L-shape of the first recess 26 is inverted with respect to the L-shape of the second recess 28. The arc 30 is of similar curvature to the device 10, 12.

In this way the second recess 28 of the first device 10 is complementary in shape to the first recess 26 of the second device 12, and the two devices 10, 12 can nest together as shown in Figure 2.

The power receiving portion 18 comprises a plurality of electrically conductive prongs. In the embodiment of the drawings these comprise first, second and third prongs 32, 34 and 36. The prongs 32, 34, 36 extend inwardly from the outward face 16 within the first recess 26. In a preferred embodiment of the invention the second prong 34 is centrally located, and acts as the ground wire for electrical connection. The first and third prongs 32, 36 represent the 'live' and 'neutral' wires.

The second power supplying portion comprises a plurality of slots arranged to receive the prongs. In the embodiment of the drawings these comprise first, second and third slots 38, 40 and 42. In a preferred embodiment of the invention these slots are both deeply recessed and covered by spring shutters when not in use, in order to eliminate the risk of accidental electric shock.

In use, an initial device (not shown) is connected to an electrical outlet such as a wall socket. The initial device may be provided with a standard electrical plug portion for this purpose, either at the rear of the device or on an electrical cable. Alternately, the wall socket may be arranged to complement a power receiving portion 18.

Subsequent devices 10, 12 are then sequentially attached. A subsequent second device 12 is connected to a subsequent first device 10 by insertion of the power receiving portion 18 of the second device 12 into the second power supplying portion 22 of the first device 10. Firm pushing of the second device 12 results in the first and second recesses 26, 28 engaging each other, with the outward faces 16 of the first and second devices 10, 12 being substantially co-planar. Further devices 10, 12 can be added sequentially, "daisy-chained", in a linear fashion.

It will be appreciated that the first power supplying portion 14 of different devices may be different. The first power supplying portion 14 may be a three-pin socket, a 2-pin socket, or a designated unit such as a battery charging station.

In a preferred embodiment of the invention, each device 10, 12 has an associated switch which selectively permits the supply of power to the first power supplying portion 14.

Modifications and variations as would be apparent to a skilled addressee are deemed to be within the scope of the present invention. For instance, the shape of the device may be altered whilst retaining the same essential features, without departing from the scope of the invention.

CLAIMS

1. A device for distributing electrical power, the device including a power receiving portion, a first power supplying portion and a second power supplying portion, the power receiving portion in a first recess and the second power supplying portion in a second recess such that the shape of the first recess is inverted with respect to the shape of the second recess being complementary in shape such that a first device may be rigidly connected to a second device by connection of the second power supplying portion of the first device to the power receiving portion of the second device, whereby the respective first power supplying portions of the first and second devices are substantially co-planar when the devices are connected.

5

10
2. A device as claimed in claim 1, wherein the power receiving portion and the second power supplying portion are on opposed sides of the device.
3. A device as claimed in claim 1 or claim 2, wherein the power receiving portion and the second power supplying portion are within substantially L-shaped recesses.

15
4. A device as claimed in claim 3, wherein the device is substantially cylindrical, and wherein the L-shaped recesses extend through arcs with substantially similar curvature to that of the device.
5. A device as claimed in any preceding claim, wherein the power receiving portion comprises a plurality of prongs and the second power supplying portion comprises a plurality of slots arranged to receive prongs of an adjacent device.

20
6. A device as claimed in claim 5, wherein the power receiving portion comprises three prongs.
7. A device as claimed in claim 5 or claim 6, wherein the slots are covered by spring shutters when not in use.

25

8. A device as claimed in any preceding claim wherein the device includes a switch for selectively providing electrical power to the first power supplying portion.

5 9. A device as claimed in any preceding claim wherein the first power supplying portion comprises an electrical socket

10. A device for distributing electrical power substantially as described herein with reference to the accompanying drawings.