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(54) IMPROVEMENTS IN ADAPTERS FOR ELECTRICAL PLUGS

VERBESSERUNGEN AN ADAPTERN FÜR ELEKTRISCHE STECKER

AMELIORATIONS APPORTEES A DES ADAPTATEURS POUR FICHES ELECTRIQUES

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Description

This invention relates to adapters for moulded or other electrical plugs of the type which enable moulded or other plugs having a pin arrangement incompatible with that of a mains electricity socket, such as two-pin shaver plugs, to be connected to the mains.

In particular, this invention relates to an adapter, such as is disclosed in EP-A-342942, which is capable of retaining a moulded or other plug within itself comprising: an upper and a lower portion; a plurality of mains pins extending below the lower portion for connecting the adapter to the mains; means for securing a moulded plug, having at least two pins, within the adapter; means for effecting electrical contact between respective plug pins and mains pins; and means for movably securing the upper portion to the lower portion. Such adapters shall hereinafter be referred to as "relevant adapters".

Unless otherwise indicated, references herein to a relevant adapter are to such an adapter in which the moulded plug can be retained in any orientation, in which the upper and lower portions may be completely separable or may be hingedly, slidably, rotatably or otherwise movably attached, and which may also include a middle portion retainable between the upper and lower portions. Additionally, the lower portion may comprise a box or frame into which the upper portion is slidable.

According to the invention as defined in the claims, there is provided a relevant adapter wherein the upper and lower portions are moveable between a closed position wherein the adapter is compatible with, and may be plugged into, a mains socket and an open position wherein the adapter is incompatible with, and cannot be plugged into, the socket. For example, one mains pin, preferably the earth pin, may constitute a release means movable between a first, locking, socket-compatible position and a second, releasing, socket-incompatible position. The pin may be rotatable, or may form a lever, possibly provided with a pinion or cam as aforesaid.

Alternatively, one mains pin may be retractable within the adapter and include an internal head portion for contacting the moulded plug. When the upper and lower portions are in the closed position, and the moulded plug therefore secured, the mains pin cannot retract within the adapter. However, when the upper and lower portions are in the open position, any effort to insert the adapter into a socket will result in the pin being pushed into the adapter, thereby displacing the moulded plug from its retained position.

Alternatively, the upper portion of the adapter may carry at least one of the mains pins and the lower portion the remaining mains pins. Preferably, the upper portion carries the earth pin and the lower portion the remaining pins. In this way, when the upper and lower portions are released from one another, the mains pins are no longer configured to correspond with a mains socket.

A further alternative, is that when the upper and lower portions are in the open position, at least a part of the

upper portion projects below the lower surface of the lower portion. This prevents the adapter being re-inserted into a socket until the upper and lower portions return to the closed position.

The upper and lower portions may, for example, be hingedly connected, or slidably connected by means of arcuate sliding surfaces, e.g. an arcuate groove in one portion co-operating with an arcuate ridge or bead on the other portion.

Preferably means are provided for securing a moulded plug within the adapter and comprise retaining means adapted to co-operate with features of relief of the moulded plug.

The retaining means may comprise a moulded recess in either the upper or the lower portion of the adapter. Where a moulded recess is provided, it is envisaged that the mass of material, preferably plastics material, in which the recess may be provided may be finned, or comprise a plurality of projecting pegs, with the edges of the fins, or the ends of the pegs, defining the contours of the recess. This arrangement has the attendant advantage of a reduction in the quantity of material required for the moulding.

The features of relief may comprise projections or indentations in a shoulder portion, a body portion, a pin or pins or a tail portion of the moulded plug, in which case the retaining means may also comprise corresponding indentations or projections. Advantageously, the positioning of the features of relief and of the corresponding retaining means may be dependent upon the fuse rating required by the appliance to which the moulded plug is connected and the rating of the fuse carried by the adapter respectively.

Alternatively, the retaining means may comprise means adapted to receive and locate at least one pin of the moulded plug. Preferably the retaining means include a hole in, or a groove in an edge of, an internal wall of the plug and conveniently there is one such hole for each pin. The internal wall may be integrally formed with the upper or the lower portion of the adapter, or may be part of a separate internal portion which is retained by the upper and lower portions. The internal wall may be provided with a further hole for passage of a fuse.

Additionally, the retaining means may also include an exit hole or slot in either the upper or lower portion of the adapter which is sufficiently large to permit passage of the cable to which the moulded plug is attached but is not large enough to accommodate any part of the moulded plug. In this way, the moulded plug may be retained between the internal wall and the portion of the adapter surrounding the exit hole or slot.

A further alternative is that the retaining means may comprise a key lockable, for example by rotation, in a recess in the moulded plug. Preferably, operating means for engaging and disengaging the key are provided on the underside of the lower portion of the adapter. This ensures that the moulded plug can only be disconnected etc. when the adapter is removed from a

mains socket.

The means for securing a moulded plug within the adapter may be such as to permit insertion of a moulded plug when the upper and lower portions are secured to one another but to permit its removal only when the upper and lower portions are separated.

For example, the means for securing a moulded plug may include one or more inwardly opening flaps in the upper or lower portion movable between a closed and an inwardly opened position. Preferably the flap or flaps are biased towards the closed position, for example by a spring or springs.

One disadvantage of the relevant adapters disclosed in EP-A-342942 is that it is possible to remove the upper portion of the adapter, plug the lower portion into a socket and interchange moulded plugs while the contacts in the lower portion remain live. It is an object of this invention to provide a relevant adapter wherein such interchange is prevented, or at least where such interchange does not involve a user's fingers being in the proximity of exposed live contacts.

The means for effecting electrical contact between respective plug pins and mains pins may comprise contact means whereby such contact is effected upon securement of the upper portion of the adapter to the lower portion.

The contact means may comprise first contact means in the upper portion for receiving the plug pins in electrical contact and second contact means in the lower portion for effecting electrical contact between the first contact means and the mains pins on securement of the upper portion of the adapter to the lower portion.

Alternatively, the contact means may comprise means for retaining a fuse or conductor in the upper portion of the adapter and a pair of contacts in the lower portion, the fuse or conductor bridging the pair of contacts on securement of the upper to the lower portion. In the case of a conductor, the pair of contacts may include a moulded plug pin, or one end of a fuse, or both.

A further alternative is that the contact means comprises a switch, preferably in the live pin circuit, in the lower portion of the adapter, biased into an open position, but which is closed by closing means on the upper portion upon securement of the upper portion to the lower.

The switch may comprise a reed switch and the closing means may comprise a magnet for closing the reed switch on securement of the upper to the lower portion. The reed switch may be incorporated into a fuse. An advantage of this alternative is that the circuitry between the reed switch/fuse and the live pin may be completely enclosed in the lower portion.

Otherwise, the switch may comprise a pair of contacts located adjacent, but biased away from, one another and the closing means comprises a projecting wedge or pin which moves one contact such that it touches the other. An advantage of this arrangement is that most of the live pin circuitry can be enclosed, and

there need only be an opening in the lower portion sufficiently large to permit passage of the pin or wedge. In the case of a pin, the live contact may be disposed further from the opening than the remaining contact, and the exposed contact may be covered with an insulation material, thus further reducing any associated risks.

Release means may be disposed on the lower surface of the lower portion of the adapter operable to permit release of the upper portion from the lower portion. As can readily be seen, in order to release the upper portion from the lower, the adapter must be removed from a socket in order for access to the release means to be obtained.

In a case where the upper and lower portions are slidably or rotatably attached to one another, the release means may comprise a pin located in one portion and biased into engagement with a hole or recess in the other portion, the pin being movable out of engagement with the hole or recess.

Alternatively, the release means may comprise a cam rotatable to release the upper and lower portions of the adapter from one another. Preferably the cam is biased into a position in which the two portions are secured to each other.

Preferably, in a case where the upper and lower portions are hinged, slidably, rotatably or otherwise movably attached and movable between a closed and an open position, the release means is movable between a first, locking position and a second, releasing position wherein it projects below the lower surface of the lower portion, and is capable of adopting the locking position only when the upper and lower portions are in the closed position.

Possibly, the release means comprises a pin, screw or the like withdrawable from the lower surface of the lower portion but including check means to prevent it from being completely withdrawn and the upper portion is provided with a recess for receiving the pin, screw or the like, the recess only being in alignment with the pin, screw or the like when the upper and lower portions are in the closed position.

Alternatively, the release means may comprise a lever provided on the lower portion and pivotable between a locking position flush with the lower surface of the lower portion and a release position. The end of the lever remote from its free end may be provided with a pinion for co-operating with a rack on the upper portion or may be provided with a cam for co-operating with a recess therein.

Preferably, the adapter and a moulded plug retained therein cannot be separated while the adapter remains plugged into a socket.

During insertion of a moulded plug, at least a portion of the moulded plug projects below the lower surface of the lower portion.

Advantages of this arrangement are clear, the principal advantages being that the adapter must be removed from a socket in order to enable the moulded

plug to be interchanged. In this way, it is ensured that no live contacts are exposed during the normal process of inserting or removing a moulded plug into or from the adapter.

In a preferred embodiment of adapter according the invention, at least the lower surface of the lower portion is provided with an access aperture through which the moulded plug may be inserted or removed. With this arrangement, since the lower surface of the lower portion lies flush with a socket when the adapter is plugged in, the adapter must be unplugged before access can be had to the access aperture.

The access aperture may be so dimensioned as to conform with the shape of the moulded plug, or may be larger than the plug.

Advantageously, the adapter may also require removal from a socket not only for change of plug, but also for separation of the upper and lower portions.

In any of the aforesaid aspects of the invention one or more of the following improvements may be incorporated.

The upper portion may be provided with the gripping handle in order for it more easily to be used by individuals whose grip, for example because of disease, is relatively weak.

The mains pins and the means for effecting electrical contact between the mains and plug pins may comprise a mains pin, connecting track and plug pin receiver integrally formed from stamped copper sheet or other conductive sheet material.

Where a metal track connects a mains pin to a plug pin, it is preferred that the track comprises at least a partial twist to allow for relative movement of the plug and mains pins.

The upper and lower portions, when moveable between a closed and an open position may be biased, for example by a spring, towards the closed position. This ensures that the adapter cannot be left unattended with its terminals exposed.

The adapter may be provided with an internal flap movable between an inwardly swung, closed position and an outwardly swung, open position, and covering the opening through which the moulded plug or its cable passes. This prevents anything being inserted into the adapter without the upper and lower portions first being separated or opened.

The various aspects of the invention shall now be described with reference to figs. 1-35 of the accompanying schematic drawings, wherein:

figs. 1 to 26, 36 and 37 illustrate various basic embodiments of a relevant adapter to which this invention may be applied;

figs. 27a-30 illustrate embodiments of a relevant adapter according to the invention;

figs. 31-35 illustrate various improvements which

may be applied to an embodiment of a relevant adapter according to the invention.

Referring now to fig. 1, there is shown a lower portion (2) of a relevant adapter, provided with mains pins (3, 4). Mains pin (4) is connected via a conductive track (10) to a plug pin receiver (5). This embodiment includes a middle portion (6) which is retained in the lower portion (2) by means of barbs (11) and which includes a moulded recess (not shown) for receiving a moulded plug. The middle portion may also be retained by means of ultrasonic welding or by adhesive.

Fig. 2 shows a relevant adapter whose upper portion (1) forms a partial lid. The remainder of the upper surface of the adapter is provided by a part of the lower portion (2). Once again, mains pins (3, 4) are provided.

This arrangement is advantageous in that the plug pin receivers (not shown) may be hidden beneath that part of the lower portion (2) which provides an upper surface.

Figs. 3a and 3b show relevant adapters having upper and lower portions slidably connected. Fig. 3a shows an upper portion (1) inset into recesses (12) in a lower portion (2). This ensures that all handling stresses are placed on the lower portion (2). Although fig. 3a shows an inset sliding upper portion, it is also envisaged that other forms of attachment are applicable. Fig. 3b shows an upper (1) and a lower (2) portion slidably connected and prevented from being separated by barbs (13a, 13b).

Fig. 4 shows a relevant adapter wherein the edges of a plug (8) having pins (9, 19) project from between the upper (1) and lower (2) portions. Fig. 5 shows an adapter wherein the plug (8) is retained at an angle. Also shown is a fuse (14).

Referring now to fig. 6, there is shown an embodiment of a relevant adapter comprising upper (1) and lower (2) portions and mains pins (3, 4, 7). Both the upper (1) and lower (2) portions are provided with a moulded recess (15) which is so shaped as to co-operate with features of relief of the moulded plug. However, it is envisaged that the moulded recess may be provided in only one of the upper (1) or lower (2) portions.

Figs. 7a-7d show a number of moulded plugs (8) having pins (9, 19) and various features of relief (21, 18, 17, 22) with which a moulded recess in a relevant adapter may co-operate. Fig. 7a shows various positions in which recesses (21) may be located in the body of the moulded plug. Figs. 7b and 7c show shoulder regions (18, 17) which may co-operate with a moulded recess in the adapter. Fig. 7d shows a groove (22) formed between a pin (19) and an insulating sleeve (16). Any of these features may co-operate with a moulded recess in an adapter to retain the plug (8).

Fig. 8 shows a lower portion (2) of a relevant adapter having mains pins (3, 4, 7). In this embodiment, the contours of a recess (15) are defined by the edges of fins (23).

Figs. 9a, 9b, 9c and 9d show embodiments of a relevant adapter provided with an internal wall (24) having holes (25a, 25b) for receiving the pins (9, 19) of a moulded plug (8). In the embodiment of figs. 9a and 9b, the internal wall is integrally formed with the lower portion (2).

The embodiment of fig. 9c is one in which a part of the upper surface is provided by the lower portion. The pins (9, 19) of a moulded plug pass through holes (25a, 25b) into contact with receivers (5) joined to their respective pins (4) by means of conducting tracks (10). An advantage of this embodiment is that the tracks (10) and plug pin receivers (5) can be almost completely enclosed, the only communication with the surroundings being via the holes (25a, 25b).

The embodiment of fig. 9d is similar to that of fig. 9c, but includes an upper portion (1) which takes the form of a clamp which retains the moulded plug by clamping its tail portion to the lower portion (2) of the adapter. The upper portion (1) may comprise a conventional cable clamp, e.g. a strip of flexible material retained by a screw at either end.

Fig. 10 also shows a lower portion (2) of a relevant adapter having an internal wall (24). In addition to holes (25a, 25b) for the plug pins, there is also a hole (26) for passage of a fuse.

Fig. 11 shows a lower portion (2) of a relevant adapter having an internal wall (24) with holes (25a, 25b) for retaining the pins (9, 19) of a moulded plug (8). Also provided is an exit hole (28) for the cable (27) from the plug (8). In this embodiment, the plug (8) is retained between the internal wall (24) and the surrounds of the exit hole (28). The exit hole is shown chamfered to prevent chafing of the cable (27).

In fig. 12 there is shown a lower portion (2) of a relevant adapter having an internal wall (24) through which the pins (9, 19) of a moulded plug (8) pass. Also provided is a key (29) rotatable within a recess (30) in the plug body (8) to secure the plug (8) in the lower portion (2).

Fig. 13 shows an embodiment of a relevant adapter having upper (1) and lower (2) portions and mains pins (3, 4). The adapter is provided with inwardly opening flaps (31, 32) which are biased into a closed position shown in the figure.

Fig. 14 shows an embodiment of a relevant adapter having upper (1) and lower (2) portions slidably attached to one another. The lower portion (2) includes tracks (10) communicating the mains pins (4) with plug pin receivers (5). The upper portion (1) includes a moulded recess for a plug (8). Only when the upper (1) and lower (2) portions are slid into their closed position do the plug pins (19) make contact with the plug pin receivers (5).

Fig. 15 shows an adapter in which the upper portion (1) includes plug pin receivers (5), and lower portion (2) includes contacts (31) which are in contact with the mains pins (4, 7) and come into contact with the plug pin receivers (5) on securement of the upper portion (1) to the lower (2).

Figs. 16a and 16b show a relevant adapter wherein the lower portion (2) forms a box or frame for receipt therein of the upper portion (1). In this embodiment, the upper portion (1) includes plug pin receivers (5) and contacts (31) for contacting the mains pins (4, 7). Fig. 17 shows a relevant adapter in which the upper (1) and lower (2) portions are rotatably connected. The upper portion (1) carries the plug (8), plug pin receivers (5) and contacts (31); the lower portion (2) carries the mains pins (3, 4, 7).

Figs. 18a and 18b show other examples of relevant adapters wherein the upper (1) and lower (2) portions are rotatably connected. In these cases, there is also provided a locking assembly (32) for preventing relative rotation of the upper (1) and lower (2) portions. The locking assembly is illustrated in figs. 18c-18e and comprises inner (33) and outer (34) cylinders and a locking clip (35). The locking clip (35) is movable between a locking position (as shown) and a releasing position, and is positively located in these positions by means of resilient lugs (36). Relative rotation of the inner (33) and outer (34) cylinders is permitted only when the locking clip (35) is in its releasing position.

Fig. 19 shows a relevant adapter wherein a fuse (14) is contained in the upper portion (1) and bridges contacts (37) in the lower portion (2) upon securement of the portions together.

Fig. 20a shows an adapter wherein the upper portion (1) carries a fuse (14) and the moulded plug (8). The lower portion (2) includes a generally w-shaped contact (40) which makes contact between the fuse (14) and plug pin (9) on securement of the two portions to each other. Alternatively, the fuse (14) and plug (8) may be carried by the lower portion (2), and a w-shaped contact (40) by the upper portion (1).

Fig. 20b shows an arrangement of a fuse (14), plug pin (9) and generally u-shaped contact (40'). Such an arrangement is suitable for use in, for example, an adapter wherein the moulded plug is carried by the upper portion and the fuse (14) and u-shaped contact (40') by the lower portion.

Fig. 21 shows an adapter having a magnet (43) in the upper portion (1), and a fuse (14'), having a reed switch (42) and fuse wire (41), in the lower portion (2). Electrical contact is completed by bringing the magnet (43) close to the reed switch (42) which closes the reed switch (42).

Fig. 22 shows a relevant adapter wherein a track (10) joining a mains pin (4) to a plug pin receiver (5) is broken and provided with contacts (45) and insulation (46). This arrangement is located in the lower portion (2). In the upper portion (1) is located a pin (44) which moves one contact (45) so as to touch the other upon securement of the upper (1) to the lower (2) portion. As can be seen, much of this circuitry can be enclosed.

Fig. 23 shows an arrangement equivalent to that of fig. 22 except that it includes a fuse (14) in the broken track (10).

Figs. 24a and 24b show relevant adapters wherein the upper (1) and lower (2) portions are slidably connected to one another. Each upper portion is provided at its forward end with a wedge (146) which, in the case of fig. 24a, raises a plug pin receiver (5) into contact with a plug pin (9) or, in the case of fig. 24b, raises a contact (47) on a track (10) leading from a mains pin (7) so as to touch a contact (47) on a plug pin receiver (5). Once again, almost all of the circuitry can be enclosed.

Figs. 25a, 25b and 25c show embodiments of a relevant adapter. Fig. 25a shows upper (1) and lower (2) portions, the upper portion (1) having a recess (52) with a pin (50) mounted therein and biased outwardly by means of a spring (51). The pin engages with a hole in the lower portion (2), but may be disengaged therefrom against the bias of the spring (51) to permit release of the two portions (1; 2), for example by sliding or rotation, etc.

Fig. 25b shows a pin (50) mounted in a recess (53) in the lower portion (2) and extending therethrough. The pin is biased into engagement with a hole in the upper portion (1) by means of a spring (51), but may be withdrawn therefrom against the bias to permit separation of the portions (1, 2).

Fig. 25c shows a lower portion (2) having a cam (54) biased into a locking position by means of a spring (51) and rotatable against the bias to release an upper portion (not shown) from the lower (2).

Fig. 26 shows an adapter having a bolt (60) withdrawable from the lower surface of the lower portion (2) and including an enlarged head (62) to prevent its complete withdrawal. The upper portion (1) has a recess (61) alignable with the enlarged head (62) of the bolt (60) only when the upper (1) and lower (2) portions are in a closed position.

Figs. 27a and 27b show lower portions (2) of relevant adapters provided with levers (63). In fig. 27a, the pivoted end of the lever has a pinion (64) for co-operation with a rack (65) on the upper portion (1); in fig 27b, that end of the lever is provided with a cam (66) for co-operation with a recess (67). In either case, the lever can only be returned to a position flush with the lower surface of the lower portion (2) when the upper (1) and lower (2) portions are in a closed position, and therefore prevents insertion of the adapter into a socket when the upper and lower portions are in an open position.

Fig. 28a shows a relevant adapter in which the earth mains pin (3) must be rotated by 90° to allow the upper and lower portions to be separated. Once the pin is rotated, a cam (68) becomes aligned with a groove (69), allowing the two portions to slide relative to one another. Naturally, other embodiments can be envisaged in which the pin may be rotated by angles other than 90°, e.g. 80° or 100° etc.

Fig 28b shows a relevant adapter incorporating a retractable pin (4) having a shaped head (4') for contacting a moulded plug (8). As can be seen, any attempt to insert the adapter into a socket without the upper portion

(not shown) in place will result in the pin (4), preferably the live pin, being pushed into the adapter, and displacing plug pin (19) from its contact.

Fig. 29 shows an adapter in which the upper (1) and lower (2) portions are slidably connected and in which the lower portion (2) carries two mains pins (4, 7), and the upper portion (1) carries another (3).

Fig. 30 shows an adapter in which the upper (1) and lower (2) portions are arcuately slidable relative to one another. The adapter is shown in its open position wherein a part of the upper portion (1) extends or projects below the lower surface of the lower portion (2), thereby preventing insertion into an electrical socket.

Fig. 36 shows a longitudinal section through a relevant adapter during insertion of a moulded plug (8) which is not shown in section. The particular embodiment shown includes a lower portion (2), to which is attached an upper portion (1) at a hinge (96). The lower portion carries the usual mains pins (3, 4) and includes an access aperture (90, 92).

The access aperture consists essentially of two parts: a first part (90) in the lower surface of the lower portion (2) through which the body of the moulded plug (8) is inserted; and a second part (92) in the rear wall of the lower portion (2) through which the moulded plug cable passes once the plug is secured within the adapter. A shoulder (94) on the rear of the plug is retained against the surround of the second part (92) of the access aperture to help secure the plug in position.

Of course, it is perfectly possible for the second part of the access aperture to be large enough to accommodate the rear of the tail portion of the moulded plug, the shape of the plug preventing it from moving out any further.

Similarly, it may be that the first part of the access aperture extends to the rear wall of the lower portion, so long as the aperture is closed at its upper extremity by a bridge of material to prevent the moulded plug from being inserted from above.

The adapter of fig. 36, with a plug retained therein is shown from below in fig. 37. In this embodiment, the access hole is somewhat larger than the moulded plug since the plug must be inserted at an angle. However, this need not be the case, for example if the upper portion (1) were coextensive with the lower portion (2).

Figs. 31a and 31b show relevant adapters wherein the upper portions (1) are provided with handles (70).

Fig. 32a shows a typical sheet stamping from which a pin (4), track (10) and plug pin receiver (5) or pin (4), track (10) and fuse receiver (75) as shown in figs. 32b and 32c respectively, may be constructed. Fig. 33 shows a track (10) including a 180° twist to allow for movement of a plug pin retainer (5) relative to a mains pin (not shown).

Fig. 34 shows an adapter in which the first (1) and second (2) portions are hingedly mounted on one another, and biased into a closed position (as shown) by a spring (80).

Fig. 35 shows an adapter provided with an internal flap (82) biased into an inwardly swung, closed position (as shown) to prevent foreign objects being inserted. The flap is movable to an outwardly swung, open position only upon separation of the upper (1) and lower (2) portions.

Claims

1. An adaptor which is capable of retaining a moulded or other plug (8) within itself comprising:
 - an upper portion (1) and a lower portion (2) which together provide an insulated cover for the adaptor;
 - a plurality of mains pins (3,4,7) extending below the lower portion (2) for connecting the adaptor to the mains;
 - means for securing said moulded plug (8) within the adaptor, wherein said moulded plug (8) has at least two pins (9,19);
 - means for effecting electrical contact between respective plug pins (9,19) and mains pins (3,4,7); and
 - means for movably securing said upper portion (1) to said lower portion (2);

characterised in that said upper and lower portions (1,2) are movable between a closed position in which the adaptor is compatible with, and may be plugged into, a mains socket; and

an open position in which the adaptor is incompatible with, and may not be plugged into, a mains socket.
2. An adaptor according to claim 1 wherein one mains pin (3), preferably the earth pin (3), constitutes a release means (68,69) movable between a first, locking, socket-compatible position and a second, releasing, socket-incompatible position.
3. An adaptor according to claim 1 wherein one mains pin (4) is retractable within the adaptor and includes an internal head portion (4') for contacting the moulded plug (8).
4. An adaptor according to claim 1 wherein the upper portion (1) of the adaptor carries at least one of the mains pins (3) and the lower portion (2) the remaining mains pins (4,7).
5. An adaptor according to claim 4 in which the upper portion (1) carries the earth pin (3) and the lower portion (2) the remaining pins (4,7).
6. An adaptor according to claim 1 wherein, when the upper and lower portions (1,2) are in the open position, at least a part of the upper portion (1) projects below the lower surface of the lower portion (2).
7. An adaptor according to claim 6 wherein the upper and lower portions (1,2) are slidably connected by means of arcuate sliding surfaces, e.g. an arcuate groove in one portion co-operating with an arcuate ridge or bead on the other portion.
8. An adaptor according to claim 1 wherein the means for securing a moulded plug (8) within the adaptor comprise retaining means adapted to co-operate with features of relief (21,18,17,22) of the moulded plug (8).
9. An adaptor according to claim 8 wherein the retaining means comprise a moulded recess (15) in either the upper (1) or the lower portion (2) of the adaptor.
10. An adaptor according to claim 9 wherein the mass of material, preferably plastics material, in which the recess (15) is provided is finned (23), or comprises a plurality of projecting pegs, with the edges of the fins (23), or the ends of the pegs, defining the contours of the recess (15).
11. An adaptor according to any one of claims 8-10 in which the features of relief comprise projections or indentations in a shoulder portion (18,17), a body portion, a pin or pins or a tail portion of the moulded plug; and the retaining means comprises corresponding indentations or projections.
12. An adaptor according to claim 8 in which the retaining means comprises means adapted to receive and locate at least one pin (9,19) of the moulded plug (8).
13. An adaptor according to claim 12 wherein the retaining means includes a hole in, or a groove in, an edge of an internal wall of the plug (8).
14. An adaptor according to any one of claims 8-13 wherein the retaining means includes an exit hole (28) or slot in either the upper (1) or lower portion (2) of the adaptor which is sufficiently large to permit passage of the cable to which the moulded plug (8) is attached but is not large enough to accommodate any part of the moulded plug (8).
15. An adaptor according to claim 8, wherein the retaining means comprises a key (29) lockable, for example by rotation, in a recess (30) in the moulded plug (8).
16. An adaptor according to claim 15 wherein operating means for engaging and disengaging the key (29) are provided on the underside of the lower portion

(2) of the adaptor.

17. An adaptor according to claim 1 wherein the means for securing a moulded plug (8) within the adaptor are such as to permit insertion of a moulded plug (8) when the upper (1) and lower portions (2) are secured to one another but to permit its removal only when the upper and lower portions (1,2) are separated. 5
18. An adaptor according to claim 17 in which the means for securing a moulded plug (8) includes one or more inwardly opening flaps (31,32) in the upper or lower portion (1,2) movable between a closed and an inwardly opened position. 10
19. An adaptor according to claim 18 in which the flap or flaps (31,32) are biased towards the closed position, for example by a spring or springs. 15
20. An adaptor according to claim 1 wherein the means for effecting electrical contact between respective plug pins (9,19) and mains pins (4,7) comprise contact means (31) whereby such contact is effected upon securement of the upper portion (1) of the adaptor to the lower portion (2). 20
21. An adaptor according to claim 20 wherein the contact means (31) comprises first contact means (5) in the upper portion (1) for receiving the plug pins (9,19) in electrical contact and second contact means in the lower portion (2) for effecting electrical contact between the first contact means (5) and the mains pins (4,7) on securement of the upper portion (1) of the adaptor to the lower portion (2). 25
22. An adaptor according to claim 20 wherein the contact means comprises means for retaining a fuse (14) or conductor in the upper portion (1) of the adaptor and a pair of contacts (40) in the lower portion (2), the fuse (14) or conductor bridging the pair of contacts (40) on securement of the upper (1) to the lower portion (2). 30
23. An adaptor according to claim 20 wherein the contact means comprises a switch (42), preferably in the live pin circuit, in the lower portion (2) of the adaptor, biased into an open position, but which is closed by closing means (43) on the upper portion (1) upon securement of the upper portion (1) to the lower (2). 35
24. An adaptor according to claim 21 wherein the switch comprises a reed switch (42) and the closing means comprises a magnet (43) for closing the reed switch (42) on securement of the upper (1) to the lower portion (2). 40
25. An adaptor according to claim 21 wherein the switch comprises a pair of contacts (45) located adjacent, but biased away from, one another and the closing means comprises a projecting wedge or pin (44) adapted to move one contact (45) such that it touches the other. 45
26. An adaptor according to claim 1 such that the adaptor and the plug (8) secured therein cannot be separated when the adaptor is plugged into a socket. 50
27. An adaptor according to claim 24 such that, during insertion of the moulded plug (8), at least a portion of the moulded plug (8) projects below a lower surface of the lower portion (2). 55
28. An adaptor according to claim 21 wherein at least the lower surface of the lower portion (2) is provided with an access aperture (90,92) through which the moulded plug (8) may be inserted or removed.
29. An adaptor according to claim 26 wherein said means for securing a moulded plug (8) within the adaptor comprises retaining means adapted to cooperate with features of relief of the moulded plug (8).
30. An adaptor according to claim 29 wherein said retaining means comprises means adapted to receive and locate at least one pin (9,19) of the moulded plug (8).
31. An adaptor according to claim 1 such that the upper and lower portions (1,2) cannot be separated while the adaptor remains plugged into a socket.
32. An adaptor according to claim 31 including release means disposed on the lower surface of the lower portion (2) of the adaptor operable to permit release of the upper portion (1) from the lower portion (2).
33. An adaptor according to claim 32 wherein the upper and lower portions (1,2) are slidably or rotatably attached to one another, and the release means comprises a pin (50) located in one portion and biased into engagement with a hole or recess (52) in the other portion, the pin (50) being movable out of engagement with the hole or recess (52).
34. An adaptor according to claim 32 wherein the upper and lower portions (1,2) are slidably or rotatably attached to one another, and the release means comprises a cam (54) rotatable to release the upper and lower portions (1,2) of the adaptor from one another.
35. An adaptor according to claim 32 wherein the upper and lower portions (1,2) are hingedly, slidably, rotatably or otherwise movably attached and movable

between a closed and an open position, and the release means is movable between a first, locking position and a second, releasing position wherein it projects below the lower surface of the lower portion (2), and is capable of adopting the locking position only when the upper and lower portions (1,2) are in the closed position.

36. An adaptor according to claim 35 wherein the release means comprises a pin, screw or the like (60) withdrawable from the lower surface of the lower portion (2) but including check means (62) to prevent it from being completely withdrawn and the upper portion (1) is provided with a recess (61) for receiving the pin, screw or the like (60), the recess (61) only being in alignment with the pin, screw or the like (60) when the upper and lower portions (1,2) are in the closed position. 10
37. An adaptor according to claim 35 wherein the release means comprises a lever (63) provided on the lower portion (2) and pivotable between a locking position flush with the lower surface of the lower portion (2) and a release position. 15
38. An adaptor according to any preceding claim in which the upper position is provided with a gripping handle. 20
39. An adaptor according to any preceding claim in which the mains pins (3,4,7) and the means for effecting electrical contact between the mains (3,4,7) and plug pins (9,19) are integrally formed from stamped copper sheet or other conductive sheet material. 25
40. An adaptor according to any preceding claim wherein at least one of said mains pins (3,4,7) is connected to a plug pin receiver by a metal track that comprises at least a partial twist to allow for relative movement of the plug (9,19) and mains (3,4,7) pins. 30
41. An adaptor according to any preceding claim wherein the upper and lower portions (1,2) are movable between a closed and an open position and are biased, for example by a spring, towards the closed position. 35
42. An adaptor according to any preceding claim provided with an internal member movable between an inwardly swung, closed position and an outwardly swung, open position, and covering the opening through which the moulded plug (8) or its cable passes. 40

Patentansprüche

1. Adapter, der in der Lage ist, einen im Formverfahren hergestellten oder anderen Stecker (8) in sich selbst zu halten, welcher Adapter folgende Teile aufweist: 5

einen oberen Abschnitt (1) und einen unteren Abschnitt (2), welche gemeinsam eine isolierte Hülle für den Adapter bilden;
eine Mehrzahl an Netzstiften (3, 4, 7), die sich unter den unteren Abschnitt (2) erstrecken, um den Adapter am Netz anzuschließen;
Mittel zum Festlegen des im Formverfahren hergestellten Steckers (8) innerhalb des Adapters, wobei der im Formverfahren hergestellte Stecker (8) über mindestens zwei Stifte (9, 19) verfügt;
Mittel zur Herstellung eines elektrischen Kontaktes zwischen den jeweiligen Steckerstiften (9, 19) und den Netzstiften (3, 4, 7); und
Mittel zur bewegbaren Festlegung des oberen Abschnittes (1) am unteren Abschnitt (2);

dadurch gekennzeichnet, daß der obere und der untere Abschnitt (1, 2) zwischen einer geschlossenen Position, in welcher der Adapter mit einem Netzstecker kompatibel ist und in diesen eingesteckt werden kann; und

einer offenen Position, in welcher der Adapter mit einem Netzstecker nicht kompatibel ist und nicht in diesen eingesteckt werden kann, bewegbar sind.

2. Adapter nach Anspruch 1, bei welchem ein Netzstift (3), vorzugsweise der Massestift (3), eine Freigabemittel (68, 69) bildet, das zwischen einer ersten, verriegelnden, mit der Steckdose kompatiblen Position, und einer zweiten, freigebenden, mit der Steckdose nicht kompatiblen Position bewegbar ist. 35
3. Adapter nach Anspruch 1, bei welchem ein Netzstift (4) innerhalb des Adapters zurückziehbar ist und einen inneren Kopfabschnitt (4') zur Kontaktherstellung mit dem im Formverfahren hergestellten Stecker (8) umfaßt. 40
4. Adapter nach Anspruch 1, bei welchem der obere Abschnitt (1) des Adapters mindestens einen der Netzstifte (3) und der untere Abschnitt (2) die übrigen Netzstifte (4, 7) trägt. 45
5. Adapter nach Anspruch 4, in welchem der obere Abschnitt (1) den Massestift (3) trägt und der untere Abschnitt (2) die übrigen Stifte (4, 7) trägt. 50
6. Adapter nach Anspruch 1, bei welchem, wenn sich der obere und der untere Abschnitt (1, 2) in der offenen Position befinden, mindestens ein Teil des 55

oberen Abschnittes (1) unter die untere Oberfläche des unteren Abschnittes (2) vorsteht.

7. Adapter nach Anspruch 6, bei welchem der obere und der untere Abschnitt (1, 2) mit Hilfe von gekrümmten Schiebeoberflächen verschiebbar miteinander verbunden sind, wie zum Beispiel durch eine gekrümmte Rille in einem Abschnitt, welche mit einer gekrümmten Rippe oder Wulst am anderen Abschnitt kooperiert. 5
8. Adapter nach Anspruch 1, bei welchem die Mittel zum Festlegen eines im Formverfahren hergestellten Steckers (8) innerhalb des Adapters Haltemittel umfaßt, die geeignet sind, mit Entlastungsorganen (21, 18, 17, 22) des im Formverfahren hergestellten Steckers (8) zu kooperieren. 10
9. Adapter nach Anspruch 8, bei welchem die Haltemittel eine eingeformte Aussparung (15) entweder im oberen (1) oder im unteren (2) Abschnitt des Adapters aufweist. 15
10. Adapter nach Anspruch 9, bei welchem die Materialmasse, vorzugsweise Kunststoffmaterial, in welcher die Aussparung (15) ausgebildet wird, gerippt (23) ist, oder eine Mehrzahl an vorspringenden Stiften aufweist, wobei die Kanten der Rippen (23) oder die Enden der Stifte die Umriss der Aussparung (15) bestimmen. 20
11. Adapter nach einem der Ansprüche 8-10, in welchem die Entlastungsorgane Vorsprünge oder Einzahnungen in einem Schulterabschnitt (18, 17), einem Körperabschnitt, einem Stift oder Stiften oder einem hinteren Abschnitt des im Formverfahren hergestellten Steckers umfassen und die Haltemittel entsprechende Einzahnungen oder Vorsprünge umfaßt. 25
12. Adapter nach Anspruch 8, in welchem die Haltemittel eine Einrichtung umfaßt, die geeignet ist, mindestens einen Stift (9, 19) des im Formverfahren hergestellten Steckers (8) aufzunehmen und festzulegen. 30
13. Adapter nach Anspruch 12, bei welchem die Haltemittel ein Loch oder eine Rille in bzw. eine Kante an einer inneren Wand des Steckers (8) umfaßt. 35
14. Adapter nach einem der Ansprüche 8 bis 13, bei welchem die Haltemittel ein Ausgangsloch (28) oder einen Schlitz entweder im oberen (1) oder im unteren (2) Abschnitt des Adapters umfaßt, das bzw. der groß genug ist, um den Durchgang des Kabels zu ermöglichen, an dem der im Formverfahren hergestellte Stecker (8) befestigt ist, aber nicht groß genug ist, um irgendeinen Teil des im Formverfahren 40

hergestellten Steckers (8) aufzunehmen.

15. Adapter nach Anspruch 8, bei welchem die Haltemittel einen Schlüssel (29) umfaßt, der zum Beispiel durch Drehung in einer Aussparung (30) in dem im Formverfahren hergestellten Stecker (8) verriegelbar ist. 45
16. Adapter nach Anspruch 15, bei welchem ein Betätigungsmittel zum Einrücken und Ausrücken des Schlüssels (29) an der Unterseite des unteren Abschnittes (2) des Adapters vorgesehen ist. 50
17. Adapter nach Anspruch 1, bei welchem die Mittel zum Festlegen eines im Formverfahren hergestellten Steckers (8) innerhalb des Adapters dergestalt ist, daß ein im Formverfahren hergestellter Stecker (8) einsetzbar ist, wenn der obere (1) und der untere (2) Abschnitt aneinander befestigt sind, aber nur entfernt werden kann, wenn der obere und der untere Abschnitt (1, 2) voneinander getrennt sind. 55
18. Adapter nach Anspruch 17, in welchem die Mittel zum Festlegen eines im Formverfahren hergestellten Steckers (8) eine oder mehrere nach innen gerichtete Öffnungsklappen (31, 32) im oberen und unteren Abschnitt (1, 2) umfaßt, welche zwischen einer geschlossenen und einer nach innen geöffneten Position beweglich sind.
19. Adapter nach Anspruch 18, in welchem die Klappe oder die Klappen (31, 32) zur geschlossenen Position hin vorgespannt sind, und zwar zum Beispiel durch eine Feder oder durch Federn.
20. Adapter nach Anspruch 1, bei welchem die Mittel für die Herstellung des elektrischen Kontakts zwischen den jeweiligen Steckerstiften (9, 19) und den Netzstiften (4, 7) Kontaktmittel (31) umfassen, wodurch ein derartiger Kontakt bei Festlegung des oberen Abschnittes (1) des Adapters am unteren Abschnitt (2) herstellbar ist.
21. Adapter nach Anspruch 20, bei welchem die Kontaktmittel (31) erste Kontaktmittel (5) im oberen Abschnitt (1) zur Aufnahme der Steckerstifte (9, 19) im elektrischen Kontakt und zweite Kontaktmittel im unteren Abschnitt (2) zur Herstellung des elektrischen Kontakts zwischen den ersten Kontaktmitteln (5) und den Netzstiften (4, 7) beim Festlegen des oberen Abschnittes (1) des Adapters am unteren Abschnitt (2) umfaßt.
22. Adapter nach Anspruch 20, bei welchem die Kontaktmittel Organe zum Halten einer Sicherung (14) oder eines Leiters im oberen Abschnitt (1) des Adapters und ein Kontaktpaar (40) im unteren Abschnitt (2) umfaßt, wobei die Sicherung (14) oder

der Leiter das Kontaktpaar (40) bei Festlegung des oberen (1) Abschnittes am unteren (2) Abschnitt überbrücken.

23. Adapter nach Anspruch 20, bei welchem die Kontaktmittel einen Schalter (42), vorzugsweise im stromführenden Stiftkreis, im unteren Abschnitt (2) des Adapters umfaßt, der in eine offene Position vorgespannt ist, aber bei Befestigung des oberen Abschnittes (1) am unteren (2) durch Schließorgane (43) am oberen Abschnitt (1) geschlossen ist. 5
24. Adapter nach Anspruch 21, bei welchem der Schalter einen Zungenschalter (42) und die Schließvorrichtung einen Magnet (43) zum Schließen des Zungenschalters (42) bei Festlegung des oberen (1) Abschnittes am unteren (2) Abschnitt aufweist. 10
25. Adapter nach Anspruch 21, bei welchem der Schalter ein Paar von Kontakten (45) aufweist, die sich nebeneinander befinden, aber im Sinne einer voneinander weggerichteten Bewegung vorgespannt sind, und wobei die Schließorgane einen vorspringenden Keil oder Stift (44) umfaßt, der geeignet ist, einen Kontakt (45) so zu bewegen, daß er den anderen berührt. 15
26. Adapter nach Anspruch 1, derart daß der Adapter und der darin festgelegte Stecker (8) nicht voneinander getrennt werden können, wenn der Adapter in eine Steckdose eingesteckt ist. 20
27. Adapter nach Anspruch 24, derart daß sich während des Einsetzens des im Formverfahren hergestellten Steckers (8) mindestens ein Abschnitt des im Formverfahren hergestellten Steckers (8) unter eine untere Oberfläche des unteren Abschnittes (2) erstreckt. 25
28. Adapter nach Anspruch 21, bei welchem zumindest die untere Oberfläche des unteren Abschnittes (2) mit einer Zugangsöffnung (90, 92) versehen ist, durch welche der im Formverfahren hergestellte Stecker (8) eingesetzt oder entfernt werden kann. 30
29. Adapter nach Anspruch 26, bei welchem die Mittel zur Festlegung eines im Formverfahren hergestellten Steckers (8) innerhalb des Adapters Haltemittel umfaßt, die geeignet ist, mit Entlastungsorganen des im Formverfahren hergestellten Steckers (8) zu kooperieren. 35
30. Adapter nach Anspruch 29, bei welchem die Haltemittel Mittel umfassen, die geeignet sind, mindestens einen Stift (9, 19) des im Formverfahren hergestellten Steckers (8) aufzunehmen und festzulegen. 40

31. Adapter nach Anspruch 1, derart, daß der obere und der untere Abschnitt (1, 2) nicht voneinander getrennt werden können, solange der Adapter in einer Steckdose eingesteckt ist.

32. Adapter nach Anspruch 31, welche Freigabemittel aufweist, die sich an der unteren Oberfläche des unteren Abschnittes (2) des Adapters befinden und so betätigbar sind, daß die Freigabe des oberen Abschnittes (1) vom unteren Abschnitt (2) ermöglicht wird.

33. Adapter nach Anspruch 32, bei welchem der obere und der untere Abschnitt (1, 2) verschiebbar oder drehbar aneinander befestigt sind und die Freigabemittel einen Stift (50) umfassen, der sich in einem Abschnitt befindet und im Sinne des Eingriffs mit einem Loch oder einer Aussparung (52) im anderen Abschnitt vorgespannt ist, wobei der Stift (50) aus dem Eingriff mit dem Loch oder der Aussparung (52) heraus bewegbar ist.

34. Adapter nach Anspruch 32, bei welchem der obere und der untere Abschnitt (1, 2) verschiebbar oder drehbar aneinander befestigt sind, und die Freigabemittel einen Nocken (54) umfaßt, der zur Lösung des oberen Abschnittes vom unteren Abschnitt (1, 2) des Adapters drehbar ist

35. Adapter nach Anspruch 32, bei welchem der obere und der untere Abschnitt (1, 2) auf schwenkbare, verschiebbare, drehbare oder andere bewegliche Weise aneinander befestigt und zwischen einer geschlossenen und einer offenen Position beweglich sind, und die Freigabemittel zwischen einer ersten, verriegelnden Position und einer zweiten, freigebenden Position beweglich ist, wobei sie unter der unteren Oberfläche des unteren Abschnittes (2) vorstehen und in der Lage sind, die verriegelnde Position nur dann einzunehmen, wenn sich der obere und der untere Abschnitt (1, 2) in der geschlossenen Position befinden.

36. Adapter nach Anspruch 35, bei welchem die Freigabevorrichtung einen Stift, eine Schraube oder ähnliches (60) umfaßt, welcher von der unteren Oberfläche des unteren Abschnittes (2) entfernbar ist, aber eine Sicherung (62) umfaßt, um zu verhindern, daß er vollständig entfernt werden kann, und der obere Abschnitt (1) mit einer Aussparung (61) ausgestattet ist, um den Stift, die Schraube oder ähnliches (60) aufzunehmen, wobei die Aussparung (61) nur dann mit dem Stift, der Schraube oder ähnlichem (60) ausgerichtet ist, wenn sich der obere und der untere Abschnitt (1, 2) in der geschlossenen Position befinden.

37. Adapter nach Anspruch 35, bei welchem die Frei-

gabeeorgane einen Hebel (63) umfassen, der am unteren Abschnitt (2) angebracht ist und schwenkbar zwischen einer Verriegelungsposition, die bündig mit der unteren Oberfläche des unteren Abschnittes (2) ist, und einer Freigabeposition ist.

38. Adapter nach einem der vorhergehenden Ansprüche, in welchem die obere Position mit einem Griff versehen ist.

39. Adapter nach einem der vorhergehenden Ansprüche, in welchem die Netzstifte (3, 4, 7) und die Mittel zur Herstellung des elektrischen Kontaktes zwischen den Netzstiften (3, 4, 7) und den Steckerstiften (9, 19) einstückig aus gestanztem Kupferblech oder einem anderen leitenden Blechmaterial hergestellt sind.

40. Adapter nach einem der vorhergehenden Ansprüche, bei welchem mindestens einer der Netzstifte (3, 4, 7) an einem Steckerstiftaufnahme durch eine Metallschiene angeschlossen ist, welche mindestens eine teilweise Verdrehung aufweist, um eine relative Bewegung der Steckerstifte (9, 19) und der Netzstifte (3, 4, 7) zu ermöglichen.

41. Adapter nach einem der vorhergehenden Ansprüche, bei welchem der obere und der untere Abschnitt (1, 2) zwischen einer geschlossenen und einer offenen Position bewegbar sind und, zum Beispiel durch eine Feder, zur geschlossenen Position hin vorgespannt sind.

42. Adapter nach einem der vorhergehenden Ansprüche, der mit einem inneren Element versehen ist, das zwischen einer nach innen geschwungenen, geschlossenen Position und einer nach außen geschwungenen, offenen Position bewegbar ist und die Öffnung abdeckt, durch welche der im Formverfahren hergestellte Stecker (8) oder seine Kabel hindurchtreten.

Revendications

1. Adaptateur qui est capable de retenir une fiche moulée (8) ou une autre fiche dans son propre espace intérieur, comprenant :

une partie supérieure (1) et une partie inférieure (2) qui forment ensemble une enveloppe isolée pour l'adaptateur ;
une pluralité de broches d'alimentation (3, 4, 7) s'étendant au-dessous de la partie inférieure (2) pour raccorder l'adaptateur au secteur ;
un moyen pour assujettir ladite fiche moulée (8) à l'intérieur de l'adaptateur, ladite fiche moulée (8) ayant au moins deux broches (9, 19) ;

un moyen pour réaliser un contact électrique entre les broches (9, 19) de la fiche et les broches d'alimentation (3, 4, 7) respectives ;
un moyen pour assujettir, de manière amovible, ladite partie supérieure (1) à ladite partie inférieure (2) ;

caractérisé en ce que lesdites parties supérieure et inférieure (1, 2) sont déplaçables entre une position de fermeture, dans laquelle l'adaptateur est compatible avec une douille d'alimentation et peut y être enfiché ; et

une position d'ouverture dans laquelle l'adaptateur est incompatible avec une douille d'alimentation et ne peut pas y être enfiché.

2. Adaptateur selon la revendication 1, dans lequel une broche d'alimentation (3), de préférence la broche de terre (3), constitue un moyen de libération (68, 69) déplaçable entre une première position de verrouillage, compatible avec une douille, et une seconde position de libération incompatible avec une douille.

3. Adaptateur selon la revendication 1, dans lequel une broche d'alimentation (4) est rétractable à l'intérieur de l'adaptateur et comprend une partie de tête (4') intérieure destinée à venir en contact avec la fiche moulée (8).

4. Adaptateur selon la revendication 1, dans lequel la partie supérieure (1) de l'adaptateur porte au moins l'une des broches d'alimentation (3) et la partie inférieure (2), les broches d'alimentation restantes (4, 7).

5. Adaptateur selon la revendication 4, dans lequel la partie supérieure (1) porte la broche de terre (3) et la partie inférieure (2), les broches restantes (4, 7).

6. Adaptateur selon la revendication 1, dans lequel, lorsque les parties supérieure et inférieure (1, 2) sont dans la position d'ouverture, au moins une région de la partie supérieure (1) fait saillie au-dessous de la surface inférieure de la partie inférieure (2).

7. Adaptateur selon la revendication 6, dans lequel les parties supérieure et inférieure (1, 2) sont reliées par coulissement à l'aide de surfaces de coulissement incurvées, par exemple une rainure incurvée, dans une partie, coopérant avec une nervure ou un rebord incurvé(e) de l'autre partie.

8. Adaptateur selon la revendication 1, dans lequel le moyen pour assujettir une fiche moulée (8) à l'intérieur de l'adaptateur comprend un moyen de retenue apte à coopérer avec des éléments en relief

- (21, 18, 17, 22) de la fiche moulée (8).
9. Adaptateur selon la revendication 8, dans lequel le moyen de retenue comprend un évidement moulé (15), soit dans la partie supérieure (1), soit dans la partie inférieure (2) de l'adaptateur. 5
 10. Adaptateur selon la revendication 9, dans lequel la masse de matériau, de préférence de matière plastique, dans laquelle l'évidement (15) est réalisé, est munie d'ailettes (23) ou comprend une pluralité de doigts saillants, les bords des ailettes (23), ou les extrémités des doigts, définissant les contours de l'évidement (15). 10
 11. Adaptateur selon l'une quelconque des revendications 8 à 10, dans lequel les éléments en relief comprennent des saillies ou des empreintes dans une partie formant épaulement (18, 17), une partie formant corps, une broche ou des broches ou une partie formant queue de la fiche moulée ; et le moyen de retenue comprend des empreintes ou des saillies correspondantes. 15
 12. Adaptateur selon la revendication 8, dans lequel le moyen de retenue comprend un moyen apte à recevoir et positionner au moins une broche (9, 19) de la fiche moulée (8). 20
 13. Adaptateur selon la revendication 12, dans lequel le moyen de retenue comprend un trou, ou une rainure, dans un bord d'une paroi interne de la fiche (8). 25
 14. Adaptateur selon l'une quelconque des revendications 8 à 13, dans lequel le moyen de retenue comprend un trou (28) ou une fente de sortie ménagée (e), soit dans la partie supérieure (1), soit dans la partie inférieure (2) de l'adaptateur, qui est suffisamment grand(e) pour permettre le passage du câble auquel la fiche moulée (8) est fixée, mais qui n'est pas assez grand(e) pour recevoir une partie quelconque de la fiche moulée (8). 30
 15. Adaptateur selon la revendication 8, dans lequel le moyen de retenue comprend une clef (29) verrouillable, par exemple par rotation, dans un évidement (30) de la fiche moulée (8). 35
 16. Adaptateur selon la revendication 15, dans lequel des moyens d'actionnement pour introduire et retirer la clef (29) sont prévus sur la face inférieure de la partie inférieure (2) de l'adaptateur. 40
 17. Adaptateur selon la revendication 1, dans lequel le moyen pour assujettir une fiche moulée (8) à l'intérieur de l'adaptateur est tel qu'il permette l'insertion d'une fiche moulée (8) quand les parties supérieure (1) et inférieure (2) sont assujetties l'une à l'autre, mais qu'il ne permette son retrait que lorsque les parties supérieure et inférieure (1, 2) sont séparées. 45
 18. Adaptateur selon la revendication 17, dans lequel le moyen pour assujettir une fiche moulée (8) comprend un ou plusieurs volets (31, 32), s'ouvrant vers l'intérieur, dans la partie supérieure ou inférieure (1, 2), déplaçable entre une position de fermeture et une position d'ouverture vers l'intérieur. 50
 19. Adaptateur selon la revendication 18, dans lequel le volet ou les volets (31, 32) sont sollicités vers la position de fermeture, par exemple par un ressort ou des ressorts. 55
 20. Adaptateur selon la revendication 1, dans lequel le moyen pour réaliser un contact électrique entre des broches (9, 19) de la fiche et des broches d'alimentation (4, 7) respectives, comprend des moyens de contact (31), ledit contact étant réalisé lors de l'assujettissement de la partie supérieure (1) de l'adaptateur à la partie inférieure (2).
 21. Adaptateur selon la revendication 20, dans lequel les moyens de contact (31) comprennent un premier moyen de contact (5) dans la partie supérieure (1), destiné à recevoir les broches (9, 19) de la fiche en contact électrique, et un second moyen de contact dans la partie inférieure (2), destiné à réaliser un contact électrique entre le premier moyen de contact (5) et les broches d'alimentation (4, 7) lors de l'assujettissement de la partie supérieure (1) de l'adaptateur à la partie inférieure (2).
 22. Adaptateur selon la revendication 20, dans lequel les moyens de contact comprennent un moyen pour retenir un fusible (14) ou un conducteur dans la partie supérieure (1) de l'adaptateur, et une paire de contacts (40) dans la partie inférieure (2), le fusible (14) ou le conducteur pontant la paire de contacts (40) lors de l'assujettissement de la partie supérieure (1) à la partie inférieure (2).
 23. Adaptateur selon la revendication 20, dans lequel les moyens de contact comprennent un interrupteur (42), de préférence dans le circuit des broches sous tension, dans la partie inférieure (2) de l'adaptateur, sollicité dans une position ouverte, mais qui est fermé par un moyen de fermeture (43) situé sur la partie supérieure (1) lors de l'assujettissement de la partie supérieure (1) à la partie inférieure (2).
 24. Adaptateur selon la revendication 21, dans lequel l'interrupteur comprend un interrupteur à lames souples (42), et le moyen de fermeture comprend un aimant (43) pour fermer l'interrupteur à lames souples (42) lors de l'assujettissement de la partie

supérieure (1) à la partie inférieure (2).

25. Adaptateur selon la revendication 21, dans lequel l'interrupteur comprend une paire de contacts (45) situés à proximité immédiate l'un de l'autre, mais sollicités l'un à l'opposé de l'autre, et le moyen de fermeture comprend un coin ou une pointe saillante (44) apte à déplacer un contact (45) de façon qu'il touche l'autre.

26. Adaptateur selon la revendication 1, tel que l'adaptateur et la fiche (8), assujettie dans ce dernier, ne peuvent pas être séparés quand l'adaptateur est enfiché dans une douille.

27. Adaptateur selon la revendication 24, tel que, durant l'insertion de la fiche moulée (8), au moins une partie de la fiche moulée (8) fait saillie en dessous d'une surface inférieure de la partie inférieure (2).

28. Adaptateur selon la revendication 21, dans lequel au moins la surface inférieure de la partie inférieure (2) est pourvue d'un orifice d'accès (90, 92) à travers lequel la fiche moulée (8) peut être insérée ou retirée.

29. Adaptateur selon la revendication 26, dans lequel ledit moyen pour assujettir une fiche moulée (8) à l'intérieur de l'adaptateur comprend un moyen de retenue apte à coopérer avec des éléments en relief de la fiche moulée (8).

30. Adaptateur selon la revendication 29, dans lequel ledit moyen de retenue comprend un moyen apte à recevoir et à positionner au moins une broche (9, 19) de la fiche moulée (8).

31. Adaptateur selon la revendication 1, tel que les parties supérieure et inférieure (1, 2) ne peuvent pas être séparées tant que l'adaptateur reste enfiché dans une douille.

32. Adaptateur selon la revendication 31, comprenant un moyen de libération disposé sur la surface inférieure de la partie inférieure (2) de l'adaptateur, pouvant être actionné pour permettre à la partie supérieure (1) de se libérer de la partie inférieure (2).

33. Adaptateur selon la revendication 32, dans lequel les parties supérieure et inférieure (1, 2) sont fixées par coulissement ou rotation l'une à l'autre, et le moyen de libération comprend une cheville (50) placée dans une partie et sollicitée pour venir en prise avec un trou ou un évidement (52) pratiqué dans l'autre partie, la cheville (50) étant déplaçable pour être dégagée du trou ou de l'évidement (52).

34. Adaptateur selon la revendication 32, dans lequel

les parties supérieure et inférieure (1, 2) sont fixées par coulissement ou rotation l'une à l'autre, et le moyen de libération comprend une came (54) pouvant tourner pour libérer les parties supérieure et inférieure (1, 2) de l'adaptateur l'une de l'autre.

35. Adaptateur selon la revendication 32, dans lequel les parties supérieure et inférieure (1, 2) sont fixées par pivotement, par coulissement, par rotation ou selon un autre mode de déplacement, et sont déplaçables entre une position de fermeture et une position d'ouverture, et le moyen de libération est déplaçable entre une première position de verrouillage et une seconde position de libération dans laquelle il fait saillie en dessous de la surface inférieure de la partie inférieure (2), et n'est capable d'adopter la position de verrouillage que lorsque les parties supérieure et inférieure (1, 2) sont dans la position de fermeture.

36. Adaptateur selon la revendication 35, dans lequel le moyen de libération comprend une cheville, une vis ou analogue (60), pouvant être retirée depuis la surface inférieure de la partie inférieure (2), mais comprenant un moyen d'arrêt (62) pour l'empêcher d'être complètement retirée, et la partie supérieure (1) est pourvue d'un évidement (61) destiné à recevoir la cheville, la vis ou analogue (60); l'évidement (61) n'étant en alignement avec la cheville, la vis ou analogue (60), que lorsque les parties supérieure et inférieure (1, 2) sont dans la position de fermeture.

37. Adaptateur selon la revendication 35, dans lequel le moyen de libération comprend un levier (63) prévu sur la partie inférieure (2) et pouvant pivoter entre une position de verrouillage, de niveau avec la surface inférieure de la partie inférieure (2), et une position de libération.

38. Adaptateur selon l'une quelconque des revendications précédentes, dans lequel la partie supérieure est pourvue d'une poignée de préhension.

39. Adaptateur selon l'une quelconque des revendications précédentes, dans lequel les broches d'alimentation (3, 4, 7) et le moyen pour réaliser un contact électrique entre les broches d'alimentation (3, 4, 7) et les broches (9, 19) de la fiche est formé en une seule pièce, à partir d'une feuille de cuivre emboutie ou d'un autre matériau en feuille conducteur.

40. Adaptateur selon l'une quelconque des revendications précédentes, dans lequel au moins l'une des dites broches d'alimentation (3, 4, 7) est connectée à un récepteur de broches de fiche par une piste métallique qui comprend au moins une torsade partielle pour autoriser un déplacement relatif des bro-

ches (9, 19) de la fiche et des broches d'alimentation (3, 4, 7).

41. Adaptateur selon l'une quelconque des revendications précédentes, dans lequel les parties supérieure et inférieure (1, 2) sont déplaçables entre une position de fermeture et une position d'ouverture et sont sollicitées, par exemple par un ressort, vers la position de fermeture.
42. Adaptateur selon l'une quelconque des revendications précédentes, pourvu d'un organe interne déplaçable entre une position de fermeture, basculée vers l'intérieur, et une position d'ouverture, basculée vers l'extérieur et couvrant l'ouverture à travers laquelle la fiche moulée (8) ou son câble passe.

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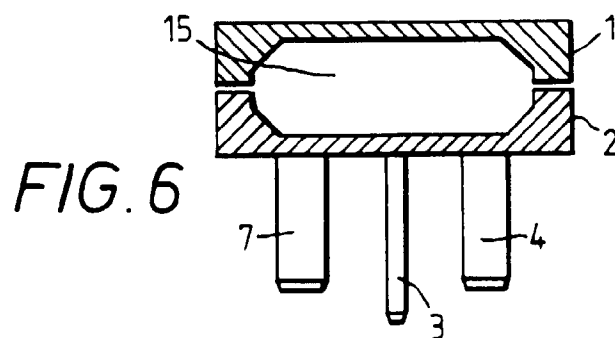
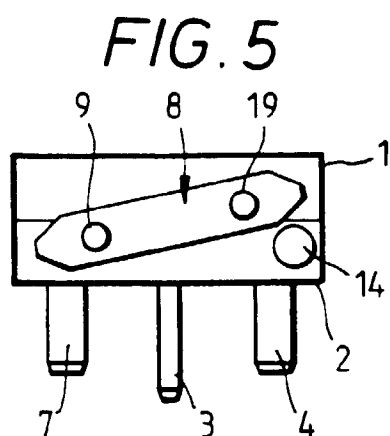
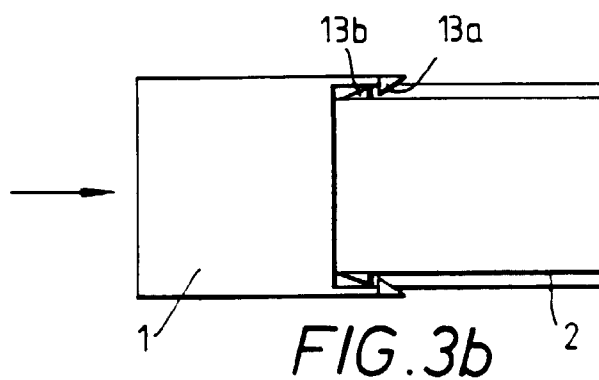
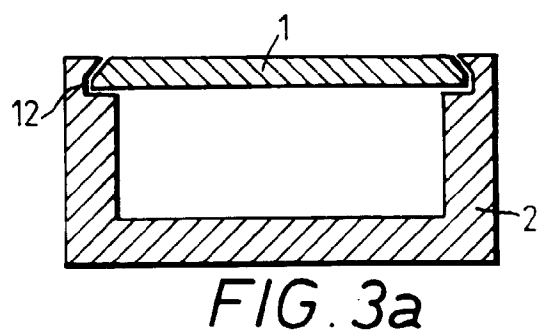
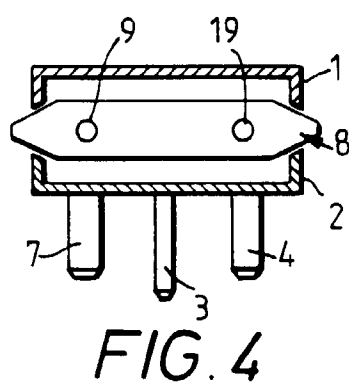
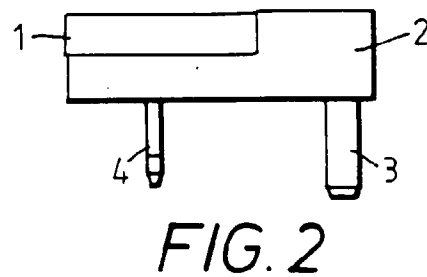
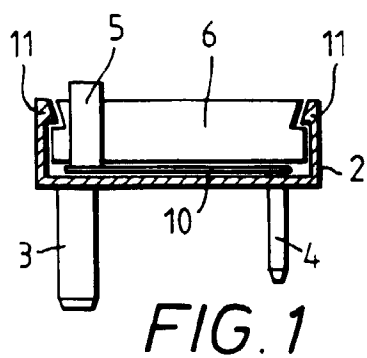
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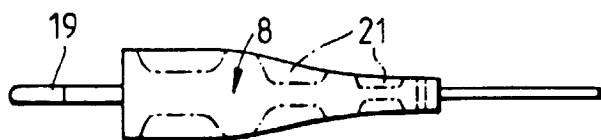


FIG. 7a

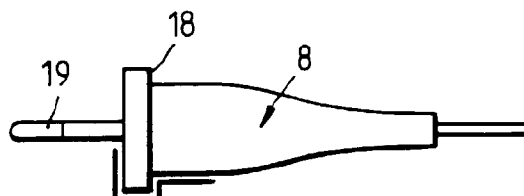


FIG. 7b

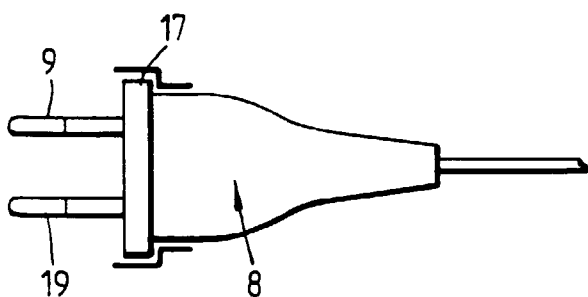


FIG. 7c

FIG. 7d

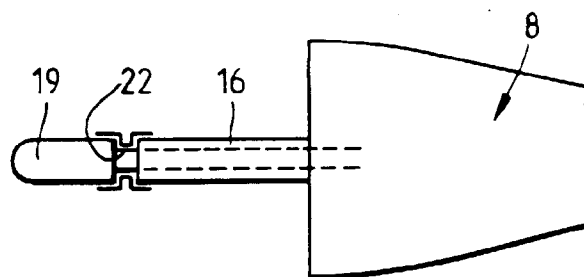


FIG. 8

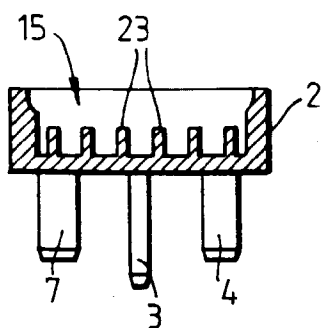


FIG. 9a

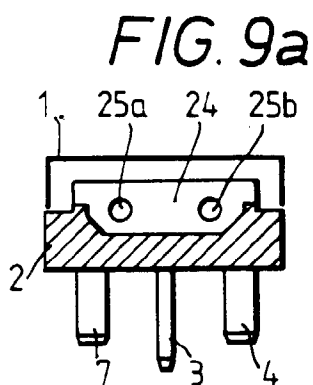


FIG. 9b

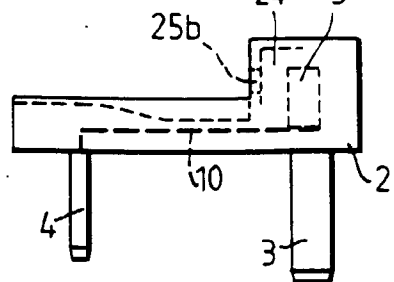
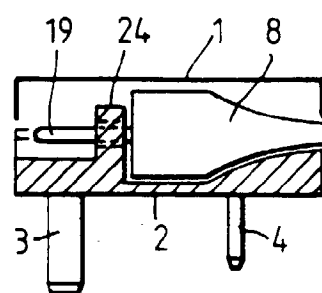
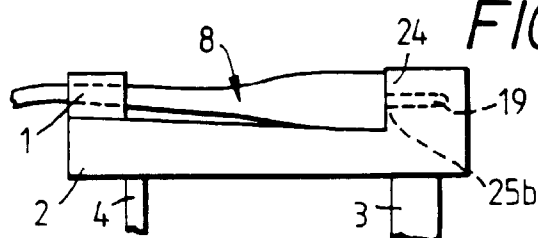


FIG. 9d



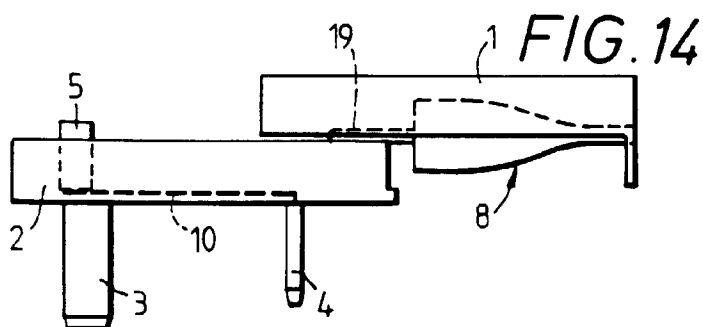
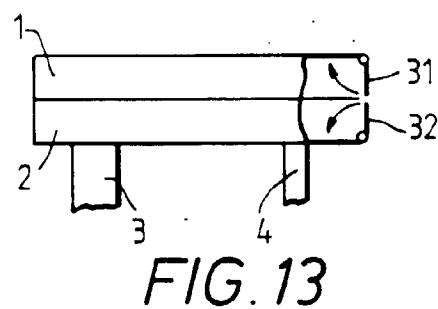
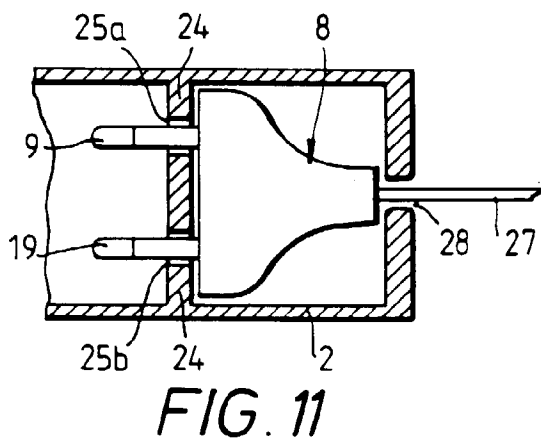
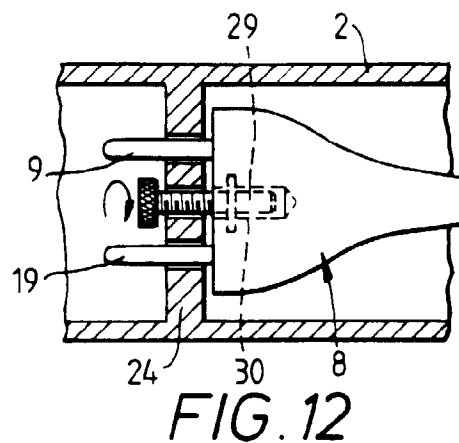
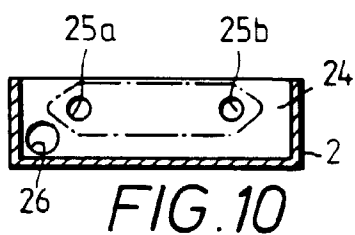


FIG. 15

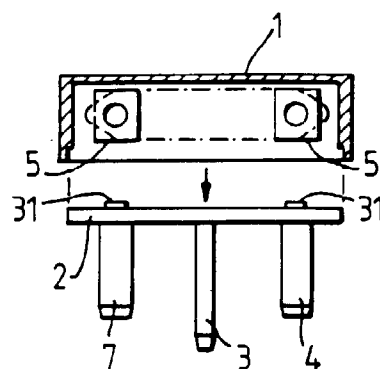


FIG. 16a

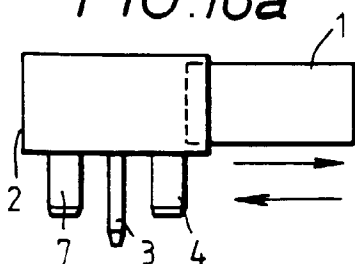
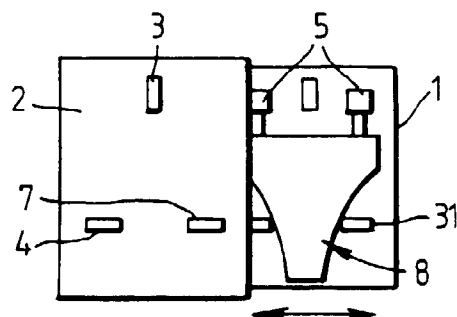
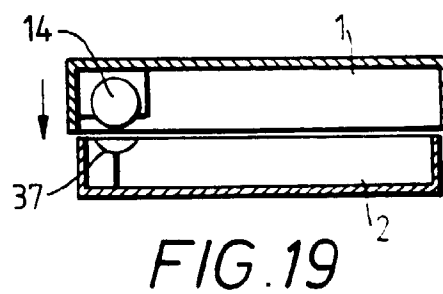
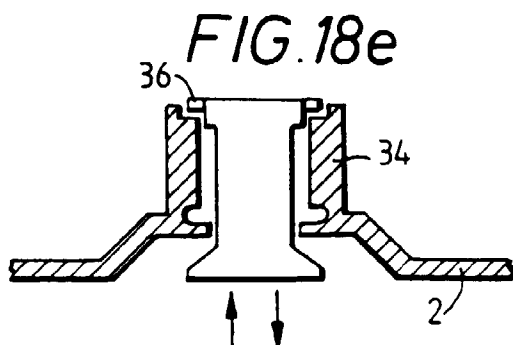
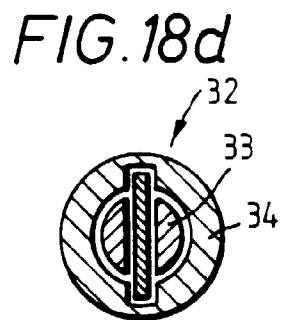
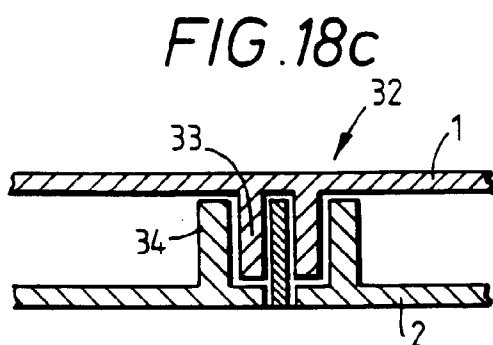
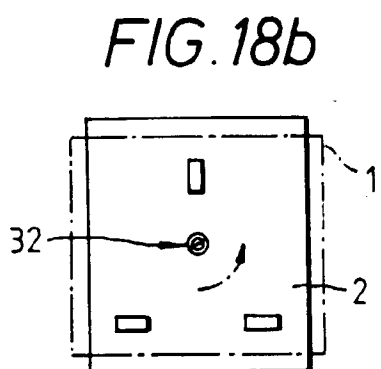
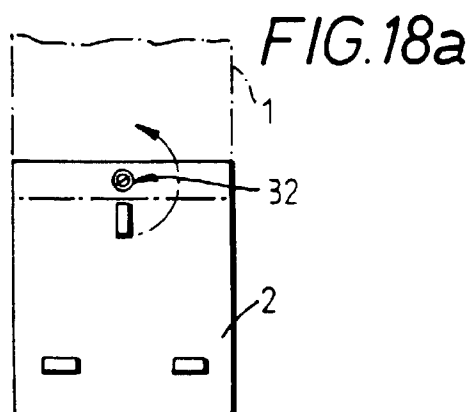
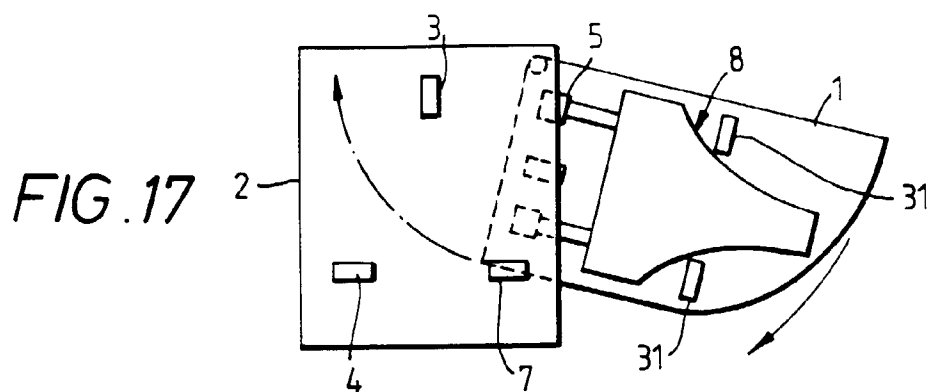


FIG. 16b





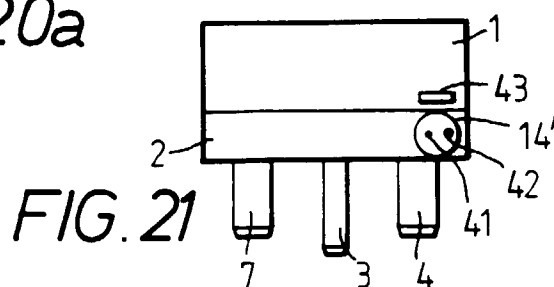
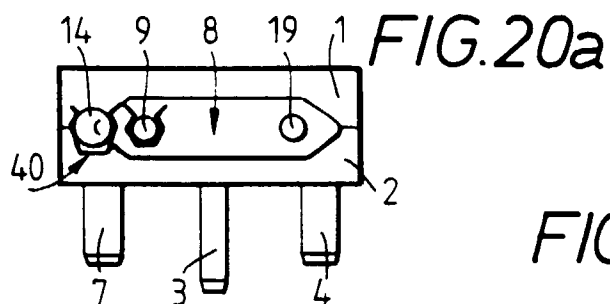


FIG. 20b

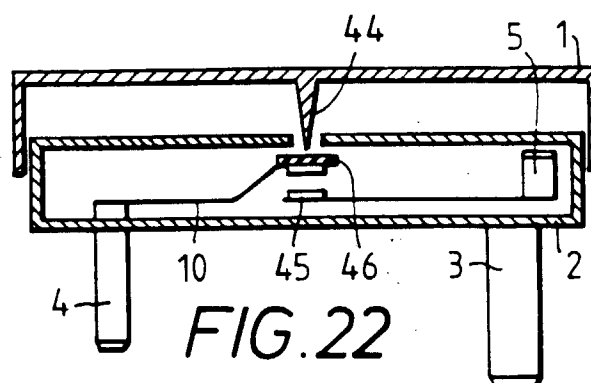
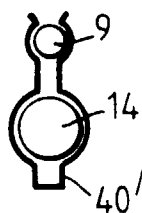


FIG. 23

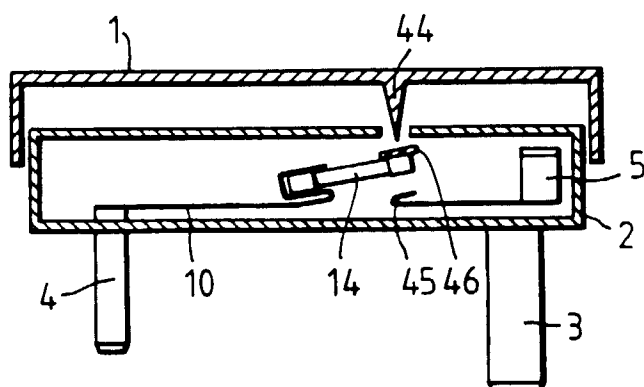


FIG. 24a

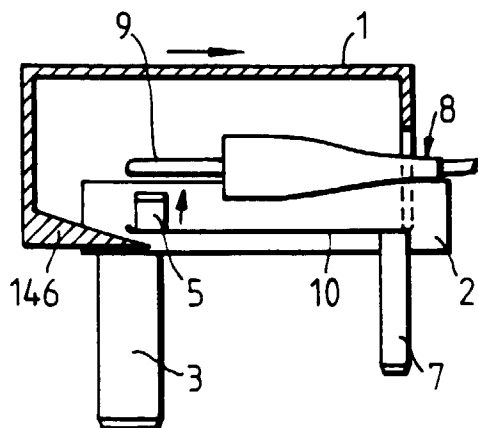
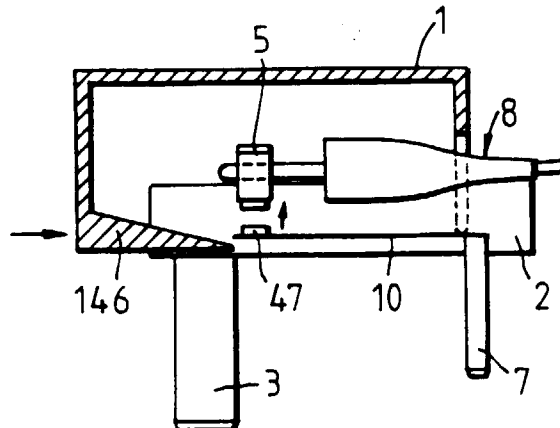


FIG. 24b



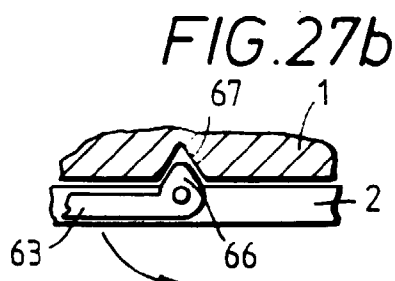
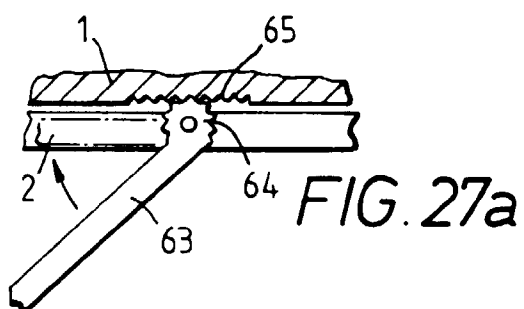
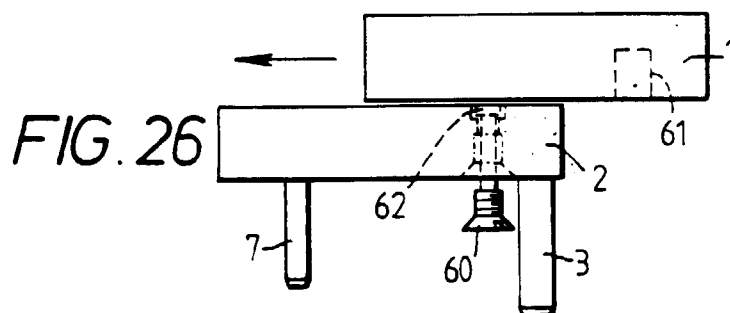
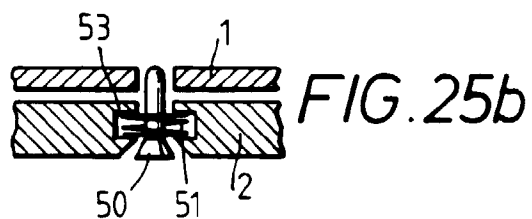
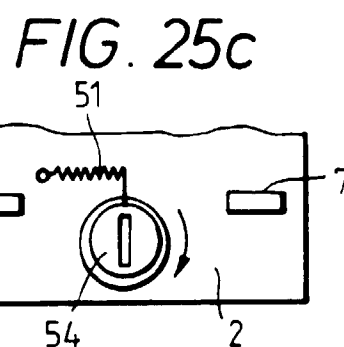
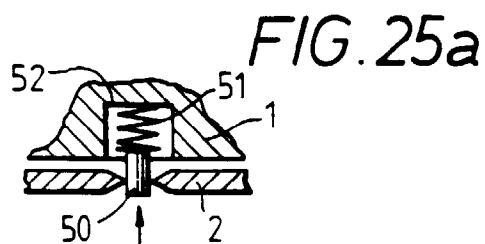
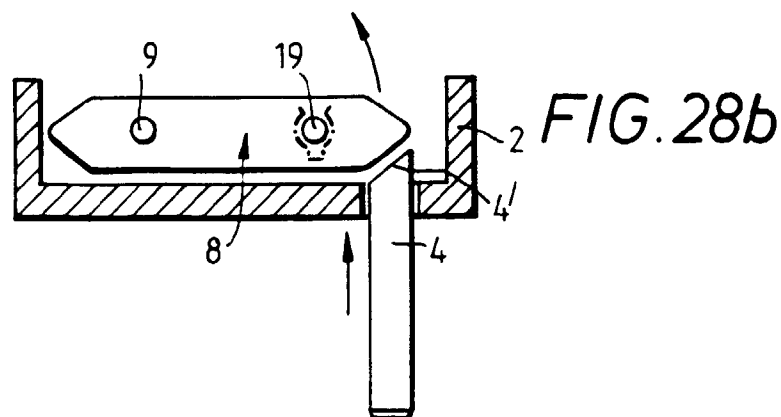
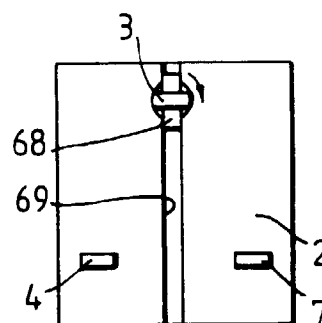


FIG. 28a



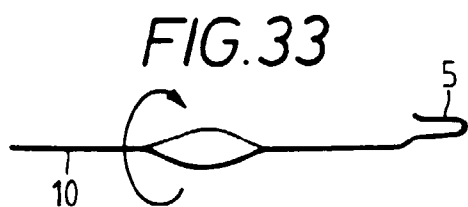
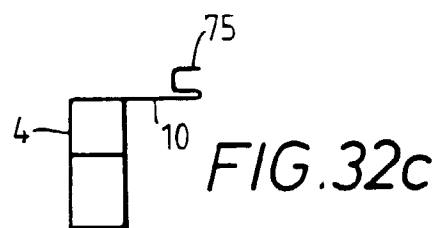
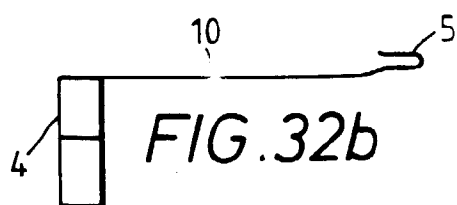
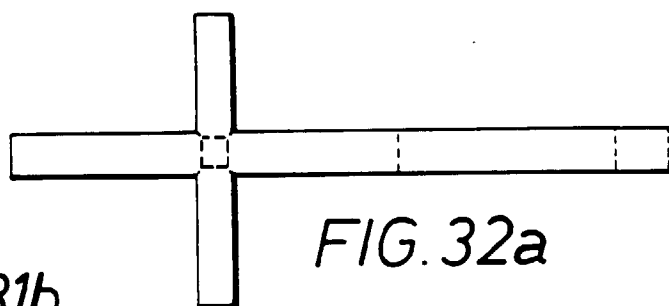
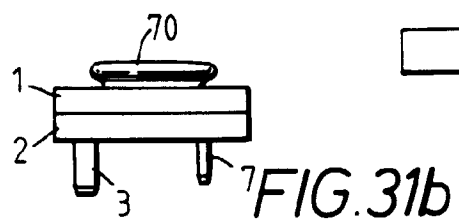
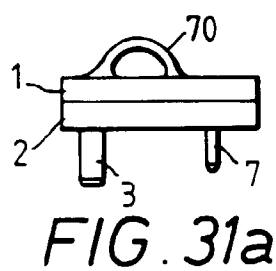
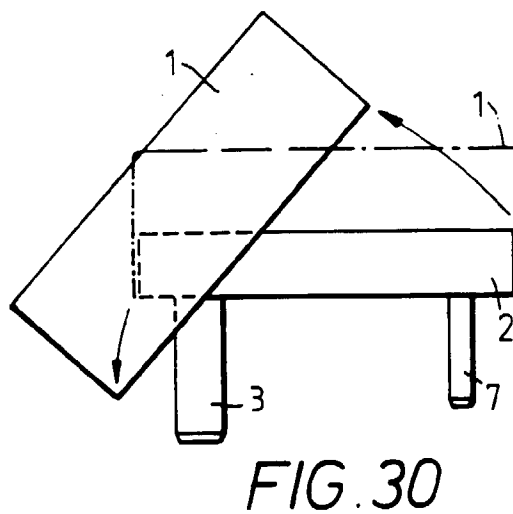
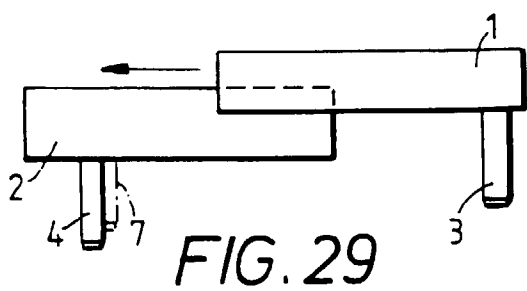


FIG. 34

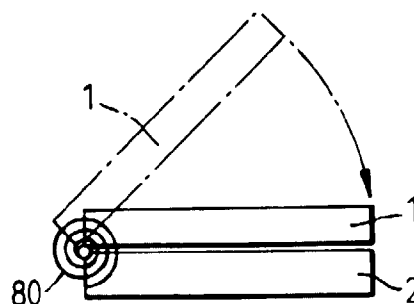


FIG. 35

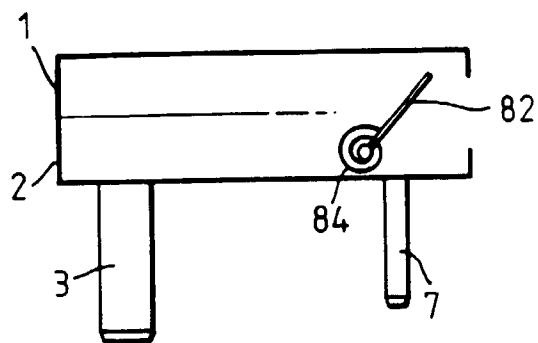


FIG. 36

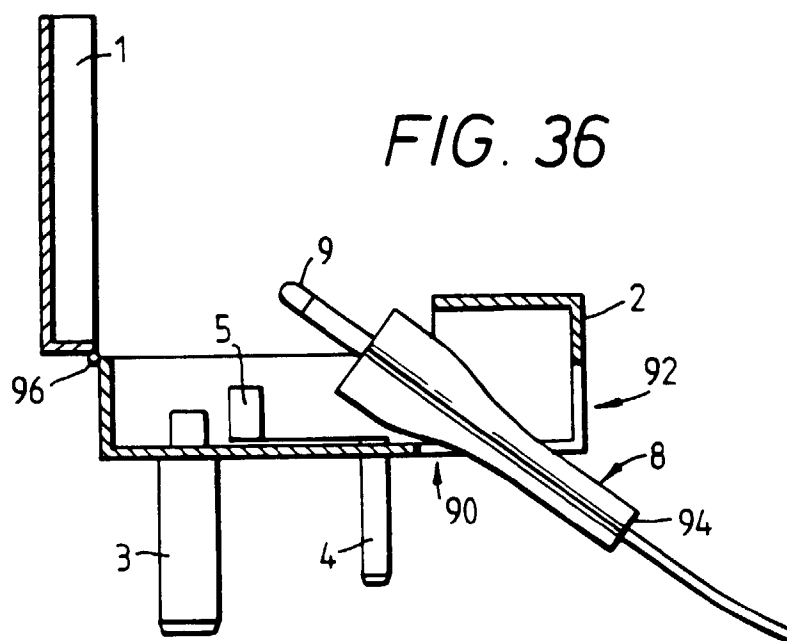


FIG. 37

