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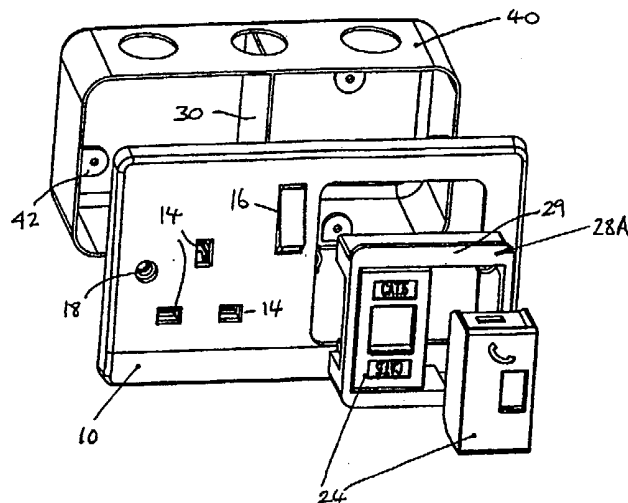
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(54) Abstract Title
Dual function electrical socket unit

(57) An electrical socket outlet unit of the UK standard pin type in which the front plate [10] in addition to being provided with pin-receiving apertures [14], is arranged to locate one or more electrical accessory units [24], typically being in the form of power and/or signal handling or utilising unit(s) or one or more access points by means of which connection with signal handling links can be made. There is also provided shielding elements [370] to prevent access to potentially live components.

Figure 6



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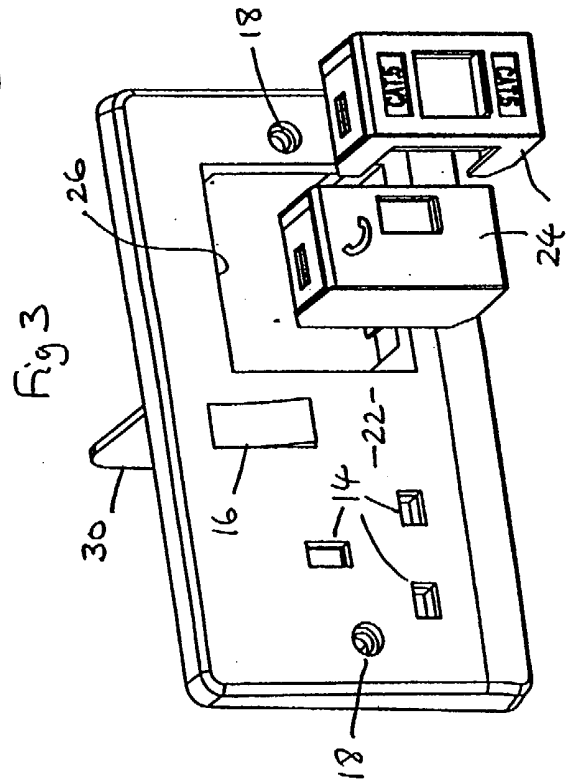
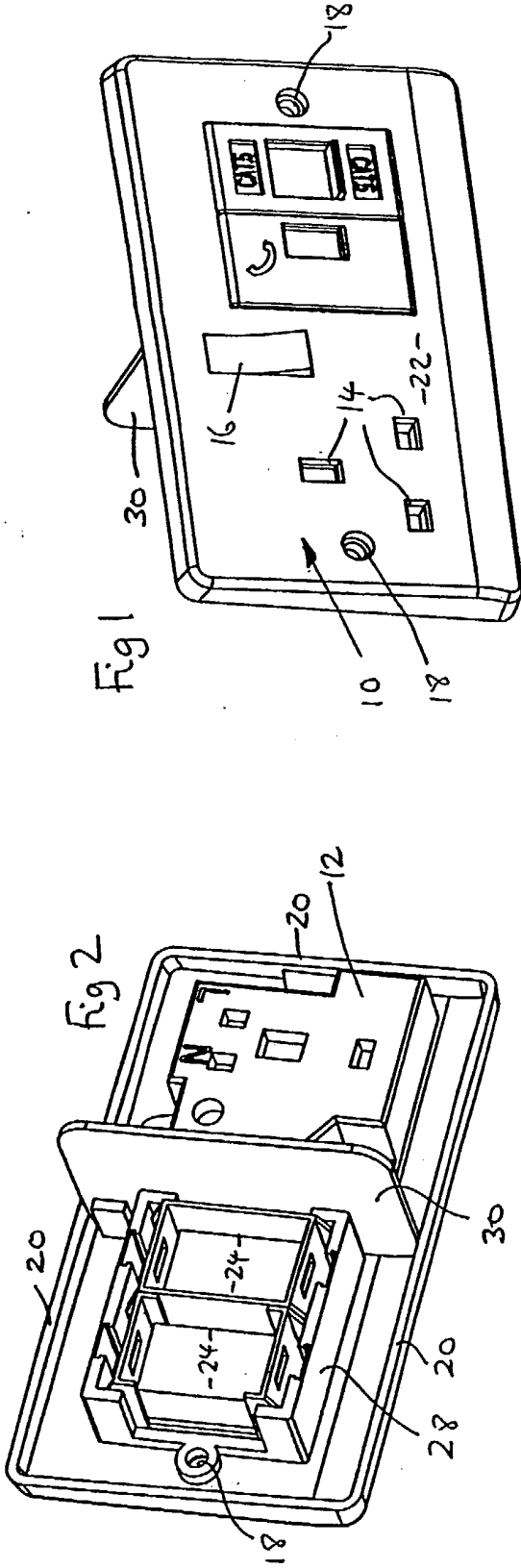


Fig 4

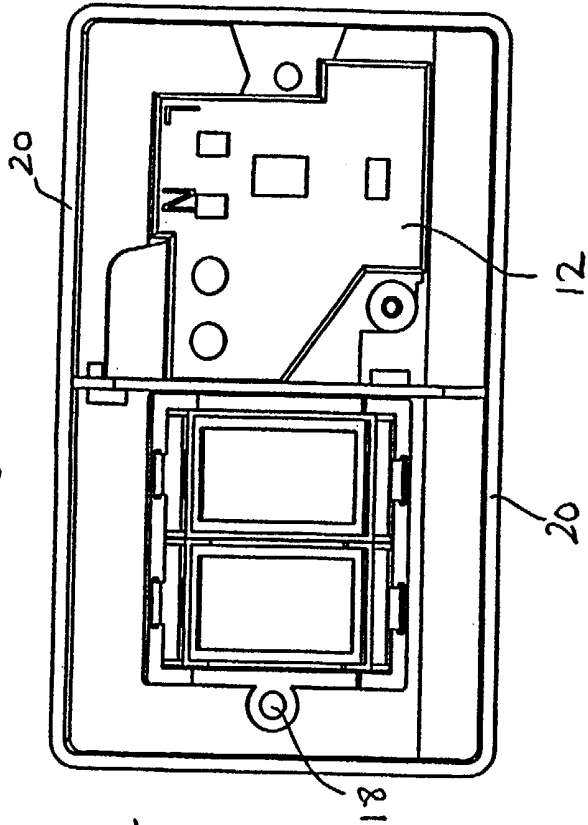


Fig 5

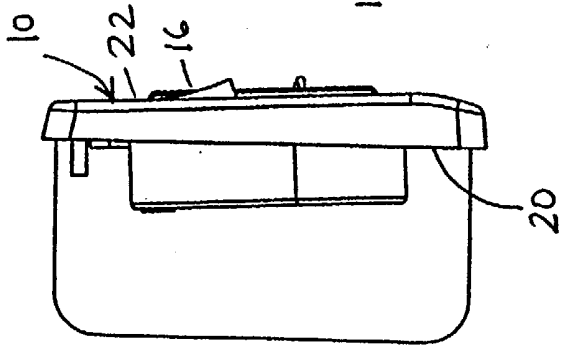


Figure 6

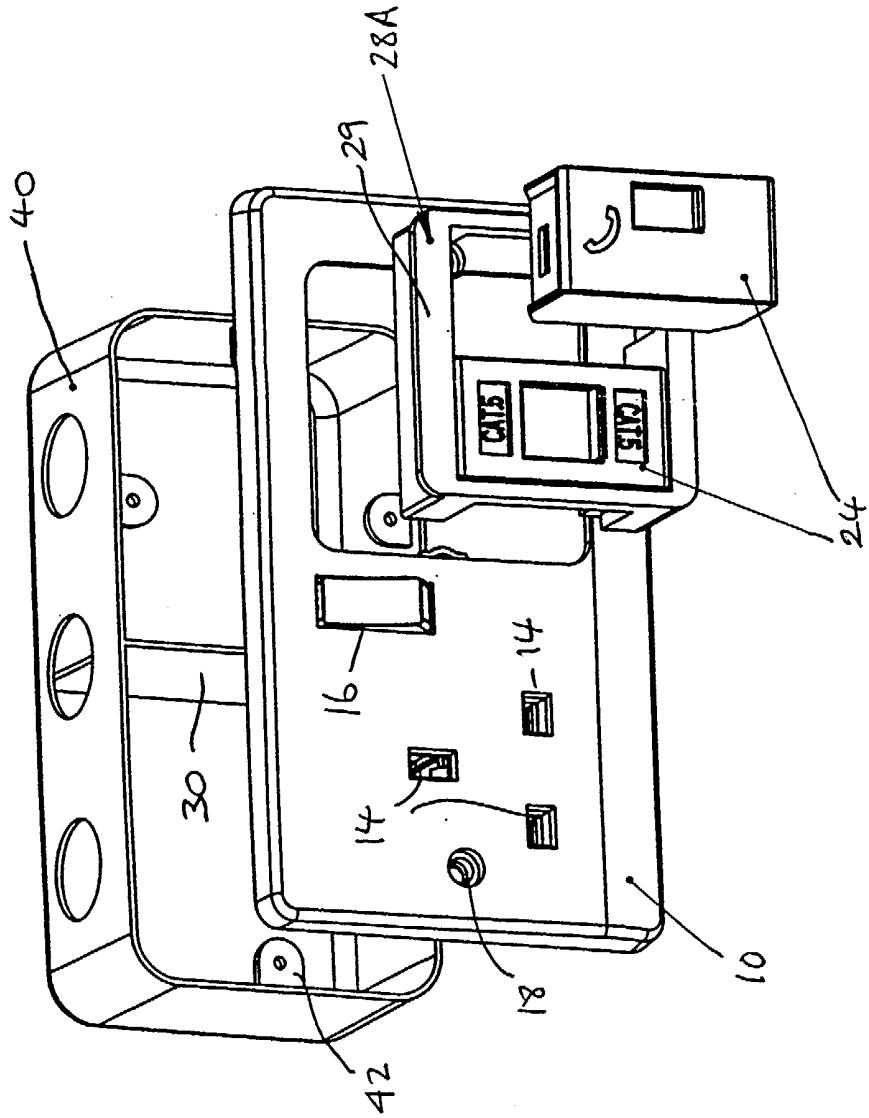
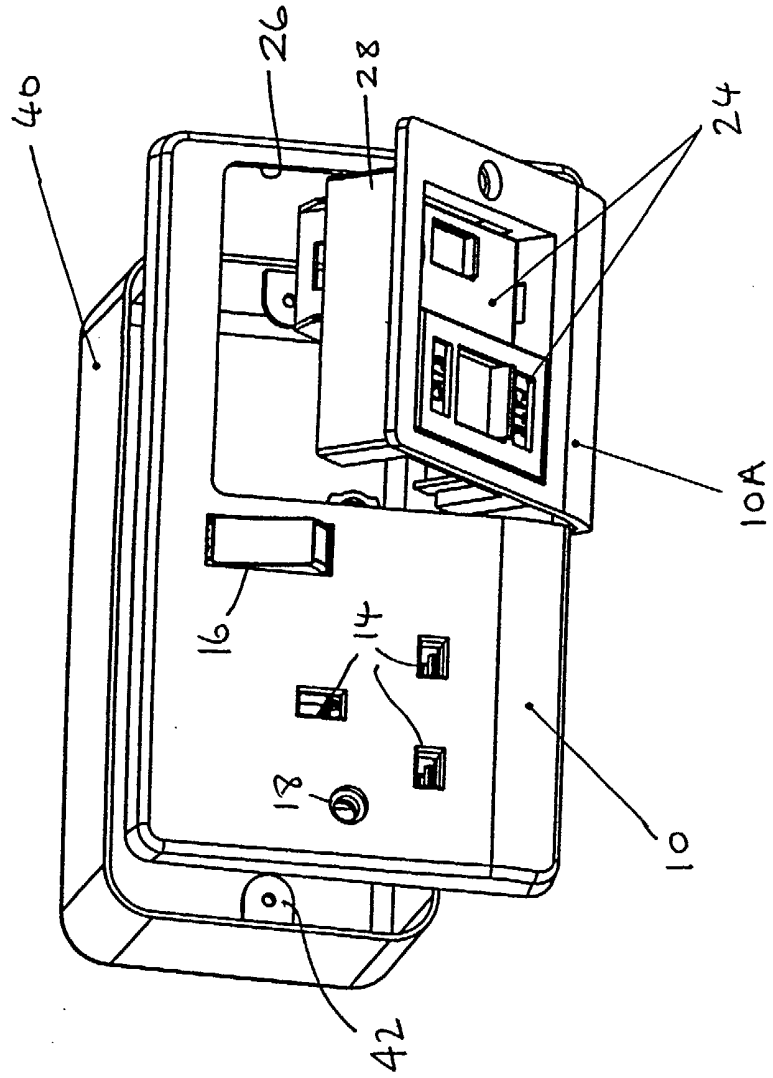


Figure 7



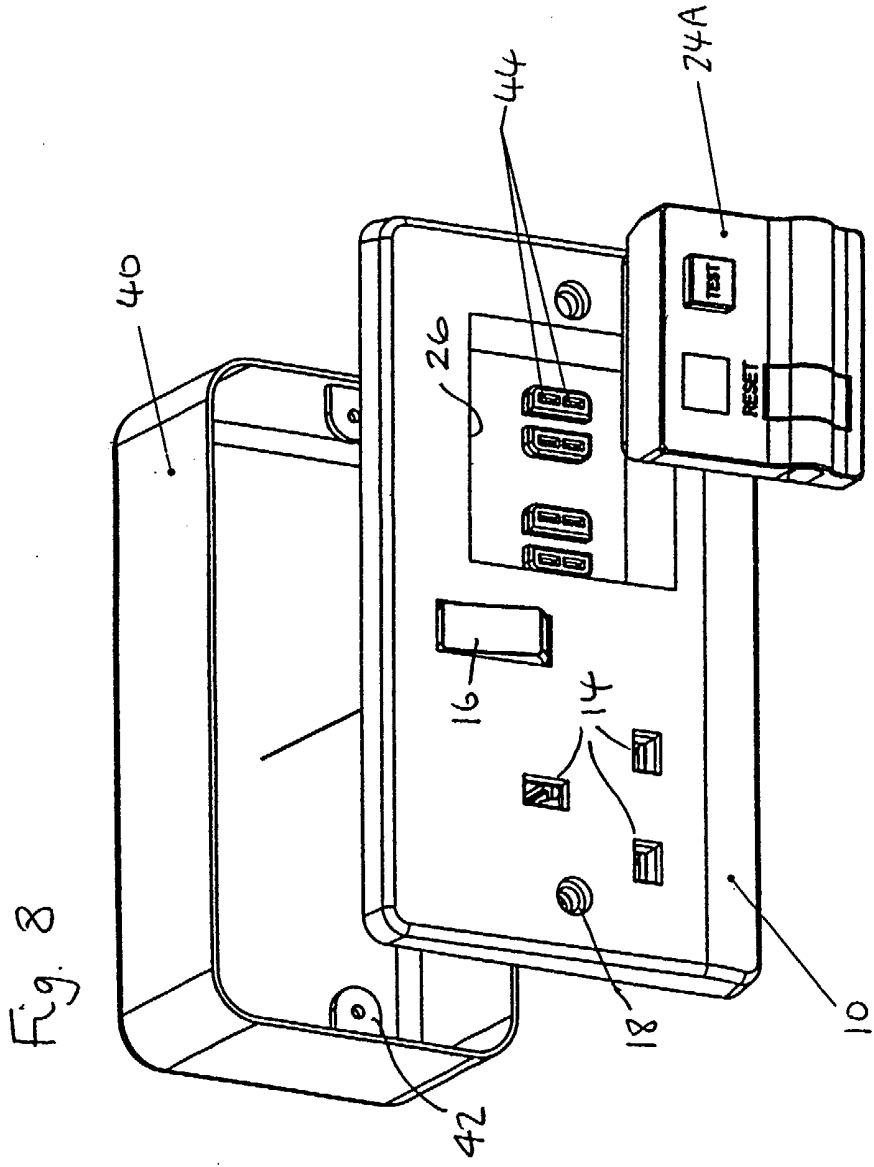
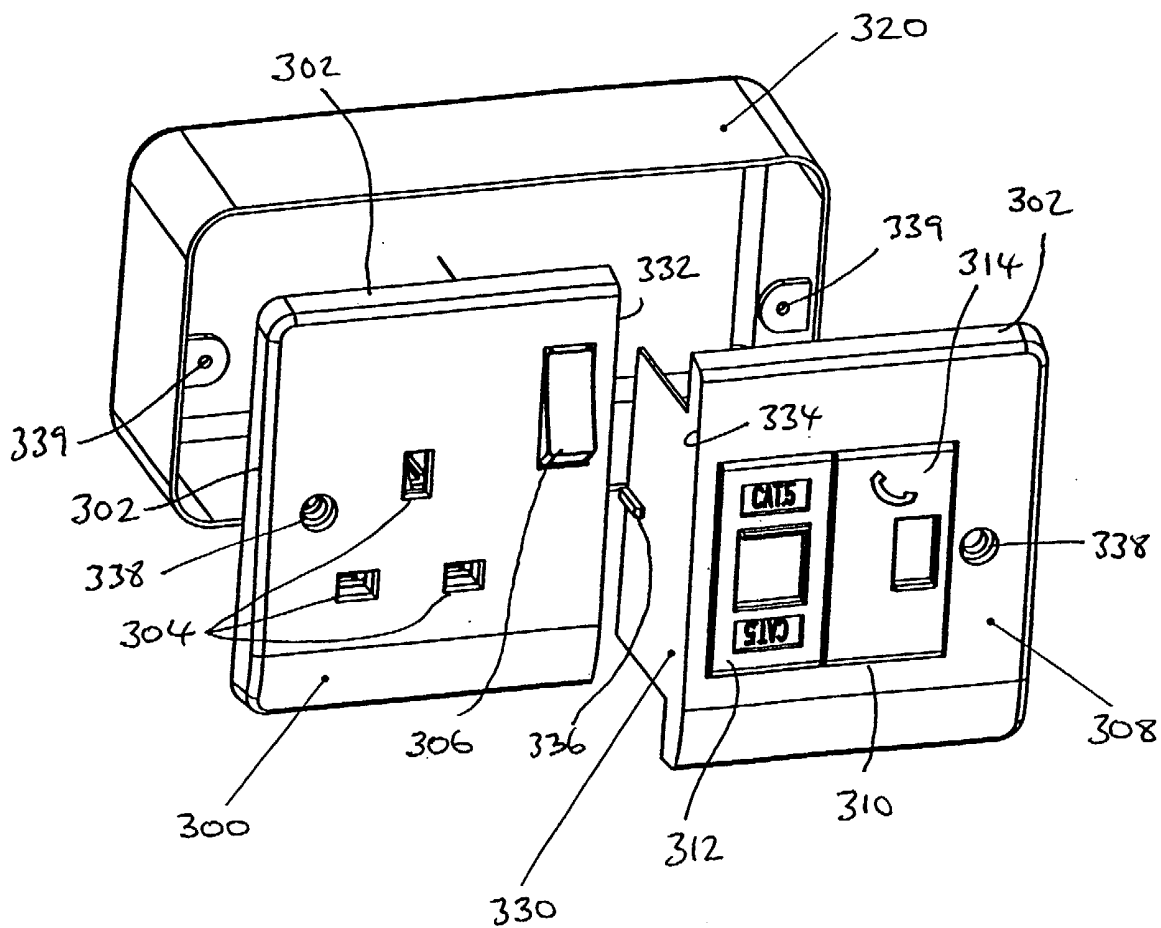
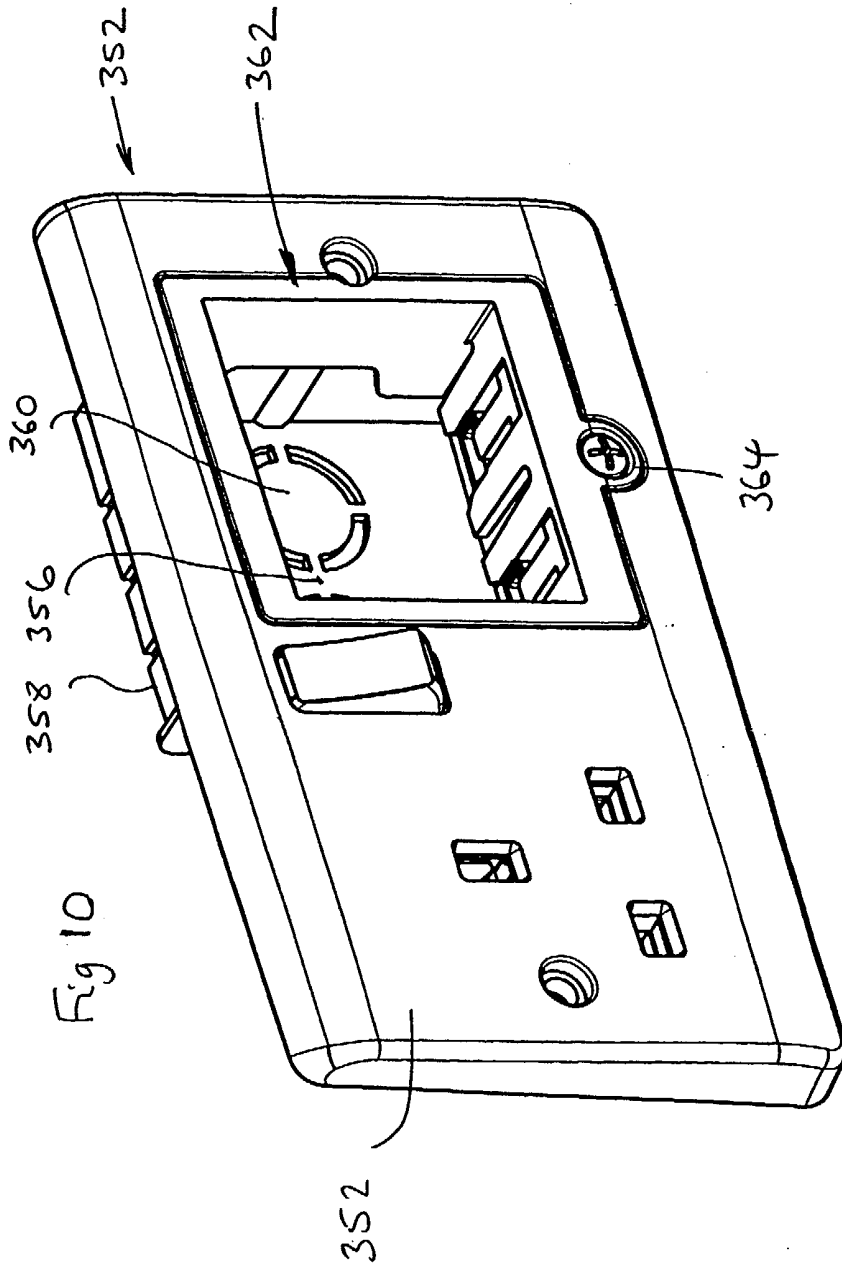


Fig 9





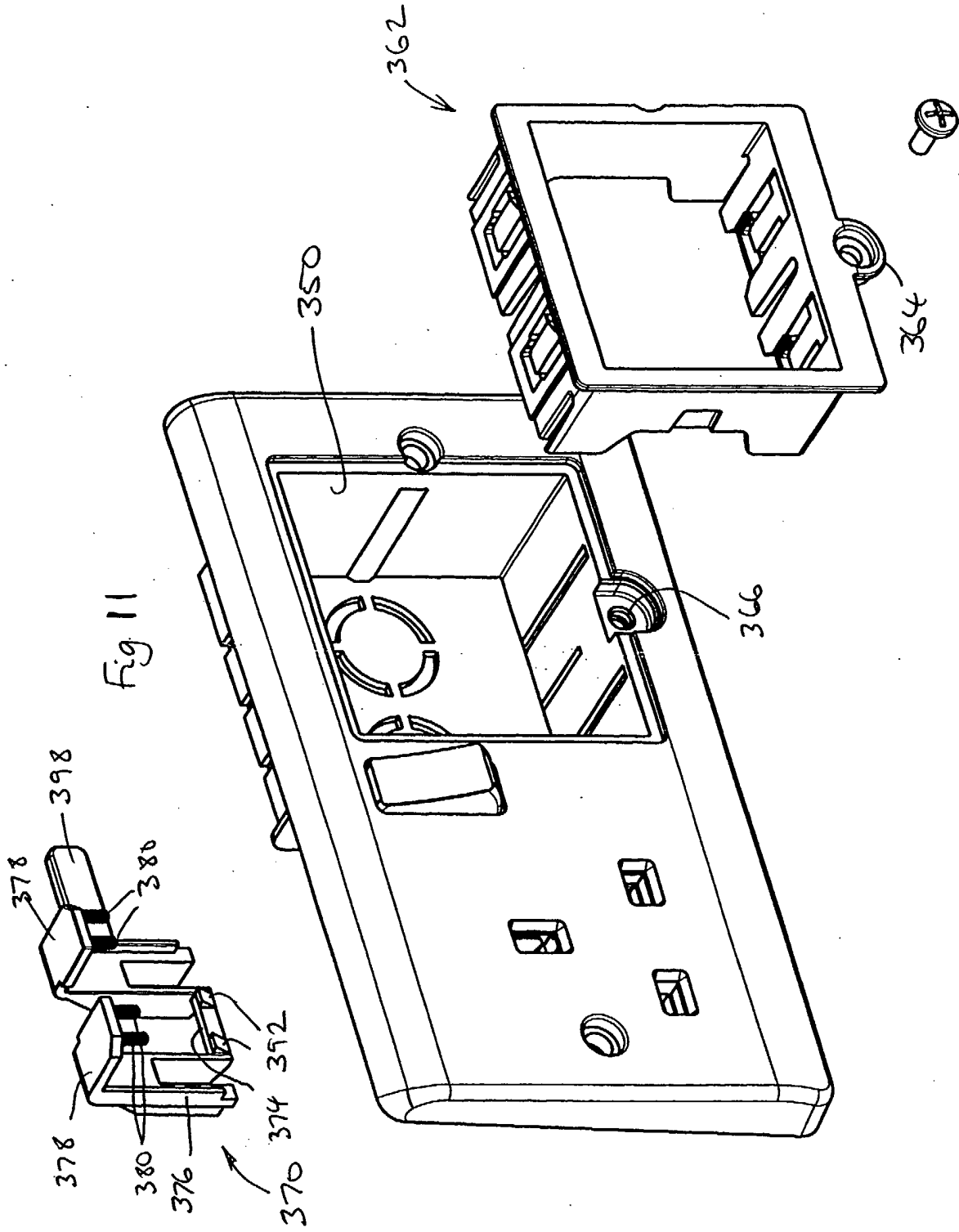


Fig 11

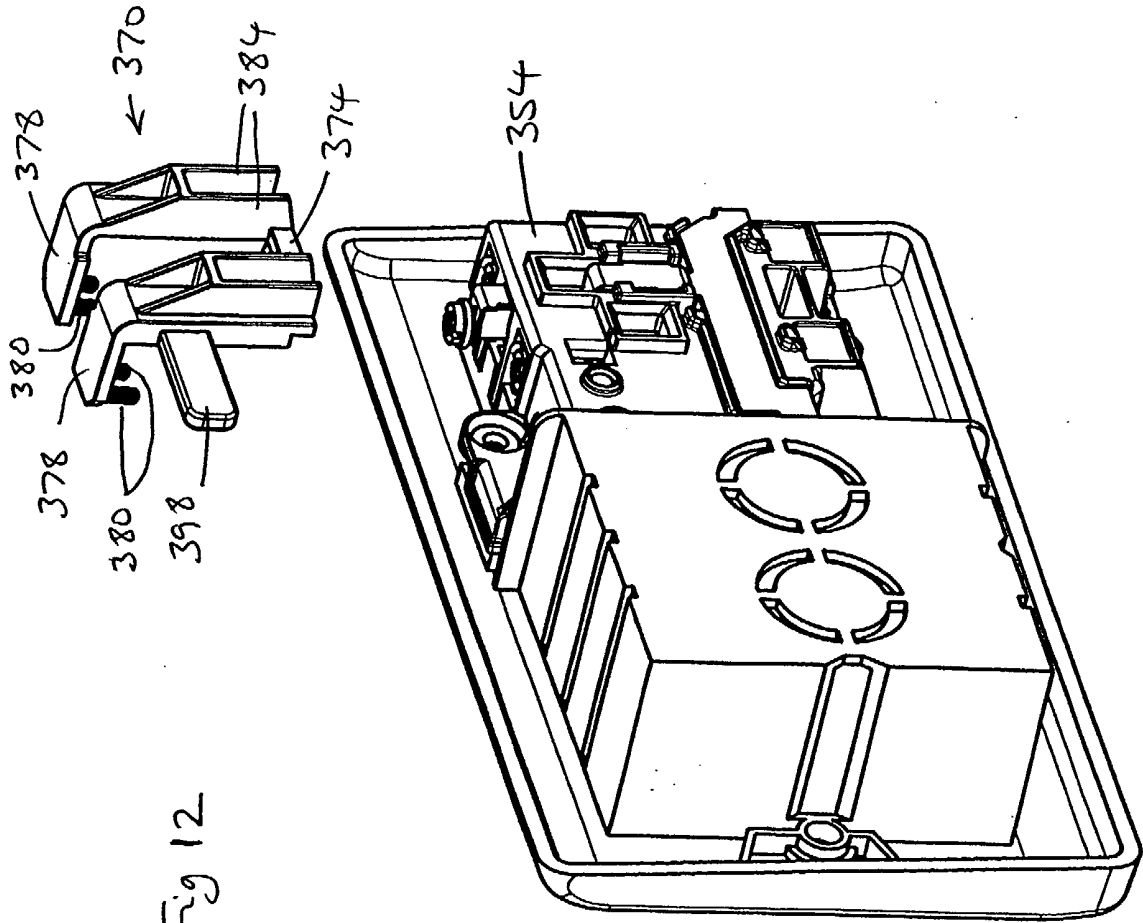
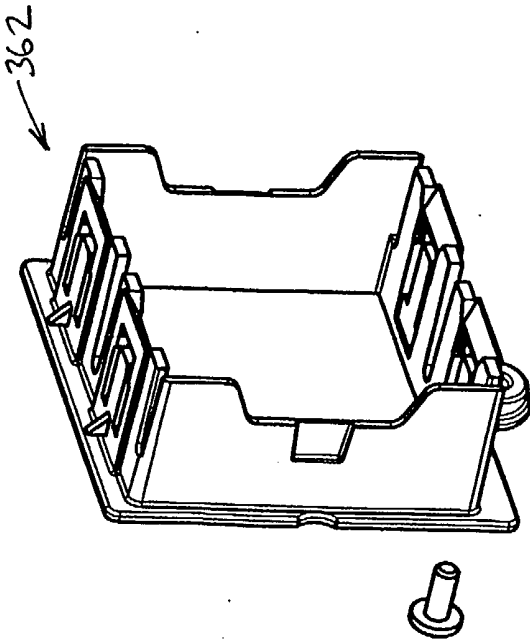
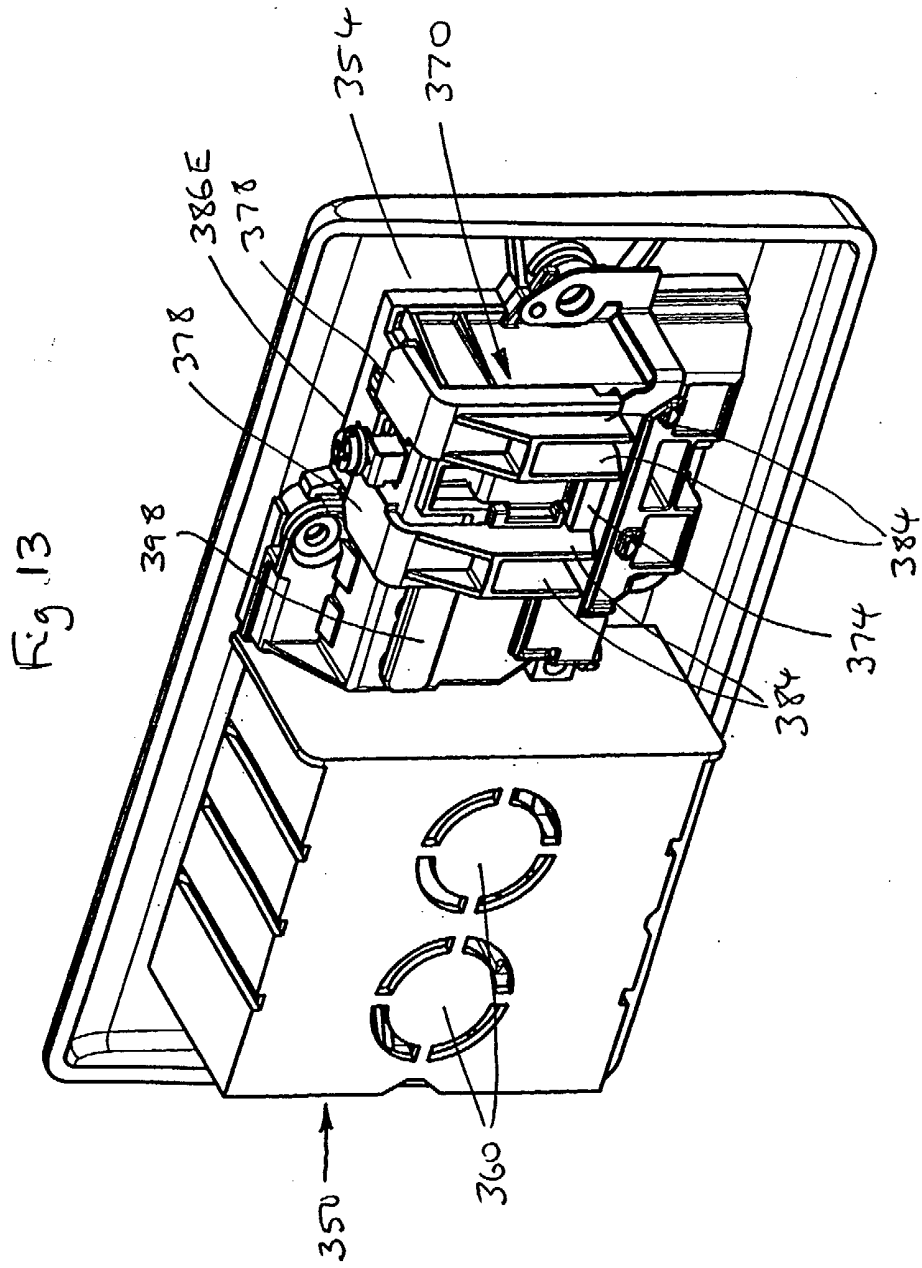


Fig 12





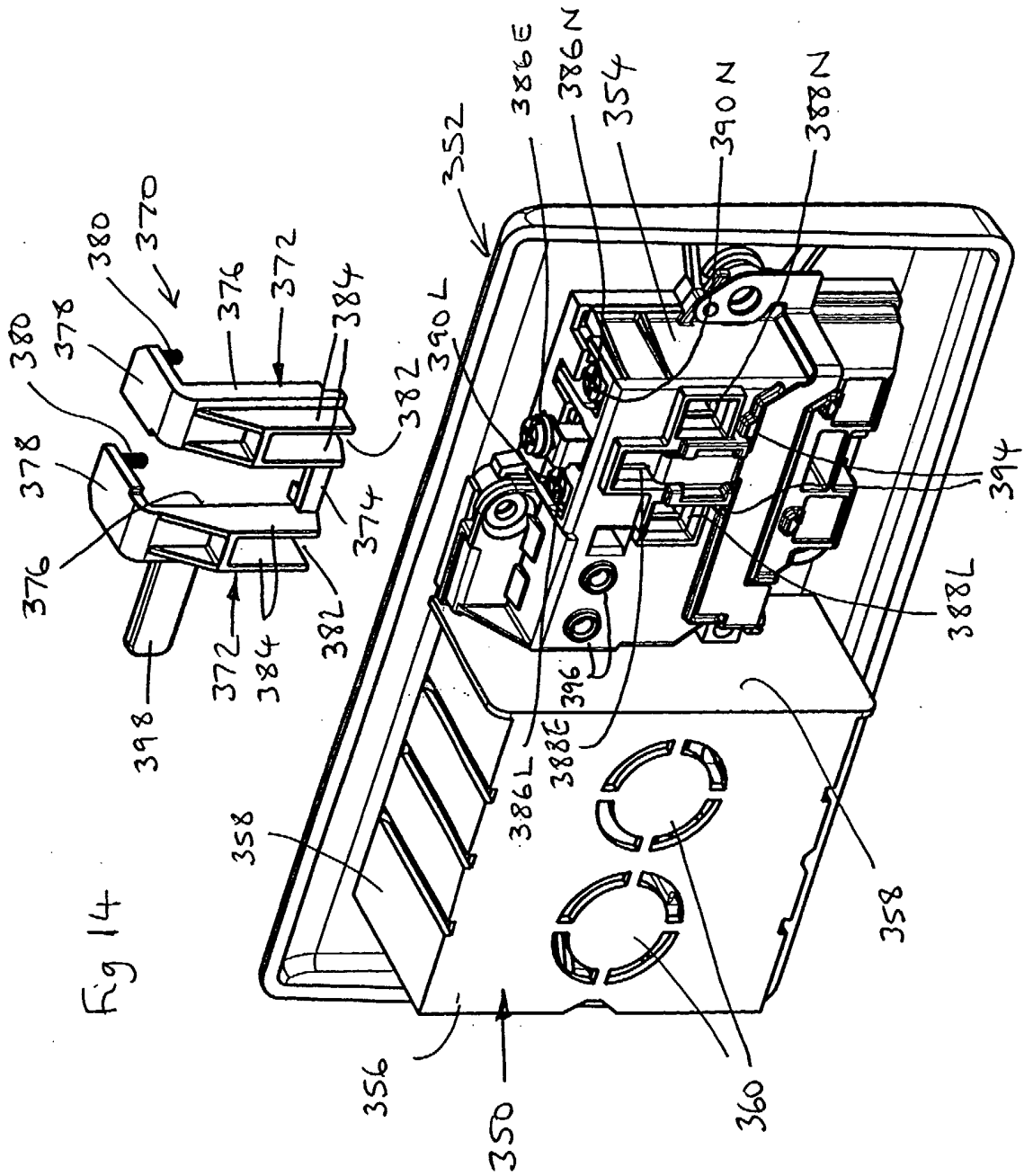
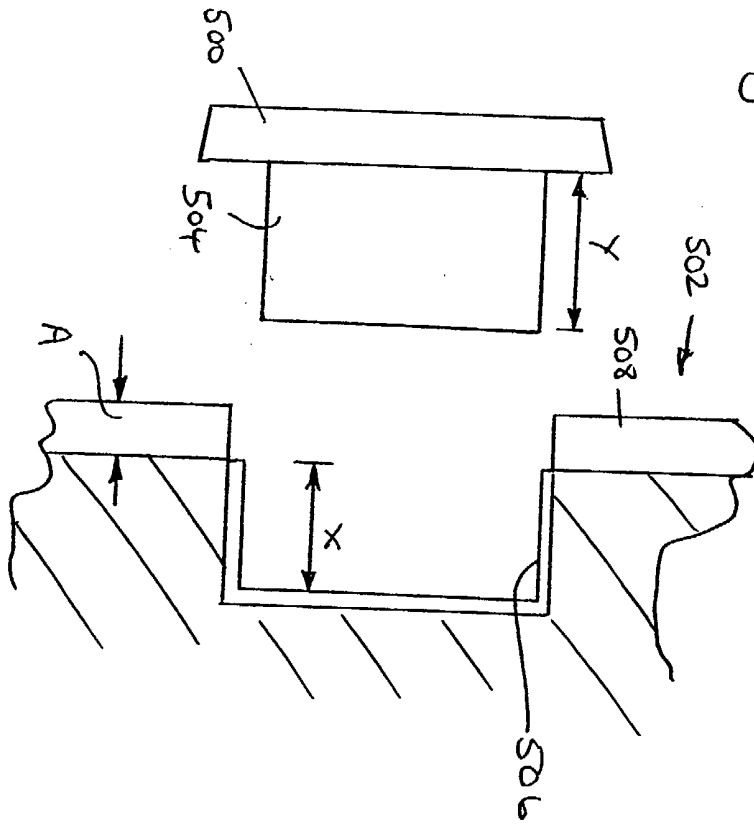


Fig 14

Fig 15



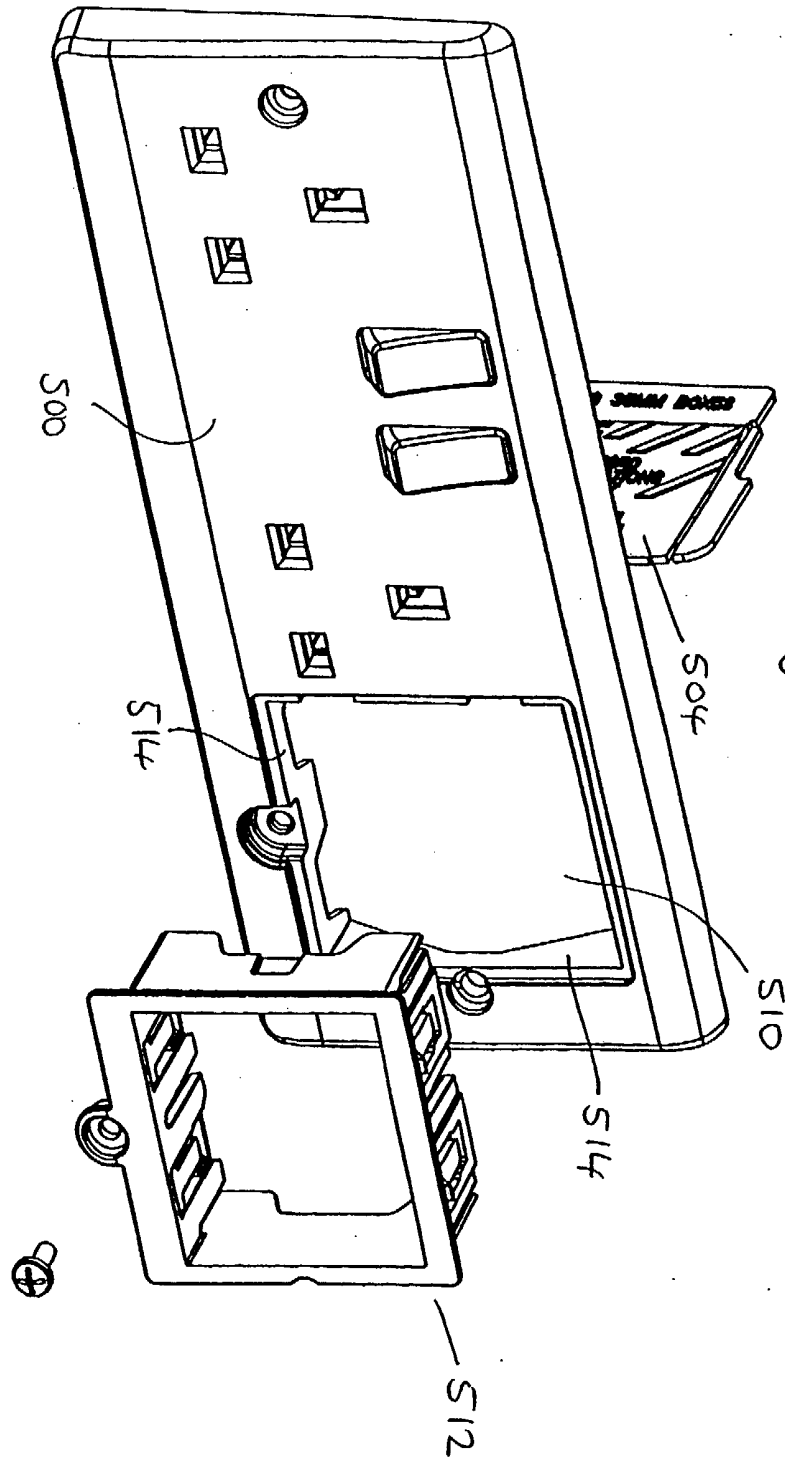


Fig. 16

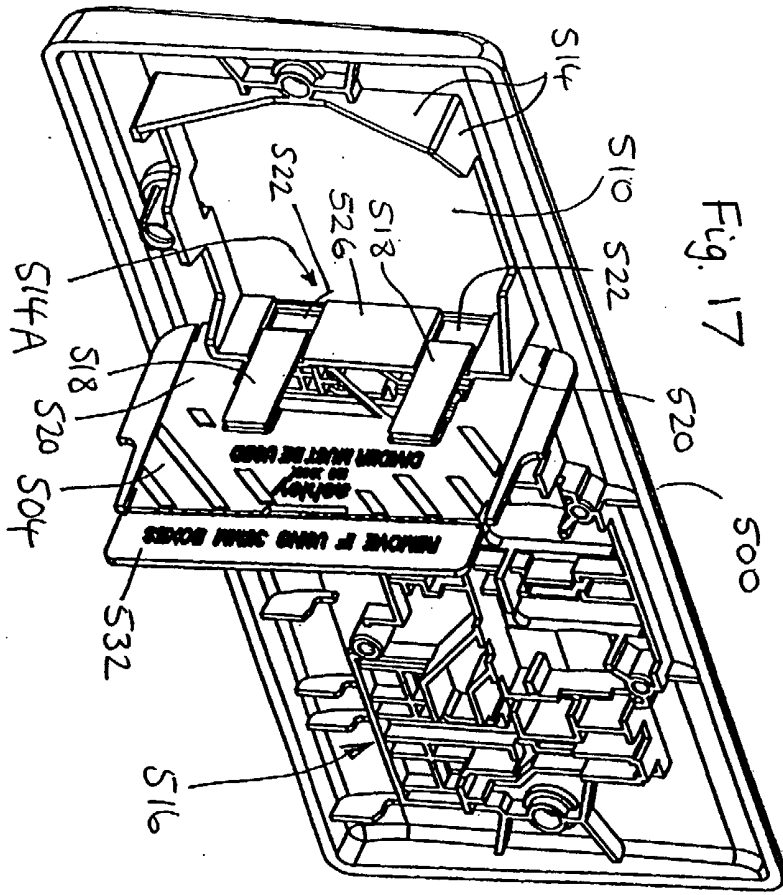


Fig. 17

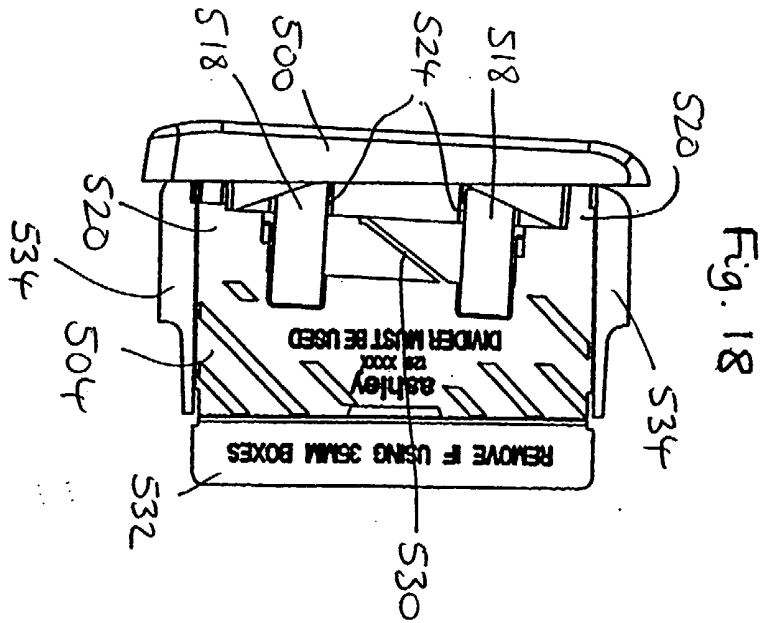


Fig. 18

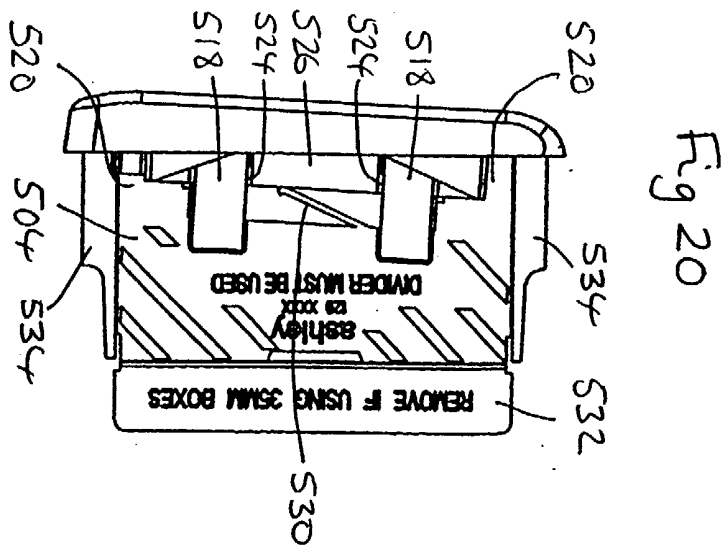
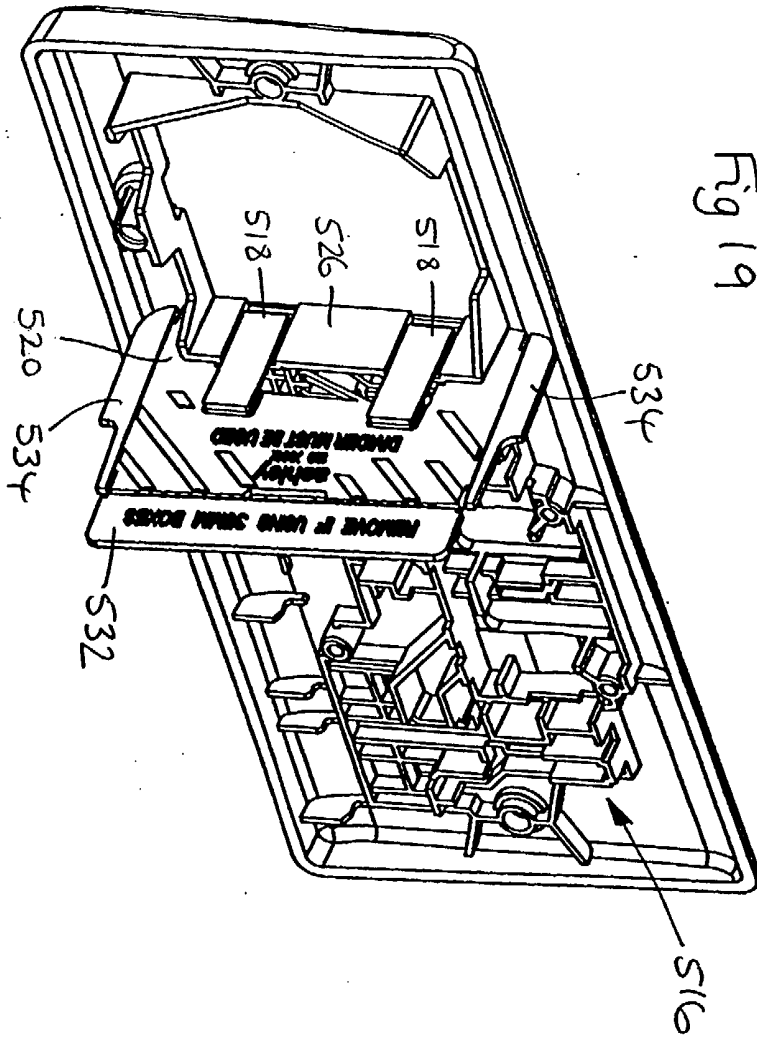


Fig 19

Fig 20

Fig 21

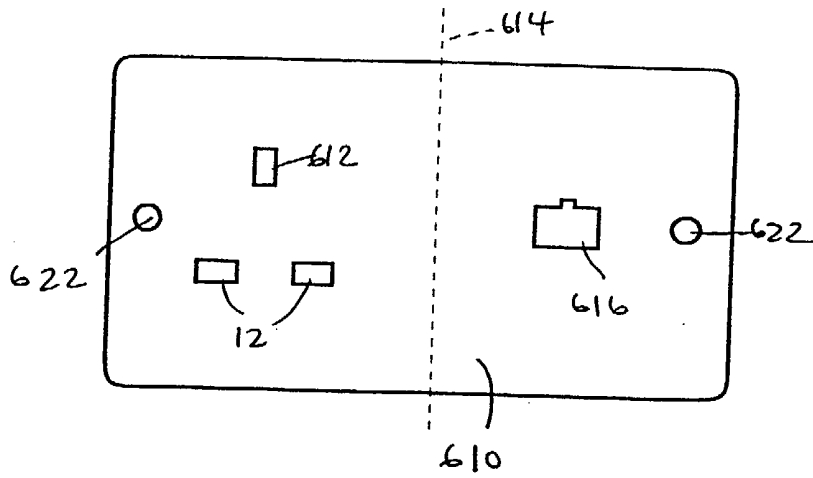


Fig 22

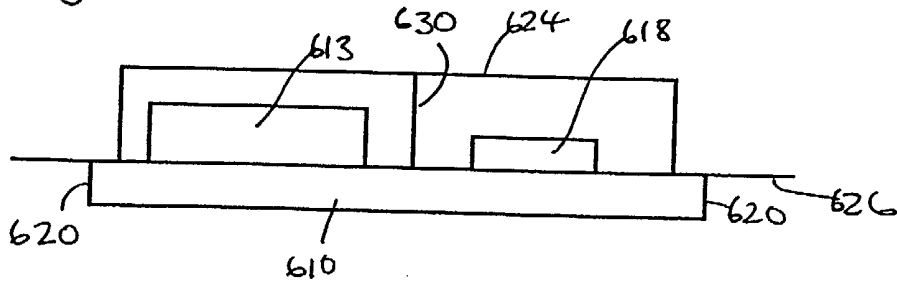


Fig 25

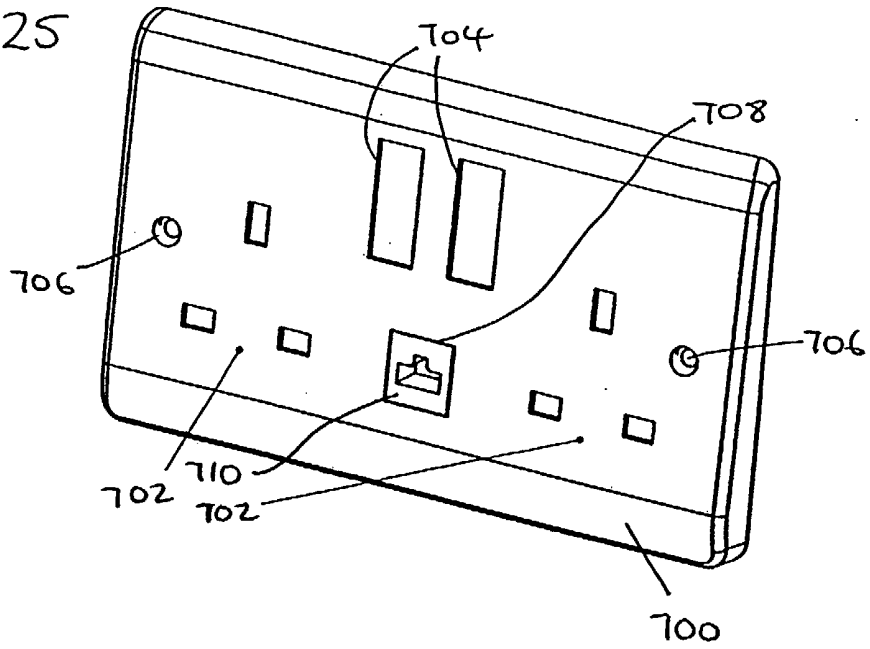


Fig 26

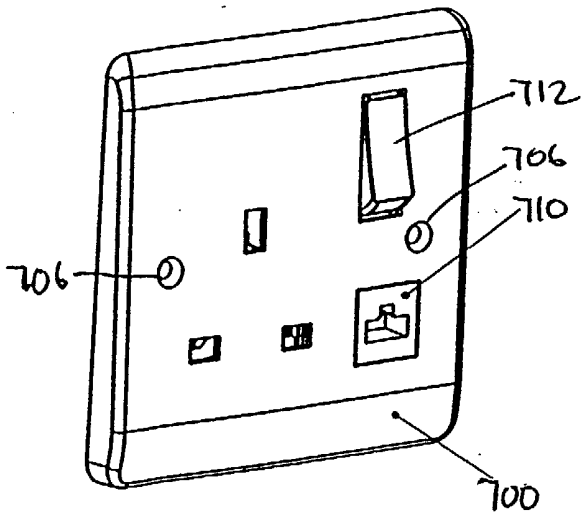
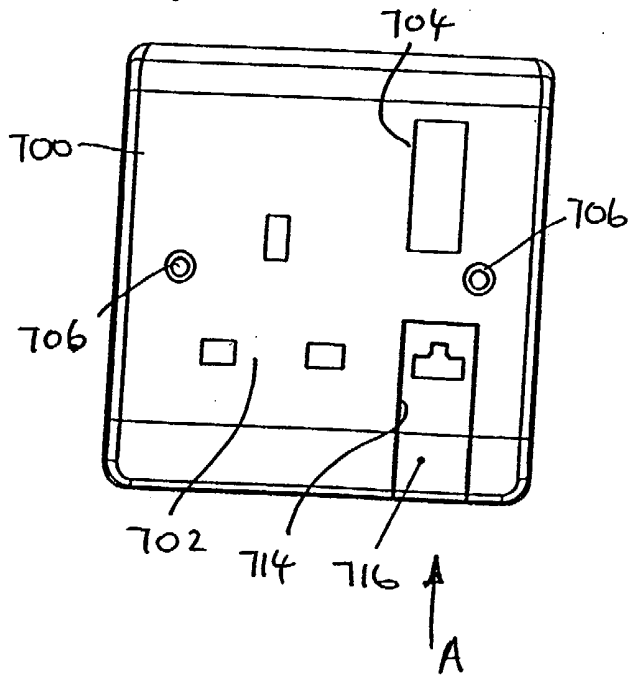


Fig 27



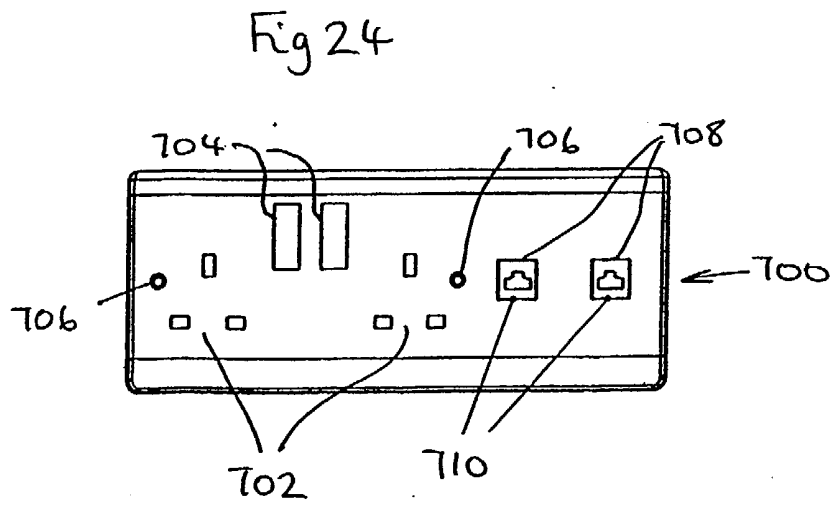
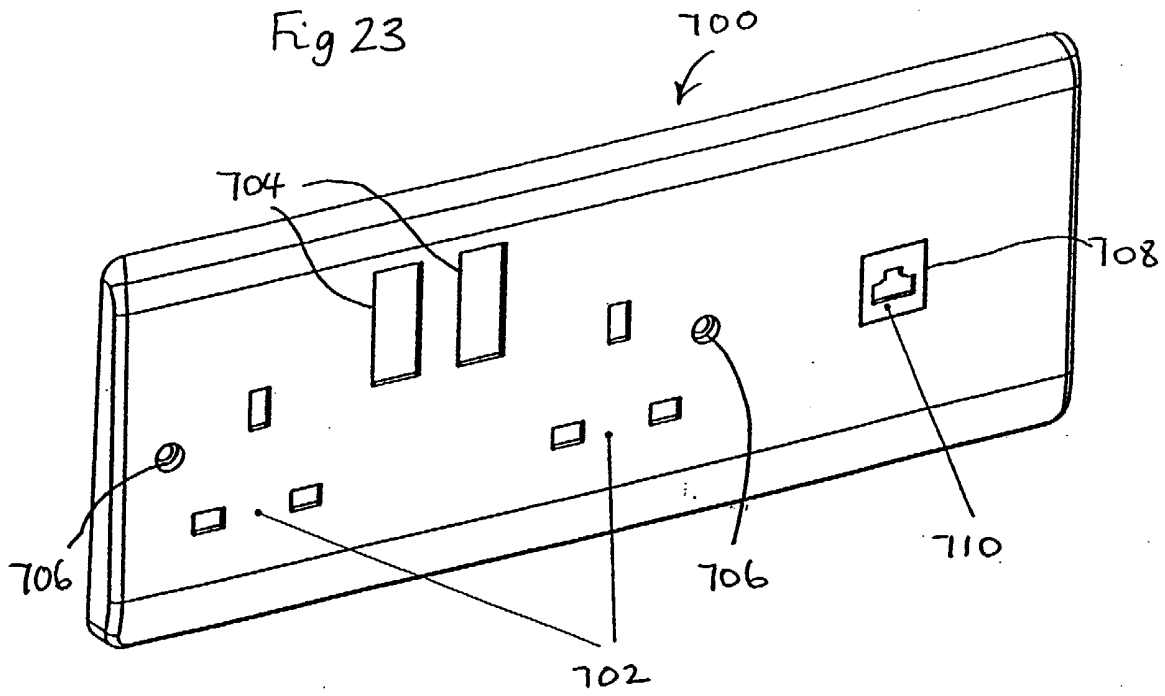


Fig 28

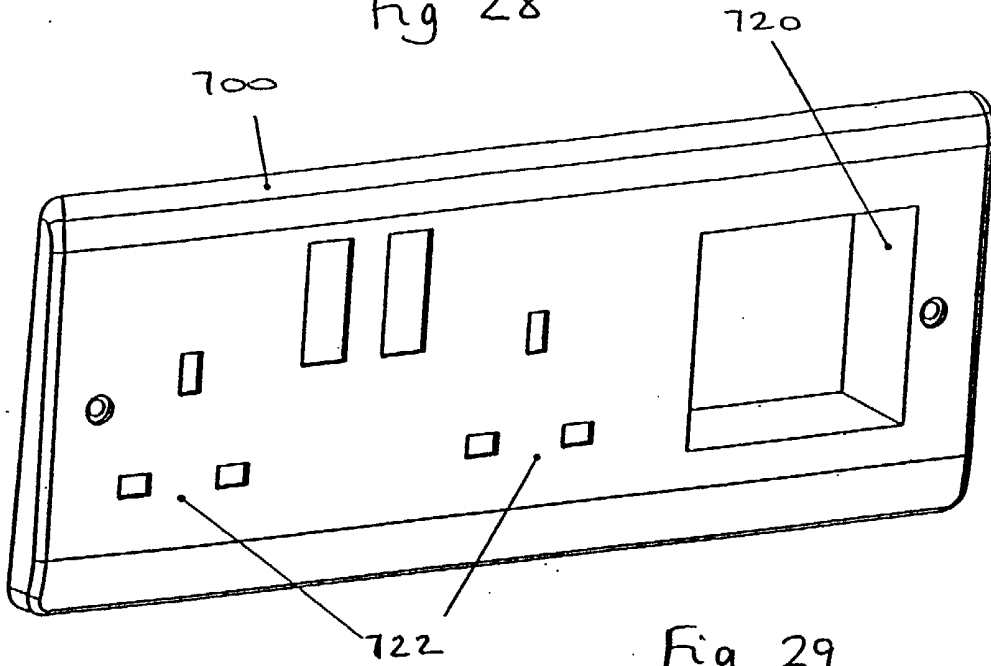


Fig 29

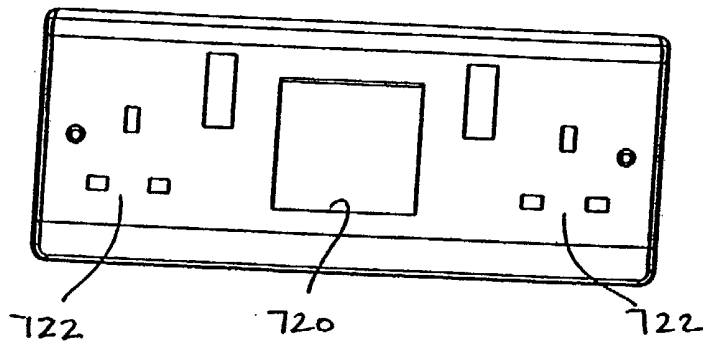
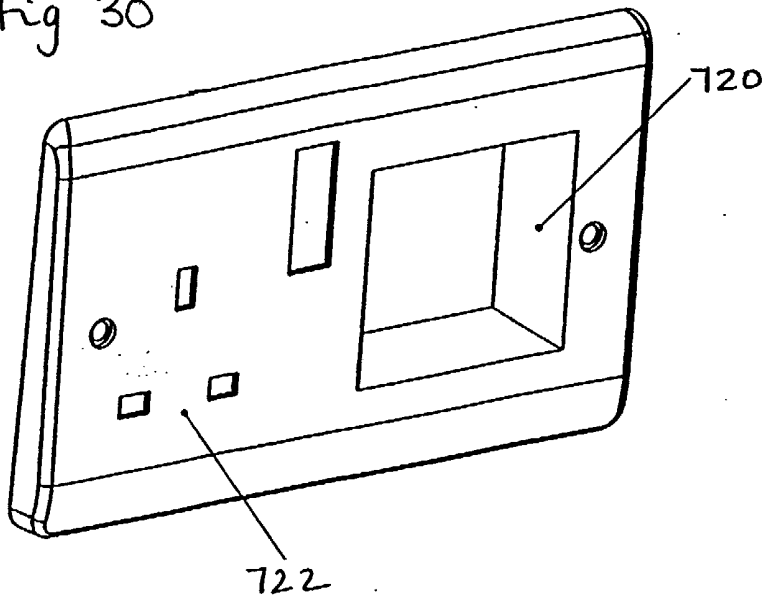


Fig 30



DUAL FUNCTION ELECTRICAL WIRING ACCESSORY

This invention relates to electrical socket outlet units of the three pin type and
5 comprising a front plate having a front face, a contact housing provided at the rear of the
front plate, electrical contacts mounted in the housing, and apertures formed in the front
plate and through which in-use the respective pins of a plug can pass to make electrical
connections with the contacts. Such a socket outlet unit is hereinafter referred to as a
“socket outlet unit of the type referred to”.

10

Usually the front plate will be adapted for wall mounting and will be of the
three pin type in which the contacts comprise line, neutral and earth contacts for use with
a three pin plug. The front plate may have more than one set of pin-receiving apertures so
that more than one plug can be coupled into the mains power circuit. Typically the front
15 plate is a moulding of a plastics material, the moulding *per se* incorporating the pin-
receiving apertures.

Outlet sockets of this type may be switched or unswitched and may comprise
one or more outlets, the or each associated with a respective set of pin-receiving apertures.
20 Typically the front plate is adapted to be fastened to a mounting box by means of fasteners
and the mounting box may be designed for recessing into a wall so that, when the front
plate is secured to the mounting box, the terminal means are sunk into the wall while the
rear of the front plate abuts the surface of the wall.

25

With the increasing use of computers and related peripherals such as modems
in the home and office, situations commonly arise where appliances are connected to a
number of wall sockets to provide connectivity to the mains power supply and to other
services such as telephone lines and aerials. For example, a computer station may typically

be connected to one wall socket outlet unit of the type referred to in order to power the computer and related peripherals and to one or more additional outlets for transmission and/or reception of signals such as video signals and data signals, e.g. by way of RJ45, CAT5 connectors and the like.

5

The present invention is concerned with the provision of an improved form of socket outlet unit of the type referred to. In one form thereof, the present invention seeks to provide an improved wiring accessory for use for example with personal computers and other equipment requiring both connection to a relatively high voltage mains supply (e.g. 10 220 to 240 volts) and to a telephone or other communications system.

According to one aspect of the present invention there is provided a socket outlet unit of the type referred to in which the front plate, in addition to being provided with pin-receiving apertures, is arranged to locate one or more electrical accessory units, 15 the accessory unit(s) typically being in the form of power and/or signal handling or utilising unit(s).

The accessory unit(s) may be removably located by the socket outlet unit, for instance to allow one accessory unit to be exchanged with another if desired.

20

The accessory unit(s) may be snap engageable with the socket outlet unit.

The power and/or signal handling or utilising accessory unit(s) may be designed for co-operation with a connector device or devices. To this end, the accessory 25 unit(s) may each have an outlet for engagement with a suitable connector device. The outlet of each accessory unit may be one component of a complementary male and female pair with the connector device forming the other component of the pair. Typically the accessory unit will be the female component but this may depend on the particular

application and, in some circumstances, the connector device may be the female component. For example, the accessory unit may have a coaxial television female outlet and the connector device may be the plug termination of a coaxial cable.

5 The accessory units may be of modular design so that a socket outlet unit in accordance with the present invention may be used in conjunction with a range of accessory units having different functions.

10 Usually the front plate is designed for use with a single accessory unit or two such accessory units but we do not exclude the possibility that it may be adapted for use with three or more accessory units at a time.

15 The front plate may be moulded with an opening for receiving one or more accessory units; for instance, the opening may be dimensioned to receive two or more accessory units, each having predetermined perimetral dimensions. In another embodiment, the front plate may have at least one opening with each opening receiving a single accessory unit.

20 The front plate may include a movable portion, e.g. a hingedly mounted portion, for reception of the accessory units.

25 The opening may be bordered by a frame projecting from the rear of the front plate for use in mounting the accessory units. The frame may be separate from the front plate or it may be integral therewith. The accessory unit(s) may be snap engageable with the frame.

Dummy units or blanks may also be provided so that, when an active accessory unit is not used, a dummy unit can be assembled to the front plate instead of an

active unit. For instance, where the front plate is designed for use with two accessory units, one unit may be an active unit (such as a telephone connection unit) while the other may be a dummy unit or blank. The dummy unit or blank may then be retained in place until such time as the user wishes to install an active unit in its place.

5

The front plate may be provided with through apertures for reception of fasteners for securing the socket outlet unit to for example a wall-mounting box which may have tapped holes for engagement with the fasteners.

10

The socket outlet unit may be switched or unswitched.

15

A partition may be provided which serves to partition the contact housing from the accessory unit(s). The partition may be associated with the socket outlet unit and/or a mounting box which is adapted to mount the socket outlet unit. The partition plate may serve to partition the socket outlet unit into a high voltage side associated with the contact housing and a low voltage side associated with the accessory unit(s). For instance, the contacts of the contact housing may be coupled to a mains supply of 220 - 240 volts whereas the power or signal handling or utilising accessory unit(s) may be rated for significantly lower voltages, especially extra low voltages typically of about 50 volts and less.

20

The partition plate may be releasably attached at the rear of the front plate or it may be permanently secured to the front plate; e.g. it may be moulded as part of the front plate structure.

25

The accessory unit(s) may be insertable either from the rear of the front plate or from the front of the front plate.

When mounted on the front plate, the front faces of the accessory unit(s) may be substantially flush with the surround front face area of the front plate or, alternatively, project beyond or possibly be inset relative to the surrounding front face area of the front plate to a limited extent only, typically by no more than 10 mm, usually by no more than 5 mm, e.g. 3 mm or less.

In contrast with standard UK practice for the production of socket outlet units of the type referred to, the front plate of socket outlet units in accordance with the various aspects of the present invention may be produced as a moulding from a thermoplastics material.

According to a second aspect of the present invention there is provided an electrical socket outlet of the type referred to in which the front plate comprises two parts, one of which is provided with pin-receiving apertures and the second of which is arranged to locate one or more electrical accessory units, the accessory unit(s) typically being in the form of power and/or signal handling or utilising unit(s).

The two parts may have rear peripheral surfaces which at least in part are substantially planar and which are substantially coplanar with each other when fitted against a planar surface, the front surfaces being profiled in such a way that there is substantially no step-like discontinuity at the junction between the front surfaces when the parts are fitted in side-by-side relation with said rear peripheral surfaces located a common planar surface.

The two parts may be used with a back-box to which they may be fitted in side-by-side relation with their planar rear peripheral surfaces in superposed relation with the perimeter of the backbox.

The front faces of the two parts forming the front plate may over major areas thereof be of substantially the same profile and may have edges which mate with each other so that one front surface forms an unstepped continuation of the other.

5 Other aspects of the invention are concerned with reducing the risk of mains voltage electrical shocks in dual function outlets; in this context, it is recognised that people who are familiar with wiring of low voltage devices, such as the accessory units or modules of the invention, are often less experienced in working with mains voltages.

10 According to a third aspect of the present invention there is provided an electrical socket outlet of the type referred to in which the front plate, in addition to being provided with pin-receiving apertures, is arranged to locate one or more electrical accessory units, the accessory unit(s) typically being in the form of power and/or signal handling or utilising unit(s), characterised in that the front plate is provided with a
15 rearwardly extending enclosure for reception of the accessory unit(s).

The socket outlet may include a frame for carrying the accessory unit(s), the frame being insertable into the enclosure.

20 The arrangement may be such that the enclosure prevents work being carried out on the accessory unit(s) or associated wiring from the rear of the outlet thereby reducing or eliminating the risk of electrical shock through contact with terminals handling mains voltages. Likewise, when work is carried out on the accessory unit(s) or associated wiring from the front of the outlet, the risk of electrical shock by contact with mains
25 voltage conductors or terminals is substantially eliminated.

The enclosure may be box-shaped.

The enclosure may be provided with one or more "knock-out" portions for removal in order to afford cable access to the interior of the enclosure and hence to the unit(s).

5 According to a further aspect of the present invention there is provided one or more shielding elements co-operating with the terminal/contact housing of an electrical socket outlet to restrict or prevent access to potentially live components such as electrical terminals after wiring thereof.

10 The shielding element(s) may have a first portion that is arranged to co-operate with a terminal access opening and a second portion arranged to prevent access to a component (e.g. a clamping screw) for securing a conductor to the terminal.

The shielding element(s) may be of L-shaped configuration.

15

The shielding element(s) may be arranged to clip on to the contact housing.

The first portion of the shielding element(s) may include side walls which, in use, border the terminal access opening to conceal any bared section of a conductor
20 inserted into the opening but partly exposed externally of the contact housing.

The second portion may have one or more projections for entry into a recess accommodating the conductor-securing component.

25

The shielding element(s) may have some degree of flexibility for snap engagement with the outlet.

The shielding element(s) may be adapted for use with a socket outlet of the type referred to and may comprise a one-piece component, e.g. a plastics moulding, capable of shielding the live and neutral terminals of the outlet. While the present invention is not intended to condone or advocate the practice of carrying out work on wiring accessories while live, the use of such shielding elements helps protect against the risk of electrical shock from contact with terminals and other components handling relatively large voltages (e.g. of the order of 240V) when accessing the rear of a socket outlet for the purpose of carrying out work on for example low voltage signal handling accessory unit(s) or associated wiring.

10

According to another aspect of the present invention there is provided a socket outlet unit of the type referred to in association with a partition plate which is adapted to clip onto part of the unit.

15

The partition plate may clip on to a side wall bordering an opening in the front plate of the unit into which an electrical accessory unit or units may be inserted.

The partition plate may have a number of legs which straddle the side wall.

20

The legs may be arranged in offset relation for this purpose.

The partition plate may clip on to the unit with some degree of lost motion to allow movement of the partition plate to compensate for variations in the spacing between the unit and the rear face of the mounting box.

25

According to another aspect of the present invention there is provided a socket outlet unit of the type referred to in association with a partition plate which is

adapted to accommodate varying clearance gaps between the unit and rear faces of the mounting boxes to which the unit is to be fitted.

5 Such clearance gaps arise for instance because the mounting boxes are manufactured in different depths and also because the thickness of plaster applied to walls can vary significantly in practice.

10 The partition plate may be mounted movably on the unit or on the mounting box.

The partition plate may be connected to the unit through a lost motion coupling.

15 Biasing means may be provided to urge the partition plate in a direction which tends to take up the clearance.

The biasing means may be carried by or be formed integrally with the partition plate.

20 The biasing means may comprise one or more flexible fingers.

The flexible finger(s) may lie in substantially the same plane as the partition plate.

25 The flexible finger(s) may project from one edge of the partition plate, e.g. in inclined fashion relative to said one edge.

The divider plate may incorporate a removable section to accommodate mounting boxes of different dimensions, e.g different depthwise and/or heightwise dimensions.

5 According to a further aspect of the present invention there is provided a electrical mains outlet socket unit of the three pin type provided with at least one signal handling link, the front plate of the socket having, in addition to at least one set of said pin-receiving apertures, at least one access point by means of which connection with the or a respective signal handling link can be made.

10 The signal handling link usually comprises a connector, e.g. a female connector for use with a plug connector, which is separate from the power-handling outlet; however, we do not exclude other possibilities such as a signal handling link capable of a wireless connection to the device or equipment to which power is supplied via the power
15 handling outlet. The signal handling link may for instance communicate with the device or equipment via radiation signals, e.g. infra red radiation signals, and may comprise a signal transmitter and/or receiver.

The access point(s) will usually comprise an access aperture.

20 The front plate may be produced as a single plastics moulding so as to incorporate both the pin-receiving apertures and the access point(s), e.g. access aperture(s). The front plate may be moulded from a thermosetting material or a thermoplastics material.

25 The signal handling link may be designed for use in telephone or other communication systems.

The front plate may be divided into two zones, a first zone provided with said pin-receiving apertures and a second zone provided with said access point(s).

Means may be provided for isolating the terminal means associated with the electrical power outlet socket from the signal handling link(s). Such means may comprise a partition, e.g. in the form of a plate, which may be connected or connectable to the socket unit so as to extend between the terminal means and the signal handling link(s). Alternatively the partition may be associated with the mounting box with which the socket unit is designed to be used, the arrangement being such that, on assembly of the socket unit to the mounting box, the partition extends between and physically isolates the terminal means from the signal handling link(s).

An outlet socket unit of the three pin type as defined in accordance with the various aspects of the invention may be used in combination with a mounting box, means being provided for physically isolating the terminal means associated with the outlet socket from the signal handling link(s).

The perimetral dimensions of the front plate having a single set of pin-receiving apertures may be substantially the same as for a standard twin outlet socket unit in accordance with British Standard BS1363: Part 1: 1995, e.g. the order of 185 mm in the horizontal direction and of the order of 45 mm in the vertical direction. In this case, the pin-receiving apertures may occupy one half of the front plate (to one side of a vertical medial line) and the access point(s) associated with the signal handling link(s) may occupy the other half.

A shutter device may be associated with the access point or at least one of them. The arrangement may be such that the shutter device normally prevents access via the access point(s) but is released on insertion of a complementary connector, e.g. a plug.

Means may be provided to prevent release of the shutter device if the isolating means is absent or not properly fitted.

5 The signal handling connector may be for use in handling outgoing signals, incoming signals or both.

The connectors may be capable of handling digital and/or analogue signals.

10 The signal handling link or at least one of them may be a female connector of the RJ type, e.g. RJ11, R45 etc or of the type suitable for use with a British Telecom telephone plug, e.g. type 431A.

15 The signal handling link may be an aerial socket, e.g. for connecting an aerial to television set.

The unit may be provided with more than one signal handling link which may be the same or different, e.g. one connector may be adapted for connection to a telephone network while a second connector may be adapted for connection to an aerial.

20 The signal handling link(s) may be permanently integrated into the front plate or removably inserted into the front plate.

25 The socket unit may be provided with switch means associated with the mains outlet terminal means and/or with the signal handling link(s) or accessory unit(s).

Various embodiments of the invention will now be described by way of example only with reference to the accompanying drawings, in which:

Figure 1 is a front perspective view of one embodiment of socket outlet unit in accordance with the present invention;

5

Figure 2 is rear perspective view of the socket outlet unit;

Figure 3 is a similar to that of Figure 1 showing the accessory units removed from the socket outlet unit;

10

Figures 4 and 5 are rear and side elevations of the socket outlet unit;

Figures 6, 7 and 8 are front perspective views of further embodiments which are generally similar to that of Figures 1 to 5 except specified otherwise;

15

Figure 9 is perspective view of a switched socket outlet with a two part front plate comprising a first part having a single gang power outlet and second part having a port for receiving one double or two single modules;

20

Figure 10 is a perspective view of a switched socket outlet of the type designed to provide a switched single gang mains outlet and one or more modular accessory units;

25

Figure 11 is an exploded perspective view corresponding to Figure 10 but showing the mounting frame for modules of the form disclosed in Figures 1 to 8 and a terminal shield separated from the socket outlet;

Figure 12 is a similar view to that of Figure 11 but taken from the rear of the socket outlet;

Figure 13 is a rear perspective view showing the terminal shield assembled to the contact housing of the socket outlet;

Figure 14 is another partly exploded rear view;

5

Figure 15 is a diagrammatic view illustrating assembly of a socket outlet unit to a mounting box installed in a plaster-faced wall;

Figure 16 is a front perspective view of socket outlet unit provided with a partition plate;

10

Figure 17 is rear perspective view of the socket outlet unit of Figure 16 showing the partition plate in its extended position; ;

15

Figure 18 is a side view of the unit as seen in Figure 17;

Figures 19 and 20 are views similar to those of Figures 17 and 18 but showing the partition plate in a retracted position;

20

Figure 21 is a diagrammatic front view of a further form of socket outlet unit in accordance with the present invention;

Figure 22 is a diagrammatic plan view of the unit; and

25

Figure 23 is perspective view of a switched socket unit front plate having twin power outlets and a single signal handling port which may be fixed or interchangeable;

Figure 24 is a front elevation of a socket unit front plate having twin power outlets and multiple signal handling ports;

5 Figure 25 is a perspective view of a modified twin power outlet socket unit front plate with a centrally located signal handling port;

Figure 26 is a perspective view of a switched, single power outlet socket unit front plate with a signal handling port located beneath the switch actuator;

10 Figure 27 is a front elevation of a switched, single power outlet socket unit front plate with a slot-in module providing a signal handling port;

15 Figure 28 is a perspective view of a switched twin power outlet socket unit front plate with an opening for reception of modules of the form shown in for example Figures 1 to 6;

Figure 29 is a front elevation of a socket unit similar to that of Figure 28 but with the module-receiving opening located centrally between the power outlets; and

20 Figure 30 is a view similar to that of Figure 28 for a single outlet socket unit.

25 In all of the embodiments shown in the drawings, the socket outlet illustrated is based on British Standard BS 1363: Part 1: 1995 for use with a standard plug of the three pin type in widespread use in the UK. The socket outlet has a front plate which is produced as a plastics moulding with the usual arrangement of pin-receiving apertures through which the pins of the plug are inserted for engagement with live, neutral and earth terminals provided in a terminal housing carried by the rear of the front plate.

Referring now to Figures 1 to 5, a socket outlet unit of the type referred to comprises a front plate 10 for mounting on a vertical wall and a contact housing 12 mounted on the rear side of the front plate. The contact housing 12 may be of generally conventional design incorporating live, neutral and earth contacts or terminals for connection to the live, neutral and earth conductors of a power supply. The front side of the front plate 10 has integrally moulded apertures 14 arranged in the usual 3 pin configuration for reception of the flat bladed pins of a standard 13 amp three pin plug which, when properly inserted, registers with the contacts in the contact housing 12. The socket outlet unit may, with respect to its use with standard 3 pin plugs, conform with British Standard BS1363: Part 1: 1995.

A rocker switch 16 is provided for switching off and on of the mains supply to a plug inserted into the contact housing. The front plate 10 is provided with a pair of apertures 18 for reception of fasteners for securing the front plate to for example a wall box installed in the wall so that, when the socket outlet unit is in place, the rear edges 20 of the front plate engage the wall. The front plate in the illustrated embodiment is produced with an inclined front face 22 as disclosed in our prior pending GB Patent Application No. 0104473.4, the entire contents of which are incorporated herein by this reference.

The contact housing 12 and the apertures 14 in the illustrated embodiment are located on one half of the socket outlet unit, the other half being adapted to receive a pair of modular electrical accessories 24 which may be in the form of power and/or signal handling or utilising units. To this end, the other half of the front plate 12 is provided with a large opening 26 into which the units fit so that their front faces are substantially flush with (or possibly slightly proud or inset relative to) the front face of the front plate. The socket outlet unit may be provided with a framework 28 at the rear of the front plate 10 for mounting of the units 24. The framework may also serve to guide the units as they are inserted. The arrangement may be such that the units 24 make snap fit engagement with

the framework when each is properly inserted into the framework. The units may be inserted into the framework 28 either from the rear of the front plate or from the front.

Usually the accessories 24 will be designed for low voltage operation whereas
5 the contact housing will be used for handling alternating high voltage (e.g. about 240 volts) power supply. The socket outlet unit is provided with means for physically isolating the low voltage side from the high voltage side, in the form of a partition or screen 30 of suitable electrical insulating material between the contact housing 12 and the framework 28. The partition 30 will be of sufficient depth (in a direction perpendicular to the rear of
10 the front plate 10) to eliminate any possibility of high voltage conductors or low voltage conductors straying into the wrong voltage zone. For instance, the partition may be of sufficient depth that, when the socket outlet unit is engaged with a wall box, the partition projects into the wall box and, in conjunction with the base of the box, divides the interior of the box into two mutually isolated cavities, one associated with the high voltage side
15 and the other with the low voltage side.

The accessories 24 will be designed in accordance with modular principles, i.e. with different types of accessory having substantially the same dimensions so that the socket outlet unit may be used with a wide range of accessories of different types. When
20 mounted on the front plate, the front faces of the accessory units may be flush with or project beyond or inset relative to the surrounding front face area of the front plate to a limited extent only, e.g. no more than 2 to 3 mm.

Typically the accessory units may be telephone outlets, data outlets and
25 connectors, aerial outlets, video signal outlets, lighting devices, alarm devices, and detection devices (e.g. motion detectors, temperature detectors or gas detectors). For example, the motion detector may be arranged to automatically switch on a lamp plugged into the socket outlet when a person is in the vicinity of the lamp. In the case of lighting

devices for example, the device may incorporate a rechargeable battery or batteries which undergo charging when the device is inserted into the socket outlet unit and may be removed when charged for use as a torch. Further types of accessory unit include a receiving module for use with a remote signal transmitter (e.g. as described in our
5 International Patent Applications Nos. WO 96/28873, 98/11575 and PCT/GB01/00901; a switch unit suitable for example for controlling the associated socket; a power consumption monitoring unit; a filter unit for suppressing spurious irregularities in the power supply (e.g. transient voltage spikes); a further power outlet or outlets for use with standard three pin or other connectors; mobile phone recharging modules; plug-in clock
10 and/or radio modules; and a sensor module associated with an alarm system, e.g. whereby the sensor serves to transmit a signal to an alarm device in response to detection of an intruder by the sensor.

In the illustrated embodiment, the socket outlet unit is designed for use with
15 a pair of accessories. However, this is purely illustrative since the socket outlet unit may be for use with a single accessory or more than two accessories. Also, the socket outlet unit may, if desired, have more than one set of pin-receiving apertures so that it can be used in conjunction with more than one three pin plug.

20 Where the socket outlet unit is intended for two or more modular accessories, some accessories may be designed to be equivalent to two or more units. In other words, in the illustrated embodiment, a single accessory (equivalent in size to a pair of unit-sized accessories) may be accommodated in the opening 26.

25 Referring now to Figure 6, the socket outlet unit is generally similar to that of Figures 1 to 5. In this case, the framework 28A for mounting the modules 24 (e.g. by snap-fit engagement) is a separate component from the front plate 10 and is designed for reception in the opening 26. When fitted to the front plate (e.g. by way of snap

engagement), the front face of the border 29 of the framework 28 may be substantially flush with the surrounding front face area of the front plate while the accessory units, when mounted, may be flush with or project beyond or be inset relative to the surrounding front face area of the front plate, usually by no more than about 3 mm or less. The partition or screen 30 is associated with the mounting box 40 so that, when the outlet unit is attached to the mounting box using fasteners passing through the apertures 18 and engaging with tapped lugs 42, the partition constitutes the means for physically isolating the high voltage outlet side from the module side of the unit which divides the interior of the box into two mutually isolated cavities.

10

In the embodiment of Figure 7, the front plate 10 includes a hinged portion 10A movable from a forwardly inclined position as illustrated to a vertical position in which it "closes" the opening 26 and has its front face substantially flush with the remainder of the front plate. The framework 28 may be integrated with the hinged portion 10A in the same manner as in the embodiment of Figures 1 to 5 or it may be detachably mounted on the hinged portion 10A in the manner shown in the embodiment of Figure 6. Means may be provided for retaining the portion 10A in the vertical position, e.g. in the form of a detent arrangement or a fastener. In this way, access to the rear of the portion 10A may be gained without having to at least partly detach the outlet unit from the mounting box 40.

20

Another variation is illustrated in Figure 8 in which the module mounting part of the outlet unit has electrical socket contacts 44 associated with the opening 26 for cooperation with contacts of a plug-in module 24A which may take various forms, e.g. a residual current circuit breaker, fuses, emergency lighting, gas/smoke detector etc.

25

In the embodiments of Figures 7 and 8, partitions may be provided in the manner shown in Figures 1 to 5 or in Figure 6.

Referring to the embodiment of Figure 9, the illustrated socket outlet is generally the same as that illustrated in Figures 1 to 6 except that the front plate comprises two parts, namely a first part 300 provided with a three pin outlet formed by sets of plug
5 pin-receiving apertures 304 and an associated rocker switch 306, and a second part 308 providing a port 310 for reception of other accessories such as, for example, to CAT5 or like connectors 312, 314.

As in Figures 1 to 6, the wiring (not shown) associated with the mains power
10 supply and that associated with signal handling connectors 312, 314 is arranged to enter the associated mounting box 320 at different locations via apertures in the latter and the power handling conductors are isolated from the signal handling conductors within the mounting box, e.g. by means of a separator 330 or other means which may divide the interior of the box 320 into separate zones. The separator 330 may for instance comprise
15 a partition wall integrally moulded with one of the two parts 300, 308 so as to project rearwardly into the interior of the mounting box and thereby partition the latter into a zone receiving the power handling conductors and a zone receiving the data signalling handling conductors.

20 The two parts 300, 308 mate together at the edges 332, 334, these edges being substantially planar for this purpose. The partition plate 330 may be a coplanar continuation of one of the edges 332, 334 or if desired each edge may be extended to form a respective partition plate 330 which may couple together through interfitting formations 336. The top to bottom profiles at the front surface of each part 300, 308 are substantially
25 identical and the arrangement is such that, when the two parts are secured to the box 320 by means of screws passing through apertures 338 and engaging in tapped holes 339, the two profiles match so that the front surface of one part 300, 308 is an unstepped continuation of the other.

At the perimeter of the front plate, the two parts 300, 308 are formed with ,
flanges 302 which extend around three sides of each part (not including the edges 332,
334) and have rear planar surfaces which are substantially coplanar so as to seat against
a wall surface in which the mounting box 320 is sunk in use.

5

Referring now to Figures 10 to 14, this embodiment is intended for use with
one or more modules (not shown) in similar fashion to the embodiments of Figures 1 to
6 but, in contrast with Figures 1 to 6, the modules are mounted within an enclosure 350
extending rearwardly of the front plate 352, the enclosure 350 being designed in such a
10 way that, when the wiring associated with the modules is accessed from the front of the
socket outlet, the risk of accidentally coming into contact with the main wiring and/or
terminals associated with the contact housing 354 of the 3 pin socket is substantially
eliminated. Similarly the enclosure 350 prevents work being carried out on the modules
and associated wiring from the rear of the socket outlet. By largely eliminating any reason
15 for accessing the rear of the socket outlet when work is to be carried out in connection with
the modules, the risk of mains voltage electrical shock is significantly reduced.

The enclosure 350 may be integrally moulded with the front plate or formed
separately and subsequently integrated with the front plate. The enclosure 350 comprises
20 a rear wall 356 and side walls 358, one of which is located between the contact housing
354 of the mains socket outlet and the zone occupied by the module(s). The rear wall 356
is provided with one or more "knock-outs" 360 defined by arcuate apertures to provide
entry points for conductors to wired or otherwise connected to the modules. In this
embodiment, the modules are mounted within a frame 362 (the counterpart of the frame
25 28A in the embodiment of Figure 6), the frame 362 being insertable into the enclosure 350,
if desired with a releasable snap engagement. Alternatively or additionally, the frame 362
may be retained in position by means of a retaining screw or nut passing through a lug 364
on the frame and engaging in an aperture 366 in the front plate.

A further safeguard against mains voltage electric shocks is afforded by the provision of a shielding structure 370 in association with the contact/terminal housing 354 of the socket outlet. The shielding structure 370 may be fabricated as a one-piece component from an electrically insulating material, e.g. moulded from a suitable plastics material. The structure 370 comprises a pair of L-shaped elements 372 connected together is spaced parallel relation by a central portion 374 located at the lower end of the structure. Each element 372 comprises a generally vertical section 376 and an upper generally horizontal section 378, the free end of which is provided with depending projections 380. The vertical sections 376 are each formed with a slot 382 extending upwardly from their lowermost ends, each slot being bordered along each side by a wall 384 and being open at its lower end..

The terminal/contact housing 354 is fabricated from a suitable electrically insulating material and is provided with live, neutral and earth terminals 386L, N and E which may be of the type comprising a conductor-receiving bore accessible through openings 388L, N, E in the housing 354 and a clamping screw for securing the bared core of a sheathed conductor within the bore. The live and neutral terminals 386L, N are sunk into recesses 390L, N in the housing 354. The structure 370 is arranged to clip on to the contact housing in the manner shown in Figure 13 with the section 378 overlying the terminal screws of the live and neutral terminals 386L, N and its vertical sections 376 covering the access openings 388L, N.

The shielding structure is retained in place through reception of the projections 380 in the recesses 390L, N and snap engagement with the housing. The projections being arranged to enter a space located between the clamping screws and the forward end of the housing 354 (i.e. that end closest to the front plate). The central portion 374 is provided with retaining features in the form of catches 392 which are arranged to

snap engage with formations 394 on the housing 354. The sections 376 have sufficient flexibility to allow them to deflect to effect the snap engagement and also release snap engagement when desired. When the shielding structure is in place, it will be seen that the walls 384 are arranged one on each side of the openings 388L, N so that the path of insertion of conductors into these openings is not obstructed. The shielding structure is clipped to the housing 354 after the latter has been wired. It will be appreciated that the walls 384 will serve to conceal and thereby restrict or prevent access to the bared cores of the conductors if the latter are bared to the extent that part of the core extends externally of the opening 388L, N (which they should not if the terminals are correctly wired but this is not always the case).

Where the contact housing 354 includes one or more test holes such as those depicted by reference numerals 396 for testing the electrical functionality of the socket outlet, in order to safeguard against the possibility of electrical shock by insertion of a wire into the holes 396 in the course of wiring the modules, the shielding structure is fabricated with one or more arms 398 so arranged that when clipped to the housing, the arm(s) 398 overlies the test hole(s) to conceal the same.

Referring now to Figure 15, as disclosed in connection with Figures 1 to 14, socket outlet units of the type that the present invention is concerned with typically comprise a front plate 500 adapted for mounting on a vertical wall 502, a contact housing (not shown) incorporating live, neutral and earth contacts or terminals for connection to the live, neutral and earth conductors of a power supply, a low voltage zone (not shown) and a partition plate 504 for isolating the contact housing from the low voltage zone. The low voltage zone may be adapted to receive electrical accessory module or modules as described above in relation to for example Figures 1 to 14 or it may be in the form of a signal handling port or ports as described hereinafter. The unit is mounted on the wall 502 using a mounting box 506.

Typically the wall has a plaster finish 508 applied to it which may vary widely in depth (dimension A) in practice. Also, mounting boxes are manufactured with different standard depth dimensions (dimension X). Ideally the dimension Y of the partition plate 500 should be substantially the same as dimension X + A but, because of the variations
5 mentioned above, the ideal is not achievable in practice.

Referring to Figures 16 to 20, the partition plate 504 is designed to connect to the unit with a clip-type action in such a way that the variations in X and Y can be readily accommodated. The front plate 500 is provided with an opening 510 for reception
10 of a frame 512 which, in turn, serves to mount electrical accessory modules as disclosed in the prior Applications, the opening being bordered by a rearwardly projecting walls 514 which may be formed integrally with the front plate. The partition plate 504 in this embodiment is designed to be attached to the side wall 514A which extends between the opening 510 and the electrical power contact housing 516.

15 The plate 504 is provided with a number of legs 518 and 520 with legs 518 being offset from legs 520 so as to locate on opposite sides of the side wall 514A and thereby straddle the same. The free ends of the legs 518 are provided with lateral projections arranged to enter apertures 522 in the side wall 514A and thereby resist
20 subsequent separation of the plate 504 from side wall 514A by abutment with portions 524 (see Figure 4) which bound the apertures 522 at the free edge of the side wall 514A. In this way, the plate 504 is coupled to the unit with lost motion.

The side wall 514A is of stepped configuration with a central section 526
25 located between the apertures 522, the arrangement being such that, when the partition wall is fitted to side wall 514A, the faces of legs 518 are substantially co-planar with the that surface of the central section 526 which faces towards the opening 510.

A biasing means is associated with the partition plate 504 and, in the illustrated embodiment, is formed by a finger 530 moulded integrally with the plate 504. When the plate 504 is assembled to the side wall 514A, the finger 530 is arranged to contact the latter so that, when the wall 504 is pushed inwardly towards the rear of the front plate 500, the finger deflects resiliently (see Figure 20) to provide a biasing force which tends to urge the partition plate outwardly so as to take up any clearance between the plate 504 and the rear face of the mounting box. In this way, the partition plate 504 is able to compensate for varying amounts of clearance.

At its rear edge, the plate 504 includes a portion 532 which may be removed, e.g. snapped off at a line or lines of weakness between the main part of plate 504 and the portion 532. This allows the plate 504 to be reduced in the depth direction when desired, for use with mounting boxes of shallower depth. The side edges of the plate 504 may also include removable portions 534 to allow the width of the plate 504, e.g. by snapping off the portions 504.

While in the illustrated embodiment of Figures 16 to 20, the plate 504 is shown with four legs 518, 520, it will be appreciated that coupling of the plate to the side wall 514A may be achieved using a lesser number of legs.

Referring now to Figures 21 and 22, the wiring accessory illustrated comprises an electrical outlet socket unit (based on British Standard BS 1363: Part 1: 1995) for use with a standard plug of the three pin type in widespread use in the UK. The unit has a front plate 610 which is produced as a plastics moulding with the usual arrangement of pin-receiving apertures 612 through which the pins of the plug are inserted for engagement with live, neutral and earth terminals provided in a terminal housing 613 carried by the rear of the front plate.

Although the unit is designed as a single outlet socket with one set of pin-receiving apertures 612, the front plate has dimensions corresponding to the front plate of a standard twin outlet unit and the apertures 12 are offset to one side of the central vertical medial line 614. The other half of the front plate has an integrally moulded aperture 616
5 through which access can be gained to a low voltage (e.g. less than 50 volts DC) signal handling link in the form of a connector 18 mounted on the front plate at the rear thereof. The connector 618 may be of a standard design, e.g. the female part of a RJ45 connector, the connection being made by means of a RJ45 plug inserted through the aperture 616.

10 The front plate 610 may be of generally dish-shaped configuration with integrally formed flanges 620 extending around its perimeter. Openings 622 are provided for reception of screws whereby the unit may be secured in conventional fashion to a surface mounting box 624 which is sunk into a wall 626, the arrangement being such that the rear edges of the flanges 620 abut against the wall when the unit and mounting box
15 624, as shown in Figure 22.

The wiring (not shown) associated with the mains supply and that associated with signal handling connectors is arranged to enter the mounting box at different locations via apertures in the latter and the power handling conductors are isolated from the signal
20 handling conductors within the mounting box, e.g. by means of a separator 630 or other means which may divide the interior of the box into separate zones. The separator 630 may comprise a partition wall mounted on the socket unit or on the mounting box. For instance, the separator 630 may be a partition wall which can be attached to or form part of (e.g. integrally moulded with) the front plate so as to project rearwardly into the interior of the
25 mounting box. The partition wall may be attachable in the manner described in relation to Figures 16 to 20.

Means may couple the separator 630 to a shutter device (not shown) for controlling access to the connector 618 in such a way that the plug can only be inserted through the aperture 616 if the separator 630 is present. For example, the shutter device may be latched in a position in which it obstructs access through the aperture 616 but is
5 unlatched when the separator 630 is present.

Referring now to Figure 23, the front plate 700 corresponds generally to a standard twin power outlet socket unit with two outlets 702 formed by sets of plug pin-receiving apertures and openings 704 at which rocker switches (not shown) are located.
10 The plate 700 is provided with openings 706 for reception of screws whereby the unit may be secured in conventional fashion to a standard surface mounting box or the like. The front plate is extended in the horizontal direction to provide a signal handling port 710 for connection for example to telephone or communication facilities using RJ45, CAT5 or like connectors.

15

The connector forming the port 710 may be fixedly mounted on the front plate 700 or it may be detachably mounted to allow interchangeability of connectors, e.g. the connectors used to provide port 710 may be of a modular design so that a given plate 700 may be assembled with any one of two or more different connector modules (e.g.
20 selected from RJ45, CAT5 and other types of connector) to provide the port 710. Also, the opening 708 in the plate 700 which receives the connector module may be adapted to receive a blank cover when the connector is not present in order to conceal the opening.

Figure 24 shows a modification in which the front plate is provided with two
25 ports 710. As illustrated, both ports 710 are of the same type but it will be appreciated that they may be different types. As in the embodiment of Figure 23, the connectors forming the ports 710 may be fixedly mounted or they may be detachably mounted to allow variations in the types of connector used.

Figure 25 likewise illustrates the front plate 700 with twin outlet sockets 702 but in this case the signal handling port 710, which may be fixed or interchangeable, is located in a zone between the outlets 702.

5 Figure 26 is similar to Figure 25 except that the unit is a switched single outlet socket with a standard size front plate 700. In this case, the signal handling port 710 is located beneath the rocker switch 712 of the unit. In an alternative embodiment, the port 710 and rocker switch 712 may be arranged with the port 710 above the rocker switch.

10 Figure 27 illustrates a modification which, though shown for a single outlet socket, is applicable to the embodiments of Figure 23 to 25 also. In this case, the outlet port 710 is incorporated in a module which is designed to be fitted into the socket unit at one edge of the front plate 700, e.g. the lower edge as shown. Thus, the front plate is produced with a slot 714 for reception of the module 716 which may be inserted by sliding
15 it in the direction A. Retaining means (not shown) may be provided for holding the module 716 securely when fully inserted. Such means may be releasable so that the module can be interchanged with another module (e.g. providing a different type of port) or with a blank cover when a port is not required.

20 Instead of being engaged by sliding from one edge of the front plate, the module 716 may be inserted by pressing it into the slot in a direction perpendicular to the main face of the front plate or by hingedly connecting the module to the front plate in the region of the front plate edge.

25 Figures 28 to 30 show front plate variations (single and twin outlet) for use with modules of the form shown in for example Figures 1 to 6. In these embodiments, the modules are accommodated in the opening 720 which may be offset to one side of the

conventional twin or single power outlets 722 (as in Figures 28 and 30) or may be located between two conventional power outlets 122 as in Figure 29.

5 In all of the embodiments described, the ports may be open or fitted with shutters and blank covers may be provided for use when a port module is not present. Also, each embodiment may be provided with surge protection as an option. Although in many applications, the accessory units or modules, where utilised, may be designed for low voltage operation, we do not exclude the possibility of the socket outlet units of the present invention being used with accessory units designed for high voltage operation.

10

Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance, it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features disclosed herein and/or shown in the drawings whether or not particular emphasis has been placed on such feature or features. Moreover, it will be appreciated that certain features of the invention which are, for clarity, described in the context of separate embodiments, may also be provided in combination in a single embodiment. Conversely, various features of the invention which are, for brevity, described in the context of a single embodiment may also be provided separately or in any suitable sub-combination.

20

CLAIMS

1. A socket outlet unit of the type referred to in which the front plate, in addition to being provided with pin-receiving apertures, is arranged to locate one or more electrical
5 accessory units.
2. A unit as claimed in Claim 1 in which the accessory unit(s) are in the form of power and/or signal handling or utilising unit(s).
- 10 3. A unit as claimed in Claim 1 or 2 in which the accessory unit(s) are removably located by the socket outlet unit.
4. A unit as claimed in any one of the preceding claims in which the accessory unit(s) are snap engageable with the socket outlet unit.
- 15 5. A unit as claimed in any one of the preceding claims, the accessory unit(s) being designed for co-operation with a connector device or devices.
6. A unit as claimed in any one of the preceding claims, the accessory unit(s)
20 having an outlet for engagement with a suitable connector device.
7. A unit as claimed in Claim 6, the outlet of the accessory unit being one component of a complementary male and female pair with the connector device forming the other component of the pair.
- 25 8. A unit as claimed in any one of the preceding claims, the accessory unit(s) being of modular design so that the socket outlet unit may be used in conjunction with a range of accessory units having different functions.

9. A unit as claimed in any one of the preceding claims, the front plate being designed for use with a single accessory unit or two such accessory units.
- 5 10. A unit as claimed in any one of the preceding claims, the front plate being moulded with an opening for receiving one or more accessory units.
11. A unit as claimed in Claim 10, the opening being dimensioned to receive two or more accessory units, each having predetermined perimetral dimensions.
- 10 12. A unit as claimed in any one of the preceding claims, the front plate including a movable portion for reception of the accessory unit(s).
13. A unit as claimed in Claim 10, the opening being bordered by a frame projecting from the rear of the front plate for use in mounting the accessory units.
- 15 14. A unit as claimed in Claim 13, the frame being separate from the front plate.
15. A unit as claimed in Claim 13, the frame being integral with the front plate.
- 20 16. A unit as claimed in any one of Claims 13 to 15, the accessory unit(s) may be snap engageable with the frame.
17. A unit as claimed in any one of the preceding claims in which the front plate is provided with through apertures for reception of fasteners for securing the socket outlet unit to allow wall-mounting of the socket outlet unit.
- 25

18. A unit as claimed in any one of the preceding claims, the accessory unit(s) being insertable from the front of the front plate.
19. A unit as claimed in any one of the preceding claims, the accessory unit(s)
5 being insertable from the rear of the front plate.
20. A unit as claimed in any one of the preceding claims, the accessory unit(s) being substantially flush with the surround front face area of the front plate.
- 10 21. A unit as claimed in any one of the preceding claims, the accessory unit(s) projecting beyond or being inset relative to the surrounding front face area of the front plate.
22. A unit as claimed in any one of the preceding claims, a partition being
15 provided which serves to partition the contact housing from the accessory unit(s).
23. A unit as claimed in Claim 22, the partition being associated with the socket outlet unit.
- 20 24. A unit as claimed in Claim 22, the partition being associated with a mounting box which is adapted to mount the socket outlet unit.
25. A unit as claimed in any one of Claims 22 to 24, the partition being arranged to partition the socket outlet unit into a high voltage side associated with the contact
25 housing and a low voltage side associated with the accessory unit(s).
26. A unit as claimed in any one of Claims 22 to 25, the partition being permanently secured to the front plate.

27. A unit as claimed in any one of Claims 22 to 25, the partition being releasably attached at the rear of the front plate.

28. An electrical mains outlet socket unit of the three pin type provided with at least one signal handling link, the front plate of the socket having, in addition to at least one set of said pin-receiving apertures, at least one access point by means of which connection with the or a respective signal handling link can be made.

29. A unit as claimed in Claim 28, the signal handling link comprising a connector which is separate from the power-handling outlet.

30. A unit as claimed in Claim 28, the signal handling link capable of a wireless connection to a device or equipment to which power may be supplied via the power handling outlet.

31. A unit as claimed in any one of Claims 28 to 30, the access point(s) comprising an access aperture.

32. A unit as claimed in any one of Claims 1 to 31 in which the the front plate is produced as a single plastics moulding so as to incorporate both the pin-receiving apertures and the access point(s) or accessory unit(s).

33. A unit as claimed in any one of Claims 28 to 32, the front plate being divided into two zones, a first zone provided with said pin-receiving apertures and a second zone provided with said access point(s).

34. A unit as claimed in any one of Claims 28 to 33, means being provided for isolating the terminal means associated with the electrical power outlet socket from the signal handling link(s).

5 35. A unit as claimed in Claim 34, said means comprising a partition adapted to extend between the terminal means and the signal handling link(s).

36. A unit as claimed in any one of the preceding claims in which the front plate is provided with at least two sets of pin-receiving apertures.

10 37. A unit as claimed in Claim 36, the accessory unit(s) or access point(s) being located outboard of the set(s) of pin-receiving apertures.

38. A unit as claimed in Claim 36, the accessory unit(s) or access point(s) being
15 located between two sets of pin-receiving apertures.

39. A unit as claimed in any one of the preceding claims, the accessory unit(s) or access point(s) being mounted in an aperture or apertures formed in the front plate.

20 40. A unit as claimed in Claim 39, the aperture(s) open at an edge of the front plate. .

41. A unit as claimed in any one of the preceding claims in which the front plate is provided with at least one rocker switch for switching on and off the power supply
25 associated with the pin-receiving apertures.

42. A unit as claimed in Claim 41, at least one access point or accessory unit being located above or below the rocker switch or switches.

43. A unit as claimed in any one of Claims 1 to 21 and 28 to 42 including a partition plate which is adapted to clip onto part of the unit and serves to partition the contact housing from the accessory unit(s) or signal handling link(s).

5

44. A unit as claimed in Claim 43 in which the partition plate clips on to a side wall proximate an opening in the front plate associated with the accessory unit(s) or access point(s).

10

45. A unit as claimed in Claim 43 or 44 in which the partition plate has a number of legs which straddle the side wall.

15

46. A unit as claimed in Claim 45 in which the partition plate clips on to the unit with some degree of lost motion to allow movement of the partition plate to compensate for variations in the spacing between the unit and the rear face of a mounting box.

47. A unit as claimed in any one of Claims 43 to 46 in which the partition plate is mounted movably on the unit.

20

48. A unit as claimed in Claim 47, biasing means being provided to urge the partition plate in a predetermined direction.

49. A unit as claimed in Claim 48, the biasing means being carried by the partition plate.

25

50. A unit as claimed in Claim 48, the biasing means being integral with the partition plate.

51. A unit as claimed in Claim 50, the biasing means comprising one or more flexible fingers.

52. A unit as claimed in Claim 51, the flexible finger(s) lying in substantially the same plane as the partition plate.

53. A unit as claimed in Claim 51 or 52, the flexible finger(s) projecting from one edge of the partition plate.

54. A unit as claimed in Claim 53, the flexible finger(s) projecting from one edge of the partition plate in inclined fashion relative to said one edge.

55. A unit as claimed in any of Claims 22 to 27 or Claims 43 to 54, the partition plate incorporating a removable section to accommodate mounting boxes of different dimensions.

56. A unit as claimed in any one of the preceding claims, the front plate comprising two parts, one of which is provided with pin-receiving apertures and the second of which is arranged to locate one or more electrical accessory units. unit(s).

57. A unit as claimed in Claim 56, the two parts having rear peripheral surfaces which at least in part are substantially planar and which are substantially coplanar with each other when fitted against a planar surface, the front surfaces being profiled in such a way that there is substantially no step-like discontinuity at the junction between the front surfaces when the parts are fitted in side-by-side relation with said rear peripheral surfaces located a common planar surface.

58. A unit as claimed in Claim 57 in which the two parts being fittable to a back-box in side-by-side relation with their planar rear peripheral surfaces in superposed relation with the perimeter of the backbox.

5 59. A unit as claimed in any one of Claims 56 to 58, the front faces of the two parts being, over major areas thereof, of substantially the same profile.

60. A unit as claimed in any one of Claims 56 to 59, the two parts having edges which mate with each other so that one front surface forms an unstepped continuation of
10 the other.

61. A socket outlet unit as claimed in any one of Claims 1 to 21 or 28 to 34 in association with a partition plate which is adapted to accommodate varying clearance gaps between the unit and rear faces of the mounting boxes to which the unit is to be fitted.
15

62. A unit as claimed in Claim 61, the partition plate being mounted movably on the unit or on the mounting box.

63. A unit as claimed in Claim 61 or 62, the partition plate being mounted
20 through a lost motion coupling.

64. A unit as claimed in any one of Claims 61 to 63, biasing means being provided to urge the partition plate in a direction which tends to take up the clearance.

25 65. A unit as claimed in Claim 64, the biasing means being carried by or being formed integrally with the partition plate.

66. A unit as claimed in Claim 64 or 65, the biasing means comprising one or more flexible fingers.

5 67. A unit as claimed in Claim 66, the flexible finger(s) lying in substantially the same plane as the partition plate.

68. A unit as claimed in Claim 66 or 67, the flexible finger(s) projecting from one edge of the partition plate, e.g. in inclined fashion relative to said one edge.

10 69. A unit as claimed in any one of Claims 61 to 68, the partition plate incorporating a removable section to accommodate mounting boxes of different dimensions.

15 70. A unit as claimed in any one of Claim 1 or any one of Claims 2 to 69 when directly or indirectly dependent on Claim 1, the front plate being provided with a rearwardly extending enclosure for reception of the accessory unit(s).

71. A unit as claimed in Claim 70, including a frame for carrying the accessory unit(s), the frame being insertable into the enclosure.

20 72. A unit as claimed in Claim 70 or 71, the enclosure being box-shaped.

25 73. In or for an electrical socket outlet unit, one or more shielding elements cooperating with the terminal/contact housing of the unit to restrict or prevent access to potentially live components such as electrical terminals after wiring thereof.

74. A unit of the type referred to, the unit being provided with one or more shielding elements as claimed in Claim 73.

75. A unit as claimed in Claim 73 or 74, the shielding element(s) having a first portion that is arranged to co-operate with a terminal access opening and a second portion arranged to prevent access to a component for securing a conductor to the terminal.
- 5 76. A unit as claimed in any one of Claims 73 to 75, the first portion of the shielding element(s) including side walls which, in use, border the terminal access opening to conceal any bared section of a conductor inserted into the opening but partly exposed externally of the contact housing.
- 10 77. A unit as claimed in any one of Claims 73 to 76, the second portion having one or more projections for entry into a recess accommodating the conductor-securing component.
- 15 78. A unit as claimed in any one of Claims 73 to 77, the shielding element(s) being of L-shaped configuration.
79. A unit as claimed in any one of Claims 73 to 78, the shielding element(s) being arranged to clip on to the contact housing.
- 20 80. A unit as claimed in any one of Claims 73 to 79, the shielding element(s) being adapted for snap engagement with the outlet unit.
81. A unit as claimed in any one of the preceding claims, the front plate being produced as a moulding from a thermoplastics material.
- 25 82. A unit as claimed in any one of the preceding claims, provided with switch means associated with the mains outlet terminal means and/or with the signal handling link.

83. A unit as claimed in any one of the preceding claims which conforms, with respect to its use with standard 3 pin plugs, with British Standard BS1363: Part 1: 1995.

84. A socket outlet unit of the type referred to, substantially as hereinbefore described with reference to, and as shown in, any one of the embodiments illustrated in the accompanying drawings.



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Claims searched: 1-72, 81-84

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Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK CI (Ed.T): H2E (ECHU)
Int CI (Ed.7): H01R
Other: Online: EPODOC, JAPIO, WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2345589 A (PIMBLEY) See whole document.	-
A	GB 2266810 A (NCE ELECTRICAL PTE LTD.) See whole document.	-

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