

Description

This invention relates to electricity supply systems and devices. More particularly the invention concerns an electric socket outlet adapted to receive a plug connector wired to an appliance for supplying electric power to that appliance.

In general outlet sockets have a fascia plate provided with a number of openings which provide access to the electrical contacts of the socket and into which respective contact pins of a plug are inserted when the plug is engaged with the socket. In some cases the socket contacts are freely accessible through the openings, which is potentially dangerous especially if the socket is mounted at or near floor level, since small children may push their fingers or sharp instruments into the openings and make contact with the live contacts. In an attempt to reduce these risks it is known to provide a shutter device within the socket behind the fascia plate. One form of shutter device comprises a shutter which is urged by a spring towards a closed position in which it covers the line contacts against access through the respective openings. The shutter has a tongue which in the closed position is located immediately behind the opening intended to receive the earth pin of the electric plug, and upon inserting the plug into the socket the earth pin engages the tongue and slides back the shutter to enable the current pins to enter into cooperation with the power contacts of the socket.

While the provision of such a shutter substantially improves safety, the problem mentioned above is not completely eliminated. The openings remain exposed at the front face of the socket and seem to hold some kind of attraction to small children, and by merely inserting a pointed member into the earth opening the shutter is easily displaced to permit access to the power contacts.

Documents disclosing inner shutter arrangements for electric socket outlets are: JP-U-57016177; FR-A-1283102; GB-A-434078; FR-A-1423724; DE-C-705485; GB-A-954728; GB-A-904694; GB-A-658936 and GB-A-1551249.

The present invention aims at an electric outlet socket device of enhanced security, and according to the invention there is provided an electric socket outlet comprising a fascia member having a plurality of openings for the pins of an electric plug to enter and pass into cooperation with respective socket contacts, an inner shutter device arranged between the fascia member and socket contacts normally to close off access to the line contacts and to permit such access upon engagement of an appropriate plug with the socket, characterised in that an outer shutter mounted at the front of the fascia member so as not to project forwardly beyond the front face of said fascia member, and the outer shutter is arranged for sliding movement between a closed position covering said openings and an open position in which the openings are exposed for entry of the plug pins.

With a socket according to the invention, with

the outer shutter closed during periods when the socket is not in use, the socket openings are hidden completely by the outer shutter and the socket has an essentially solid appearance. As a result it is believed the socket will not attract the same interest from a child as the known sockets with permanently exposed holes. Furthermore, access to the power contacts is more difficult since it is necessary for two shutters operated in different ways to be opened first. The socket of the invention also has the additional attendant advantage of improving the aesthetic qualities by hiding the openings from view.

It is expedient for the outer shutter to be received in a recess in the front face of the fascia member so that its front surface does not protrude from and is preferably substantially flush with that of the fascia member. This construction allows the shutter to underlie the body of a plug engaged with the socket without impeding the plug, which means that the distance through which the shutter must be moved between the closed and open positions can be small and the shutter can be located inside the peripheral edge of the fascia member at all times.

The outer shutter is preferably biased by a spring to the closed position so that it is closed automatically on removing a plug from the socket and the shutter must be moved against the spring force to gain access to the openings. In a preferred construction the outer shutter consists of a T-shaped plate which is slidably mounted in a shallow recess of similar configuration in the front surface of the fascia member.

To assist in opening the outer shutter the front face of the fascia member may include a groove arranged to guide a pin, preferably the earth pin of a plug into abutment with the shutter for moving it to the open position with the pin.

It is well known to provide in an electric socket outlet a switch which controls electrical connection between a contact of the switch and a current conducting element which is connected to the electricity supply. In these known socket outlets, however, a plug can be inserted and removed whether the switch is turned "on" or "off". As a result arcing can occur between the contacts of the plug and socket and electric shocks can be suffered if the plug pins are touched with the fingers accidentally during plug insertion or removal operations. Furthermore, because the switch may be "on" during periods of non-use of the socket outlet, sharp instruments inserted through the socket openings may still make contact with live parts so problems of safety still persist.

In accordance with a second novel aspect the present invention avoids these drawbacks by providing an electric socket outlet comprising a fascia member having a plurality of openings for the pins of an electric plug to enter and pass into cooperation with respective socket contacts, a switch having an operating member protruding through the fascia member, the switch being operable to make and break electrical connection between a line contact and a current conducting

element of the socket outlet, said switch being so arranged that it can only be turned "on" to make said connection when a plug is inserted in the socket outlet, characterised in that an interlock device (59, 60) is actuatable by a pin (65) of the electric plug and is arranged to prevent the switch operating member (50) being moved to the "on" position when there is no plug inserted in the socket outlet, and to allow the switch to be turned "on" when an electric plug is inserted in the socket.

According to a preferred arrangement the interlock device is provided in the form of a movable member displaced by an earth pin of the plug, the interlock member blocking the switch operating member against movement to the "on" position when there is no plug inserted in the socket outlet.

A better understanding of the invention will be had from the following detailed description of a socket embodied in a bus duct distribution system, reference being made to the accompanying drawings in which:—

Figure 1 is a front elevation of a section of ducting incorporating a socket in accordance with the invention;

Figure 2 is a section taken along the line X—X of Figure 1;

Figure 3 is a section taken along the line Y—Y of Figure 1;

Figure 4 is a section taken along the line Z—Z of Figure 1;

Figure 5 is a front view showing a socket outlet having an outer shutter according to the invention and also including a switch;

Figure 6 is a side view of the socket outlet shown in Figure 5;

Figure 7 is a front view of the outlet socket of Figure 5 with the fascia, inner shutter, switch rocker, and moving contact removed;

Figures 8a and 8b are side and end views illustrating the switch interlock with the switch off and prior to insertion of a plug into the socket; and

Figures 9a and 9b are corresponding views showing the interlock with a plug inserted and the switch turned on.

The distribution duct illustrated in Figures 1 to 4 has an outer casing including a rear member 1 and a front cover 2 both formed as continuous extrusions. Within the outer casing is disposed an inner casing member 3 also formed as an extrusion, the member 3 being supported by the cover 2 and the cover 2 and member 3 both having snap-fit connections 4 with the rear casing member 1. The ducting is intended to be mounted to a wall, e.g. close to the floor to form a skirting, the rear member 1 being first secured in position and then having the inner casing member 3 and cover 2 fitted to it. The inner casing member defines three longitudinal channels along which extend respective conductor strips, namely an earth strip 5, a live strip 6 and a neutral strip 7. At positions spaced apart along the casing socket outlets are provided, only one being shown in the duct section seen in Figure 1, to provide access for an electric plug to make contact with the conductor strips. At

each outlet position the cover 2 is provided with a rectangular aperture, an electrically insulating insert 8 is disposed between the inner casing member 3 and the conductor strips 5—7 to hold them in proper position, and each strip is formed with two spaced apart upstanding U-shaped portions defining socket contacts for cooperation with the respective contact pins of an electric plug. The U-shaped contact portions for the earth strip 5 are seen in Figure 2 and are designated with the numeral 9. Located within the casing at each outlet position is a socket 10 having a fascia plate 11 shaped to protrude through the aperture in the cover 2, and a body 12 firmly fixed to the fascia plate and having snap-fit connections 13 with the insert 8. The body includes pairs of tongues 19 which project down into the respective channels of the insert 8 either side of the contact portions of each conductor strip thereby to provide additional support for these conductor portions, as shown in Figure 2 for the earth strip. In the front surface of the fascia plate is a shallow recess 14 of T-shape, and provided in the bottom of the recess are a longitudinal slot 15, and openings 16—18 to receive the earth, live and neutral contact pins of a conventional 3-pin plug, the opening 16—18 being located in register with the contact portions of the conductor strips 5—7 respectively. An outer shutter plate 20 also of T-shape is received in the recess 14 and is guided for longitudinal sliding movement by rails 21 which engage in the slot 15, and by latching projection 22 which snap behind intumed edges 24 of the fascia plate to secure the shutter to the fascia plate. The shutter is movable between the closed position shown in Figure 1 in which it covers the openings 16—18 and an open position in which the openings are uncovered. The outer surface of the shutter is flush with that of the fascia plate so as not to impede engagement of a plug body flat against the socket surface. A spring 25 interposed between opposed abutment shoulders on the fascia plate and outer shutter 20 urges the latter towards the closed position.

Mounted slidably between the fascia plate 11 and body 12 is an inner shutter 30 also of T-shape configuration, and the opposite arms of which are arranged to underlie the socket openings 17—18 to deny access to the power conductors 6, 7 when the shutter is closed. The shutter 30 is guided for longitudinal movement by the side walls of the slot 15 in the fascia plate, and includes an integral nose portion 31 arranged to underlie the earth contact opening 16 when shutter is closed. The nose portion has a curved cam surface which is adapted to be engaged by an earth contact pin inserted through the opening 16 for the shutter to be displaced in an open position in which access to the contact portions of conductors 6, 7 is possible. The shutter is normally urged to the closed position by a spring 32 positioned between opposed abutment shoulders on the shutter 30 and the fascia plate.

The recess 14 in the fascia plate 11 includes an end part with side and end surfaces which slope inwardly towards the opening 16 to define a

groove 35 to assist in guiding an earth pin into abutment with the adjacent end of the outer shutter 20 and then into the opening 16 for opening the inner shutter.

In the normal position when the socket is not in use both shutters 20, 30 are closed to deny access to the conductors 6, 7, and the socket openings 16—18 are also hidden by the outer shutter 20. When a plug is to be inserted into the socket, the tip of the earth pin, which is slightly longer than the current carrying pins, is positioned in the groove 35 of recess 14 and is moved to slide the shutter 20 back against the force of spring 25 so as to uncover the openings 16—18. The earth pin is then pushed through the opening 16 to engage and slide back the inner shutter 30 allowing the current pins of the plug to pass through the openings 17, 18 and into contact with the contact portions of conductors 6, 7, the earth pin itself coming into cooperation with the contact portions 9 of the earth conductor 5. When the plug is withdrawn from the socket the inner and outer shutters are returned automatically to their closed positions by the spring 25, 32.

Although the outer sliding shutter of the invention has been described specifically in relation to a socket embodied in a distribution bus duct, it will be understood that it is equally applicable to separate outlet sockets of the type connected to the mains supply by electric cable. Such a socket is illustrated in Figures 5—9 and the outer shutter 20 may be conveniently mounted slidably on the outside of the fascia plate 11 in essentially the same manner as described above in connection with Figures 1 to 4 or in any other way.

The socket outlet of Figures 5—9 includes a switch which is operated by means of an actuating member in the form of a rocker 50 which protrudes through an opening in the fascia plate 11. The switch mechanism is housed within a body 51 attached to the rear of the fascia plate. As seen in Figure 7, the body 51 also accommodates terminals 52—54 for the connection of the live, neutral and earth wires, respectively, of a mains supply circuit. A neutral contact 55 is connected to the terminal 53 and an earth contact 56 is connected to the terminal 54. Connected to the terminal 52 is a conducting element 58 which is also connected to the moving contact of the switch (not shown). The moving contact is movable by means of the rocker 50 between an "off" position in which it is disengaged from a live contact 57 and an "on" position in which it engages this contact to establish electrical continuity between the contact 57 and terminal 52. It will be understood that the contacts 55—57 include pin contacting portions located behind the fascia plate in register with the openings in the fascia plate for cooperation with the respective pins of a plug when it is inserted into the socket outlet.

To prevent the switch being turned on when a plug is not inserted into the socket outlet an interlock device is provided. This device comprises a slide member 59 guided for linear sliding

movement in the socket body and urged to a switch blocking position (Figure 8) by a spring 60. At one end the member 59 is provided with a cam surface 61 and at its other end includes a stop shoulder 62 and a further cam surface 63. In the blocking position of member 59, the cam surface 61 is located in alignment with the pin contacting portion of the earth contact 56, and the stop shoulder is located beneath an integral finger 64 provided on rocker 50 whereby the rocker is prevented from being moved to the "on" position to make the connection between contact 57 and element 58. Thus, the live contact 57 remains isolated from the mains supply. When a plug is inserted into the socket the earth pin 65, after first moving the outer shutter 20 as well as the inner shutter (not shown) to the open positions, engages the cam surface 61 and drives the slide member 59 against the bias of spring 60 to a switch released position (Figure 9) as the plug is pushed fully home into the socket outlet. The finger 64 of rocker 50 is now aligned with a recess in the slide member and the rocker can be manipulated to close the switch. In this position of the slide member the switch can be operated in conventional manner to control supply of electric power to a plug engaged with the socket.

If attempt is made to remove the plug with the switch still on, as the earth pin 65 is withdrawn the spring 60 pushes the slide member back towards the blocking position and the cam surface 63 acts on the finger 64 pivoting the rocker 50 into the "off" position and thereby breaking the connection between contact 57 and element 58 before the live and neutral pins of the plug leave the contacts 57 and 55 of the socket. Further movement of the slide member 59 under the force of spring 60 positions the shoulder 62 beneath the finger 64 to stop the switch being turned on. Thus, the switch can only be turned on when a plug has been inserted into the socket outlet, and if attempt is made to withdraw a plug when the switch is on it is automatically turned off.

As shown in Figure 5, the socket outlet is provided with a neon indicator lamp 66 which is illuminated when the switch of the socket is turned on.

Claims

1. An electric socket outlet comprising a fascia member (11) having a plurality of openings (16—18) for the pins of an electric plug to enter and pass into cooperation with respective socket contacts (5—7), and an inner shutter device (30) arranged between the fascia member and socket contacts normally to close off access to the line contacts and to permit such access upon engagement of an appropriate plug with the socket, characterised in that an outer shutter (20) is mounted at the front of the fascia member (11) so as not to project forwardly beyond the front face of said fascia member, and the outer shutter is arranged for sliding movement between a closed position covering said openings (16—18) and an



(11)

5

0 125 141

6

groove 35 to assist in guiding an earth pin into abutment with the adjacent end of the outer shutter 20 and then into the opening 16 for opening the inner shutter.

In the normal position when the socket is not in use both shutters 20, 30 are closed to deny access to the conductors 6, 7, and the socket openings 16—18 are also hidden by the outer shutter 20. When a plug is to be inserted into the socket, the tip of the earth pin, which is slightly longer than the current carrying pins, is positioned in the groove 35 of recess 14 and is moved to slide the shutter 20 back against the force of spring 25 so as to uncover the openings 16—18. The earth pin is then pushed through the opening 16 to engage and slide back the inner shutter 30 allowing the current pins of the plug to pass through the openings 17, 18 and into contact with the contact portions of conductors 6, 7, the earth pin itself coming into cooperation with the contact portions 9 of the earth conductor 5. When the plug is withdrawn from the socket the inner and outer shutters are returned automatically to their closed positions by the spring 25, 32.

Although the outer sliding shutter of the invention has been described specifically in relation to a socket embodied in a distribution bus duct, it will be understood that it is equally applicable to separate outlet sockets of the type connected to the mains supply by electric cable. Such a socket is illustrated in Figures 5—9 and the outer shutter 20 may be conveniently mounted slidably on the outside of the fascia plate 11 in essentially the same manner as described above in connection with Figures 1 to 4 or in any other way.

The socket outlet of Figures 5—9 includes a switch which is operated by means of an actuating member in the form of a rocker 50 which protrudes through an opening in the fascia plate 11. The switch mechanism is housed within a body 51 attached to the rear of the fascia plate. As seen in Figure 7, the body 51 also accommodates terminals 52—54 for the connection of the live, neutral and earth wires, respectively, of a mains supply circuit. A neutral contact 55 is connected to the terminal 53 and an earth contact 56 is connected to the terminal 54. Connected to the terminal 52 is a conducting element 58 which is also connected to the moving contact of the switch (not shown). The moving contact is movable by means of the rocker 50 between an "off" position in which it is disengaged from a live contact 57 and an "on" position in which it engages this contact to establish electrical continuity between the contact 57 and terminal 52. It will be understood that the contacts 55—57 include pin contacting portions located behind the fascia plate in register with the openings in the fascia plate for cooperation with the respective pins of a plug when it is inserted into the socket outlet.

To prevent the switch being turned on when a plug is not inserted into the socket outlet an interlock device is provided. This device comprises a slide member 59 guided for linear sliding

movement in the socket body and urged to a switch blocking position (Figure 8) by a spring 60. At one end the member 59 is provided with a cam surface 61 and at its other end includes a stop shoulder 62 and a further cam surface 63. In the blocking position of member 59, the cam surface 61 is located in alignment with the pin contacting portion of the earth contact 56, and the stop shoulder is located beneath an integral finger 64 provided on rocker 50 whereby the rocker is prevented from being moved to the "on" position to make the connection between contact 57 and element 58. Thus, the live contact 57 remains isolated from the mains supply. When a plug is inserted into the socket the earth pin 65, after first moving the outer shutter 20 as well as the inner shutter (not shown) to the open positions, engages the cam surface 61 and drives the slide member 59 against the bias of spring 60 to a switch released position (Figure 9) as the plug is pushed fully home into the socket outlet. The finger 64 of rocker 50 is now aligned with a recess in the slide member and the rocker can be manipulated to close the switch. In this position of the slide member the switch can be operated in conventional manner to control supply of electric power to a plug engaged with the socket.

If attempt is made to remove the plug with the switch still on, as the earth pin 65 is withdrawn the spring 60 pushes the slide member back towards the blocking position and the cam surface 63 acts on the finger 64 pivoting the rocker 50 into the "off" position and thereby breaking the connection between contact 57 and element 58 before the live and neutral pins of the plug leave the contacts 57 and 55 of the socket. Further movement of the slide member 59 under the force of spring 60 positions the shoulder 62 beneath the finger 64 to stop the switch being turned on. Thus, the switch can only be turned on when a plug has been inserted into the socket outlet, and if attempt is made to withdraw a plug when the switch is on it is automatically turned off.

As shown in Figure 5, the socket outlet is provided with a neon indicator lamp 66 which is illuminated when the switch of the socket is turned on.

Claims

1. An electric socket outlet comprising a fascia member (11) having a plurality of openings (16—18) for the pins of an electric plug to enter and pass into cooperation with respective socket contacts (5—7), and an inner shutter device (30) arranged between the fascia member and socket contacts normally to close off access to the line contacts and to permit such access upon engagement of an appropriate plug with the socket, characterised in that an outer shutter (20) is mounted at the front of the fascia member (11) so as not to project forwardly beyond the front face of said fascia member, and the outer shutter is arranged for sliding movement between a closed position covering said openings (16—18) and an



(12)

7

0 125 141

8

open position in which the openings are exposed for entry of the plug pins.

2. A socket outlet according to claim 1, wherein the outer shutter (20) is received in a recess (14) in the front face of the fascia member (11).

3. A socket outlet according to claim 2, wherein the front surface of the outer shutter (20) is substantially flush with the front face of the fascia member (11).

4. A socket outlet according to claim 2 or 3, wherein the outer shutter comprises a T-shaped plate (20) and is guided for longitudinal movement in a recess of similar configuration in the fascia member.

5. A socket outlet according to any one of claims 1 to 4, wherein the fascia member (11) includes a groove (35) in the front face thereof for guiding a plug pin into abutment with the outer shutter (20) for moving the shutter from the closed to the open position.

6. A socket outlet according to claim 5, wherein said openings include an earth pin opening (16), and said guide groove (35) is aligned with said earth pin opening for the outer shutter to be moved with the earth pin of a plug.

7. A socket outlet according to any one of claims 1 to 6, wherein the outer shutter (20) is biased to the closed position by spring means (25).

8. A socket outlet according to any one of claims 1 to 7, wherein the outer shutter is secured to the fascia member by a snap-fit connection (22, 24).

9. A socket outlet according to any one of claims 1—8, wherein a switch is included and has an operating member (50) protruding through the fascia member (11), the switch being operable to make and break electrical connection between a line contact (57) and a current conducting element of the socket outlet, characterised in that a switch interlock device (59, 60) actuable by a pin (65) of the electric plug is arranged to prevent the switch operating member (50) being moved to the "on" position when there is no plug inserted in the socket, and to allow the switch to be turned "on" when an electric plug is inserted in the socket.

10. An electric socket outlet comprising a fascia member (11) having a plurality of openings for the pins of an electric plug to enter and pass into cooperation with respective socket contacts (55, 56, 57), a switch having an operating member (50) protruding through the fascia member, the switch being operable to make and break electrical connection between a line contact (57) and a current conducting element (58) of the socket outlet, said switch being so arranged that it can only be turned "on" to make said connection when a plug is inserted in the socket outlet, characterised in that an interlock device (59, 60) is actuable by a pin (65) of the electric plug and is arranged to prevent the switch operating member (50) being moved to the "on" position when there is no plug inserted in the socket outlet, and to allow the switch to be turned "on" when an electric plug is inserted in the socket.

11. A socket outlet according to claim 9 or 10, wherein the interlock device is arranged to be actuated by an earth pin (35) of the plug.

12. A socket outlet according to claim 9, 10 or 11, wherein the interlock device comprises a member (59) movable between a blocking position (Figure 8) in which said member obstructs movement of the switch operating member (50) to the "on" position, and a switch releasing position (Figure 9) in which the operating member (50) is free to move between the "on" and "off" positions.

13. A socket outlet according to claim 12, wherein the interlock member (59) is biased towards the blocking position by spring means (60).

14. A socket outlet according to claim 12 or 13, wherein the interlock member (59) is mounted for linear sliding movement between the blocking and switch releasing positions.

15. A socket outlet according to any one of claims 9 to 14, wherein the interlock device (59, 60) is adapted to turn "off" the switch if a plug is withdrawn from the socket outlet with the switch in the "on" position.

16. A socket outlet according to claim 12, 13 or 14, wherein the interlock member (59) includes a cam surface (63) for engaging the switch operating member (50) and moving said member to the "off" position as the interlock member moves from the switch releasing position to the blocking position.

Patentansprüche

1. Elektrische Steckdose mit einem Deckteil (11) mit mehreren Öffnungen (16—18) für die Stifte eines elektrischen Steckers zum Ein- und Durchtreten in Zusammenarbeit mit entsprechenden Steckdosenkontakten (5—7) und einer inneren Verschlussvorrichtung (30), die zwischen dem Deckteil und den Steckdosenkontakten angeordnet ist, um normalerweise den Zugang zu den Leitungskontakten zu verschließen und einen solchen Zugang bei Eingriff eines geeigneten Steckers mit der Steckdose zu gestatten, dadurch gekennzeichnet, daß ein äußerer Verschluss (20) an der Vorderseite des Deckteils (11) so befestigt ist, daß er nach vorn nicht über die Vorderfläche des Deckteils vorsteht, und daß der äußere Verschluss zur gleitenden Bewegung zwischen einer Schließstellung, die die Öffnungen (16—18) abdeckt, und einer Öffnungsstellung, in der die Öffnungen für den Eintritt von Steckerstiften zugänglich sind, eingerichtet ist.

2. Steckdose nach Anspruch 1, bei der der äußere Verschluss (20) in einer Vertiefung (14) in der Vorderseite des Deckteils (11) aufgenommen ist.

3. Steckdose nach Anspruch 2, bei der die Vorderfläche des äußeren Verschlusses (20) im wesentlichen bündig mit der Vorderfläche des Deckteils (11) ist.

4. Steckdose nach Anspruch 2 oder 3, bei der der äußere Verschluss eine T-förmige Platte (20)

5



enthält und zur Längsbewegung in einer Vertiefung von ähnlicher Gestalt im Deckteil geführt ist.

5 Steckdose nach einem der Ansprüche 1 bis 4, bei der das Deckteil (11) eine Rille (35) in der Vorderseite derselben zur Führung eines Steckerstiftes in Anlage mit dem äußeren Verschluss (20) zum Bewegen des Verschlusses von der Schließstellung in die Öffnungsstellung aufweist.

10 6. Steckdose nach Anspruch 5, bei der die Öffnungen eine Erdstiftöffnung (16) enthalten und die Führungsrille (35) auf diese Erdstiftöffnung ausgerichtet ist, damit der äußere Verschluss mit dem Erdstift eines Steckers bewegt wird.

15 7. Steckdose nach einem der Ansprüche 1 bis 6, bei der der äußere Verschluss (20) durch eine Federeinrichtung (25) in die Schließstellung vorgespannt ist.

20 8. Steckdose nach einem der Ansprüche 1 bis 7, bei der der äußere Verschluss an dem Deckteil mittels einer Schnappverbindung (22, 24) befestigt ist.

9. Steckdose nach einem der Ansprüche 1 bis 8, bei der ein Schalter enthalten ist und ein Betätigungselement (50) aufweist, das durch das Deckteil (11) vorsteht, wobei der Schalter betätigbar ist, um eine elektrische Verbindung zwischen einem stromführenden Kontakt (57) und einem Stromleiterelement der Steckdose herzustellen und zu unterbrechen, dadurch gekennzeichnet, daß eine Schaltersperrvorrichtung (59, 60), die durch einen Stift (65) des elektrischen Steckers betätigbar ist, dazu vorgesehen ist zu verhindern, daß das Schalterbetätigungselement (50) in die Einschaltstellung bewegt wird, wenn kein Stecker in die Steckdose eingesteckt ist, und es zu ermöglichen, daß der Schalter eingeschaltet wird, wenn ein elektrischer Stecker in die Steckdose eingeführt ist.

40 10. Elektrische Steckdose mit einem Deckteil (11), das mehrere Öffnungen für die Stifte eines elektrischen Steckers zum Eintreten und Durchtreten in Zusammenarbeit mit entsprechenden Steckdosenkontakten (55, 56, 57) aufweist, mit einem Schalter mit einem Betätigungselement (50), das durch das Deckteil vorsteht, wobei der Schalter betätigbar ist, um eine elektrische Verbindung zwischen einem Leitungskontakt (57) und einem Stromleiterelement (58) der Steckdose herzustellen und zu unterbrechen, wobei der Schalter so angeordnet ist, daß er nur dann eingeschaltet werden kann, um die genannte Verbindung herzustellen, wenn ein Stecker in die Steckdose eingesteckt ist, dadurch gekennzeichnet, daß eine Sperrvorrichtung (59, 60) durch einen Stift (65) des elektrischen Steckers betätigbar ist, und so angeordnet ist, daß sie verhindert, daß das Betätigungselement (50) in die Einschaltstellung bewegt wird, wenn kein Stecker in die Steckdose eingesteckt ist, und es ermöglicht, daß der Schalter eingeschaltet wird, wenn ein elektrischer Stecker in die Steckdose eingeführt ist.

65 11. Steckdose nach Anspruch 9 oder 10, bei der die Sperrvorrichtung so eingerichtet ist, daß sie durch einen Erdstift (35) des Steckers betätigt wird.

12. Steckdose nach Anspruch 9, 10 oder 11, bei der die Sperrvorrichtung ein Element (59) enthält, das zwischen einer Blockierstellung (Fig. 8), in der das Element die Bewegung des Schalterbetätigungselements (50) in die Einschaltstellung sperrt, und einer Schalterfreigabestellung (Fig. 9), in der das Betätigungselement (50) zur Bewegung zwischen den Ein- und Ausschaltstellungen frei ist, beweglich ist.

10 13. Steckdose nach Anspruch 12, bei der das Sperrelement (59) gegen die Sperrstellung von einer Federeinrichtung (60) vorgespannt ist.

15 14. Steckdose nach Anspruch 12 oder 13, bei der das Sperrelement (59) zur linearen Gleitbewegung zwischen der Blockier- und der Schalterfreigabestellung montiert ist.

20 15. Steckdose nach einem der Ansprüche 9 bis 14, bei der die Sperrvorrichtung (59, 60) dazu eingerichtet ist, den Schalter auszuschalten, wenn ein Stecker aus der Steckdose herausgezogen wird, während der Schalter sich in der Einschaltstellung befindet.

25 16. Steckdose nach Anspruch 12, 13 oder 14, bei der das Sperrelement (59) eine Nockenfläche (63) enthält, die zur Anlage an das Schaltbetätigungselement (50) kommt und dieses Element in die Ausschaltstellung bewegt, wenn das Sperrelement sich aus der Schalterfreigabestellung in die Sperrstellung bewegt.

Revendications

35 1. Prise électrique comprenant un organe de face (1) ayant plusieurs ouvertures (16—18) destinées au passage des broches d'une fiche électrique de manière qu'elles puissent venir en coopération avec des contact respectifs (5—7) de la prise, et un dispositif à obturateur interne (30) placé entre l'organe de face et les contacts de prise et normalement destiné à empêcher l'accès aux contacts de la ligne et à permettre cet accès après mise en coopération d'une fiche convenable avec la prise, caractérisée en ce qu'un obturateur externe (20) est monté en avant de l'organe de face (11) afin qu'il ne dépasse pas de la face avant de l'organe de face, et l'obturateur externe est destiné à coulisser entre une position de fermeture dans laquelle il recouvre les ouvertures (16—18) et une position d'ouverture dans laquelle les ouvertures sont exposées afin que les broches de la fiche puissent pénétrer.

50 2. Prise selon la revendication 1, dans laquelle l'obturateur externe (20) est logé dans une cavité (14) formée dans la face avant de l'organe de face (11).

55 3. Prise selon la revendication 2, dans laquelle la surface avant de l'obturateur externe (20) se trouve pratiquement au niveau de la face avant de l'organe de face (11).

60 4. Prise selon l'une des revendications 2 et 3, dans laquelle l'obturateur externe est une plaque en T (20) et est guidé afin qu'il se déplace longitudinalement dans une cavité de configuration semblable formée dans l'organe de face.

65 5. Prise selon l'une quelconque des revendica-



tions 1 à 4, dans laquelle l'organe de face (11) comporte une gorge (35) formée dans sa face avant et destinée à guider une broche de fiche en butée contre l'obturateur externe (20) afin que cet obturateur soit déplacé de la position de fermeture à la position d'ouverture.

6. Prise selon la revendication 5, dans laquelle les ouvertures comprennent une ouverture (16) pour une broche de terre, et la gorge (35) de guidage est alignée sur l'ouverture de la broche de terre afin que l'obturateur externe soit déplacé avec la broche de terre d'une fiche.

7. Prise selon l'une quelconque des revendications 1 à 6, dans laquelle l'obturateur externe (20) est rappelé vers la position de fermeture par un dispositif à ressort (25).

8. Prise selon l'une quelconque des revendications 1 à 7, dans laquelle l'obturateur externe est fixé à l'organe de face par un raccord à enclenchement élastique (22, 24).

9. Prise selon l'une quelconque des revendications 1 à 8, dans laquelle un commutateur est incorporé et a un organe (50) de manoeuvre qui dépasse à travers l'organe de face (11), le commutateur pouvant être manoeuvré afin qu'il ferme et ouvre la connexion électrique entre un contact de ligne (57) et un élément conducteur de courant de la prise, caractérisée en ce qu'un dispositif à action solidarisée (59, 60) du commutateur, destiné à être manoeuvré par une broche (65) de la fiche électrique, est disposé de manière qu'il empêche le déplacement de l'organe (50) de manoeuvre du commutateur en position de fermeture lorsqu'aucune fiche n'est introduite dans la prise, et qu'il permette la mise du commutateur en position de fermeture lorsqu'une fiche électrique est introduite dans la prise.

10. Prise électrique comprenant un organe (11) de face ayant plusieurs ouvertures de passage de broches d'une fiche électrique afin qu'elles viennent en coopération avec des contacts respectifs (55, 56, 57) de la prise, un commutateur ayant un organe (50) de manoeuvre qui dépasse à travers l'organe de face, le commutateur pouvant être commandé afin qu'il ferme et ouvre la connexion électrique entre un contact de ligne (57) et un élément (58) conducteur de courant de la prise, le commutateur étant disposé de manière qu'il ne puisse être mis en position de fermeture et qu'il

assure la connexion que lorsqu'une fiche est introduite dans la prise, caractérisée en ce qu'un dispositif à action solidarisée (59, 60) peut être manoeuvré par une broche (65) de la fiche électrique et est disposé de manière qu'il empêche le déplacement en position de fermeture de l'organe (50) de manoeuvre du commutateur lorsqu'aucune fiche n'est introduite dans la prise et qu'il permette la mise du commutateur en position de fermeture lorsqu'une fiche électrique est introduite dans la prise.

11. Prise selon l'une des revendications 9 et 10, dans laquelle le dispositif à action solidarisée est destiné à être manoeuvré par une broche de terre (35) de la fiche.

12. Prise selon l'une quelconque des revendications 9, 10 et 11, dans laquelle le dispositif à action solidarisée comporte un organe (59) mobile entre une position d'arrêt (figure 8) dans laquelle cet organe empêche le déplacement de l'organe (50) de manoeuvre du commutateur vers la position de fermeture, et une position (figure 9) de libération de commutateur dans laquelle l'organe (50) de manoeuvre est libre de se déplacer entre les positions de fermeture et d'ouverture.

13. Prise selon la revendication 12, dans laquelle l'organe à action solidarisée (59) est rappelé élastiquement vers la position d'arrêt par un dispositif à ressort (60).

14. Prise selon l'une des revendications 12 et 13, dans laquelle l'organe (59) à action solidarisée est monté afin qu'il puisse coulisser en direction rectiligne entre les positions d'arrêt et de libération du commutateur.

15. Prise selon l'une quelconque des revendications 9 à 14, dans laquelle le dispositif à action solidarisée (59, 60) est destiné à mettre le commutateur en position d'ouverture lorsqu'une fiche est retirée de la prise alors que le commutateur est en position de fermeture.

16. Prise selon l'une quelconque des revendications 12, 13, 14, dans laquelle l'organe à action solidarisée (59) comporte une surface de came (63) destinée à coopérer avec l'organe (50) de manoeuvre de commutateur et à déplacer cet organe vers la position d'ouverture lorsque l'organe à action solidarisée se déplace de la position de libération du commutateur à la position d'arrêt.

5

10

15

20

25

30

35

40

45

50

55

60

65

7