

Description

This invention relates to a multiple pin electrical plug for selectively providing electrical pins in different configurations corresponding to different electrical sockets, comprising a plurality of pins selectively extendable beyond a shutter plate movable between a plurality of discrete positions for selecting one of said different configurations and permitting extension of predetermined ones of said pins.

Such a plug is described *inter alia* in EP—A—0,048,078.

According to the present invention the plug is characterised by the shutter plate being movable between the discrete positions by a hand operated slider and at least one pair of said pins being provided on a prismatic sliding member, said sliding member having guide rails and the shutter plate having protuberances coacting with said guide rails to permit said sliding member to be extended from or retracted into said plug when said shutter plate is in one of said discrete positions and to permit movement of said shutter plate into another discrete position, preventing retracting of said sliding member when the latter is extended.

The invention will be more fully understood from the following description given by way of example only with reference to the several figures of the accompanying drawings in which:—

Figures 1A, 1B, 1C are presented in third angle orthographic projection. Figure 1A shows an inlet voltage face of a multiple pin plug, Figure 1B a side elevation and Figure 1C an outlet voltage face.

Figure 2, shows the inlet face of Figure 1A with an alternative inlet configuration different from that of Figure 1 but in an intermediary condition.

Figure 2_{1A} shows to an enlarged scale in oblique perspective the configuration of Figure 2.

Figure 2_{1B} also in oblique perspective shows the pin configuration in its final form for one of the electrical usages.

Figure 3 is another alternative inlet configuration shown in a form similar to that of Figures 1 and 2.

Referring now specifically to the Figures. In Figure 1A, 1B, 1C a unitary multiple pin plug shown generally at 10 has either an inlet face F of area *abcd* or *abef* depending on whether ancillary electrical means is to be combined with the plug (such as described in EP—A—0 085 802). The unitary plug for convenience only is shown with a two part case 11a, 11b of inlet area *abef* held together by screws 11, 11_a. The case has outlet sockets 12, 12₂ and vent louvres 13. (In the smaller plug *abcd* two screws 11_a, 11_b will be inserted or sealed by other means).

Consider now the multiple pin plug shown generally at 20 (Figure 1A). A movable shutter plate 21 has an integral slider 22 accessible to the hand of the operator, the edge 22, of the slider

on the inlet face such as marks A₁, B₁, B₂ and C to give four separate pin geometries.

In Figure 1A the edge 22, is against index mark A and the flat pin pair P1, P2 may be withdrawn and turned through an angle. A spring bias is provided to locate the pins in the turned position which is the correct orientation for use in accepting the electrical voltage outlets of U.S.A. and Australasia for example. This is a first pin geometry.

Consider now the position shown in Figure 2. The edge 22, of slider 22 is against index mark B1 and the pin pair P3 P4 may be each withdrawn and rotated on their individual pin axes to engage a screw threading and thus be locked and the pins used in this position. This is a second pin geometry.

Consider now the position shown in Figures 2₁, 2_{1A}. The edge 22, of slider 22 is again at index mark B₁ (Figures 2₁, 2_{1A}) and slider plate 21 allows a pin-carrying slide 23 of general rectangular prismatic form to be withdrawn out of inlet face F and to be frictionally located. The pin-carrying slide 23 has integral slide rails 23₁, 23₂, 23₃, 23₄ that coact with opposed plate protuberances 21A, 21B (Figure 2₁). With the pin-carrying slide 23 extended (Figure 2_{1B}) the right cylindrical pin-pair P3, P4 is locked by rotation of each pin individually as described above and the shutter plate 21 moved so that edge 22, is in alignment with index mark B₂ (Figure 2_{1B}). This brings opposed plate protuberances 21A, 21B, 21C and its hidden counterpart respectively behind the pin slide rails 23₂, 23₄, 23₁, 23₃. This is shown for co-operating parts 21_A, 23₂, 21_C and 23 in Figure 2_{1B} (co-operating parts 21_B, 23₄, 21_D and 23 are not visible). The shutter plate 21 is provided with a protuberance 21E (well seen in Figure 2_{1B}) that with the plate on index B2 brings the edge of protuberance 21E against rail 23₄ of pin-carrying slide 23 and gives to it an enhanced stability in electrical usage. Clearly at index mark position B2, pin-pair P3, P4 in pin-carrying slide 23 cannot be retracted to re-enter the plug until protuberances 21A, 21B, 21C and the hidden one are again raised for edge 22, to come on to index mark B1 when the pin-slide 23 is retractable.

The pin-pair P3, P₄ with pin-carrying slide 23 extended as shown in Figure 2_{1B} is for use with the recessed electrical voltage outlet sockets to be found in Germany, Belgium and other parts of Europe, for example such as the Schuko socket. In some such sockets an earth pin from the socket can enter the plug inlet over rail 23₄. This is a third pin geometry.

In Figure 3 the shutter plate 21 is with edge 22, at index C and the three heavy rectangular section pins P5, P6, P7 can come out beyond the inlet face F and are each rotated through a right angle to lock the pin. These pins are for use with the voltage outlets to be found *inter alia* in the United Kingdom, pin P5 being an earth pin oriented one right angle out of alignment with live and neutral pins P6, P7. This is a fourth pin geometry.

Claims

1. A multiple pin electrical plug for selectively providing electrical pins (P) in different configurations corresponding to different electrical sockets, comprising a plurality of pins selectively extendable beyond a shutter plate (21) movable between a plurality of discrete positions for selecting one of said different configurations and permitting extension of predetermined ones of said pins (P), characterised by the shutter plate (21) being movable between the discrete positions by a hand operated slider and at least one pair (P₃, P₄) of said pins being provided on a prismatic sliding member (23), said sliding member having guide rails (23₁, 23₂, 23₃, 23₄), and the shutter plate (21) having protuberances (21A), (21B) coacting with said guide rails (20) to permit said sliding member (23) to be extended from or retracted into said plug when said shutter plate (21) is in one of said discrete positions and to permit movement of said shutter plate (21) into another discrete position, preventing retracting of said sliding member (23), when the latter is extended.

2. A multiple pin electrical plug according to Claim 1 wherein said shutter plate (21) selects among four different pin configurations, a first in which said plug provides an extended flat pin pair (P₁, P₂), a second in which said plug provides an extendable and retractable cylindrical pin pair (P₃, P₄), a third in which said plug provides an extended and not retractable cylindrical pin pair (P₃, P₄), and a fourth in which said plug provides three extended flat pins (P₅, P₆ and P₇).

Patentansprüche

1. Elektrischer Stecker mit mehrfachen Stiften, um wahlweise elektrische Stifte (P) in unterschiedlichen Ausbildungen entsprechend unterschiedlichen elektrischen Steckdosen vorzusehen, mit einer Mehrzahl von Stiften, die wahlweise über eine Verschußplatte (21) hinaus ausfahrbar sind, die zwischen einer Anzahl diskreter Lagen beweglich ist, um eine der genannten unterschiedlichen Ausbildungen auszuwählen und das Ausfahren bestimmter der Stifte (P) zu gestatten,

dadurch gekennzeichnet, daß die Verschußplatte (21) zwischen den diskreten Lagen durch einen handbetätigten Schieber beweglich ist, und daß mindestens ein Paar (P₃, P₄) der Stifte an einem prismatischen Schieberteil (23) vorgesehen ist, wobei das Schieberteil Führungsschienen (23₁, 23₂, 23₃, 23₄) aufweist und die Verschußplatte (21) Ausstülpungen (21A), (21B) aufweist, die mit den Führungsschienen (20) zusammenwirken, um es dem Schieberteil (23) zu ermöglichen, aus dem Stecker ausgefahren oder in diesen wieder eingefahren zu werden, wenn sich die Verschußplatte (21) in einer der

genannten diskreten Lagen befindet, und die Bewegung der Verschußplatte (21) in eine andere diskrete Lage zu gestatten, wobei das Einfahren des Schieberteiles (23) verhindert ist, wenn dieses ausgefahren ist.

2. Elektrischer Stecker mit mehrfachen Stiften nach Anspruch 1, wobei die Verschußplatte (21) eine Auswahl unter vier unterschiedlichen Stiftausbildungen trifft, von welchen der Stecker in einer ersten ein ausgefahrenes Flachstiftpaar (P₁, P₂) vorsieht, einer zweiten der Stecker ein aus- und einfahrbares Zylinderstiftpaar (P₃, P₄) vorsieht, einer dritten der Stecker ein ausgefahrenes und nicht einfahrbares Zylinderstiftpaar (P₃, P₄) vorsieht, und einer vierten der Stecker drei ausgefahrte Flachstifte (P₅, P₆ und P₇) vorsieht.

Revendications

1. Fiche électrique à broches multiples permettant l'utilisation sélective de broches électriques (P) dans différentes dispositions correspondant à des douilles électriques différentes, comprenant plusieurs broches pouvant s'étendre sélectivement au-delà d'une plaque formant volet (21) déplaçable entre plusieurs positions distinctes pour permettre le choix de l'une des dispositions différentes susdites et permettre l'extension des broches prédéterminées (P), caractérisée en ce que la plaque formant volet (21) est déplaçable entre les positions distinctes grâce à un curseur commandé à la main et en ce qu'au moins une paire (P₃, P₄) de ces broches est prévue sur un élément coulissant prismatique (23), cet élément coulissant comportant des rails de guidage (23₁, 23₂, 23₃, 23₄), la plaque formant volet (21) présentant des saillies (21A), (21B) coopérant avec les rails de guidage susdits (23₁, 23₂, 23₃, 23₄) pour permettre à cet élément coulissant (23) de se présenter en extension par rapport à la fiche ou d'être rétracté dans celle-ci, lorsque la plaque susdite formant volet (21) se trouve dans l'une des positions distinctes et pour permettre le déplacement de cette plaque formant volet (21) vers une autre position distincte, en empêchant la rétraction de cet élément coulissant (23), lorsque ce dernier est en extension.

2. Fiche électrique à broches multiples suivant la revendication 1, dans laquelle la plaque formant volet (21) choisit parmi quatre dispositions différentes des broches, une première disposition dans laquelle la fiche permet une première paire de broches plates en extension (P₁, P₂), une seconde disposition dans laquelle cette fiche permet l'extension et la rétraction d'une paire de broches cylindriques (P₃, P₄), une troisième disposition dans laquelle la fiche fournit une paire de broches cylindriques (P₃, P₄) en extension et non rétractables, et une quatrième disposition suivant laquelle la fiche permet l'extension de trois broches plates (P₅, P₆ et P₇).

