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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
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Folios: 2 PATENTES Eve: 1 REGISTRO
Act: 538 PETICION Folios: 2

Señores

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIVISION DE NUEVAS CREACIONES

E. S. D.

REF.: Expediente No. 07 068.716 - Solicitud de Patente
a nombre de: **SIMON, S.A.**

Titulada: BASE DE ENCHUFE CON OBTURADOR DE SEGURIDAD.

JUAN PABLO CADENA SARMIENTO, vecino de Bogotá, portador de la tarjeta profesional No. 57492 del Consejo Superior de la Judicatura, obrando como apoderado de la Sociedad **SIMON, S.A.**, según lo acredita el documento de poder presentado en esa División, de acuerdo con el Artículo 44 de la Decisión 486 de la Comisión de la Comunidad Andina, me permito solicitar que se examine si la invención contenida en la solicitud en referencia es patentable.

De acuerdo con lo anterior, me permito anexar el recibo oficial de caja No. 08-60,850 por valor de \$420.000.

De la Señora Jefe atentamente,


JUAN PABLO CADENA SARMIENTO

C.C. No. 80.410.337 de Usaquén

T.P. No. 57492 del C.S.J.

Cra 7 No. 71-21 Torre B, Piso 4

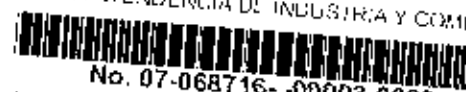
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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



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SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

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FRIGERIO & CASTRO LTDA	CONSIGNACION	BANCO DE BOGOTA	062754387	7435956	29/07/2008	34,469,000.00

***** C O N C E P T O *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01	SOLICITUDES	95 EXAMEN DE PATENTABILIDAD DE INVEN
			TOTAL : \$ 420,000.00

SON: CUATROCIENTOS VEINTE MIL PESOS

RESPONSABLE : _____

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

DIVISIÓN DE NUEVAS CREACIONES

RADICACIÓN EXPEDIENTE No. 07-68716

EL EXTRACTO DE LA PRESENTE SOLICITUD DE **PATENTE DE INVENCION**

FUE PUBLICADO EN LA GACETA DE PROPIEDAD INDUSTRIAL No **590** DE

FECHA **31 DE MARZO DE 2008** EL TÉRMINO HÁBIL SEÑALADO POR LA LEY

EXPIRA EL **27 DE JUNIO DE 2008**

NOTA: Dentro del plazo de los seis (6) meses siguientes a partir de la fecha de publicación en la gaceta de Propiedad Industrial, deberá solicitar y cancelar el examen de patentabilidad so pena de que la solicitud caiga en abandono, de acuerdo con lo establecido en el Artículo 44 de la Decisión 486/2000.

SE PRESENTARON OPOSICIONES POR PARTE DE TERCEROS.

SI _____

NO X



US005839909A

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United States Patent [19][11] **Patent Number:** **5,839,909****Calderara et al.**[45] **Date of Patent:** **Nov. 24, 1998**[54] **SHUTTER DEVICE FOR CLOSING OFF THE COMPARTMENTS OF A POWER SOCKET**

4,867,694 9/1989 Short 439/145
 5,020,997 6/1991 Calderara et al. 439/137
 5,026,299 6/1991 Foulk 439/137

[75] Inventors: **Ennio Calderara**, Cuasso Al Piano;
Gianmaria Carabelli, Induno Olona,
 both of Italy

Primary Examiner—Neil Abrams*Assistant Examiner*—Eugene G. Byrd[73] Assignee: **Bttein, S.p.A.**, Italy[57] **ABSTRACT**[21] Appl. No.: **751,145**[22] Filed: **Nov. 15, 1996**[30] **Foreign Application Priority Data**

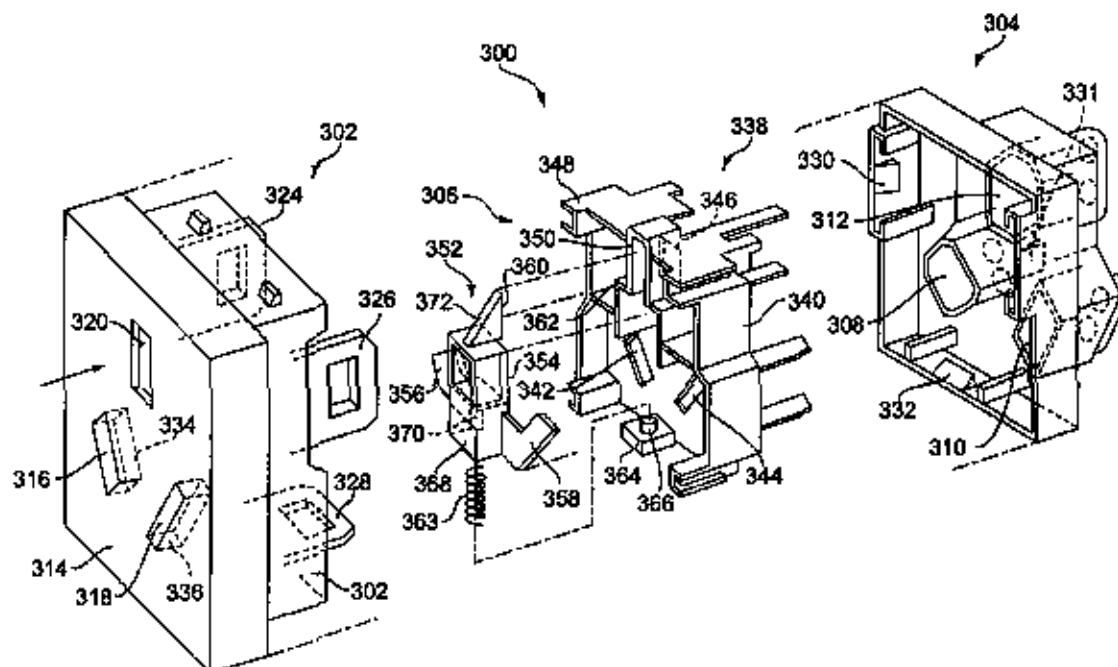
Jul. 30, 1996 [IT] Italy MI96A1630

[51] Int. Cl.⁶ **H01R 13/44**[52] U.S. Cl. **439/137; 439/145**[58] Field of Search **439/137, 145**

Shutter device for closing off the compartments of a power socket that has a live aperture and a neutral aperture in a front plate. The shutter device comprises a shutter piece that moves translationally between a rest position, in which the live and neutral apertures are closed, and an operational position in which they are not closed. The shutter piece comprises two arms positioned against the live and neutral apertures in the rest position and inclined at an angle to the direction of translation of the shutter piece.

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8 Claims, 4 Drawing Sheets

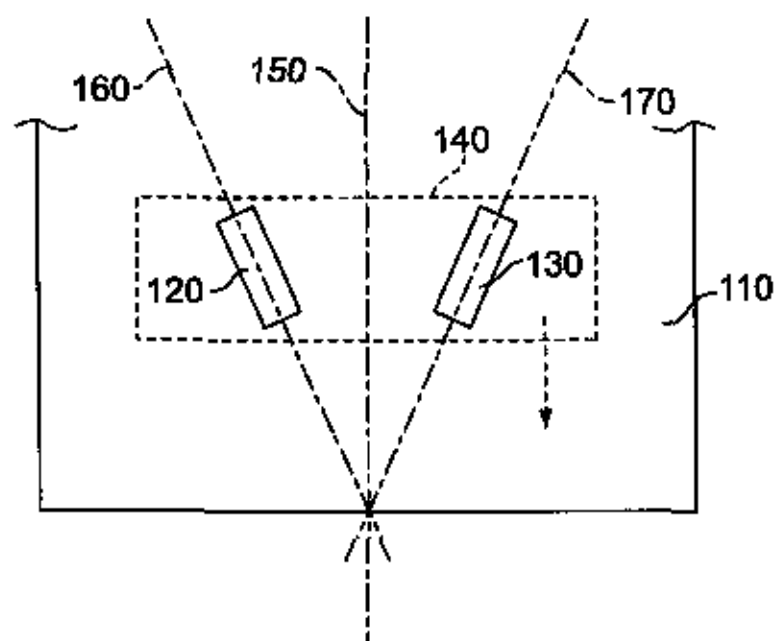


FIG. 1A

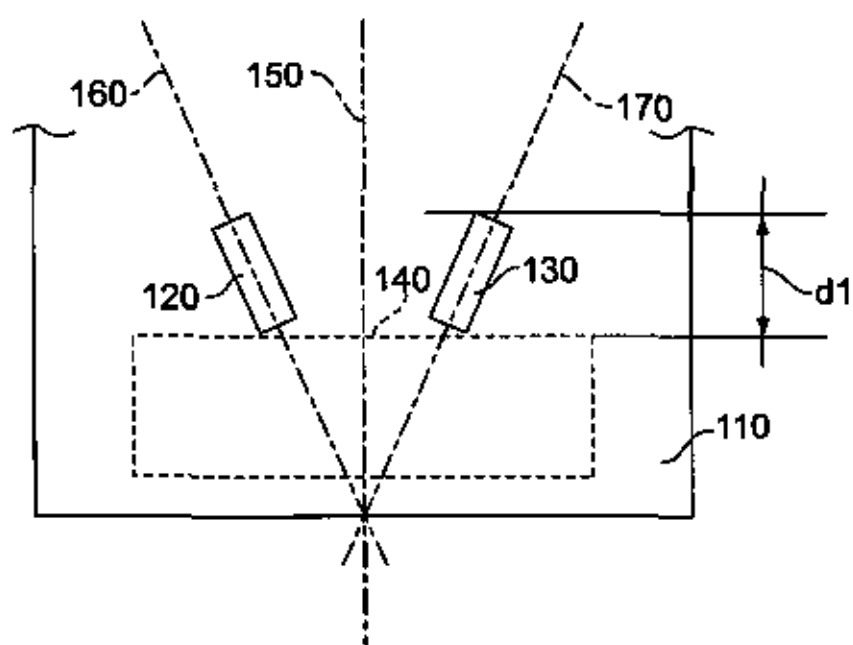
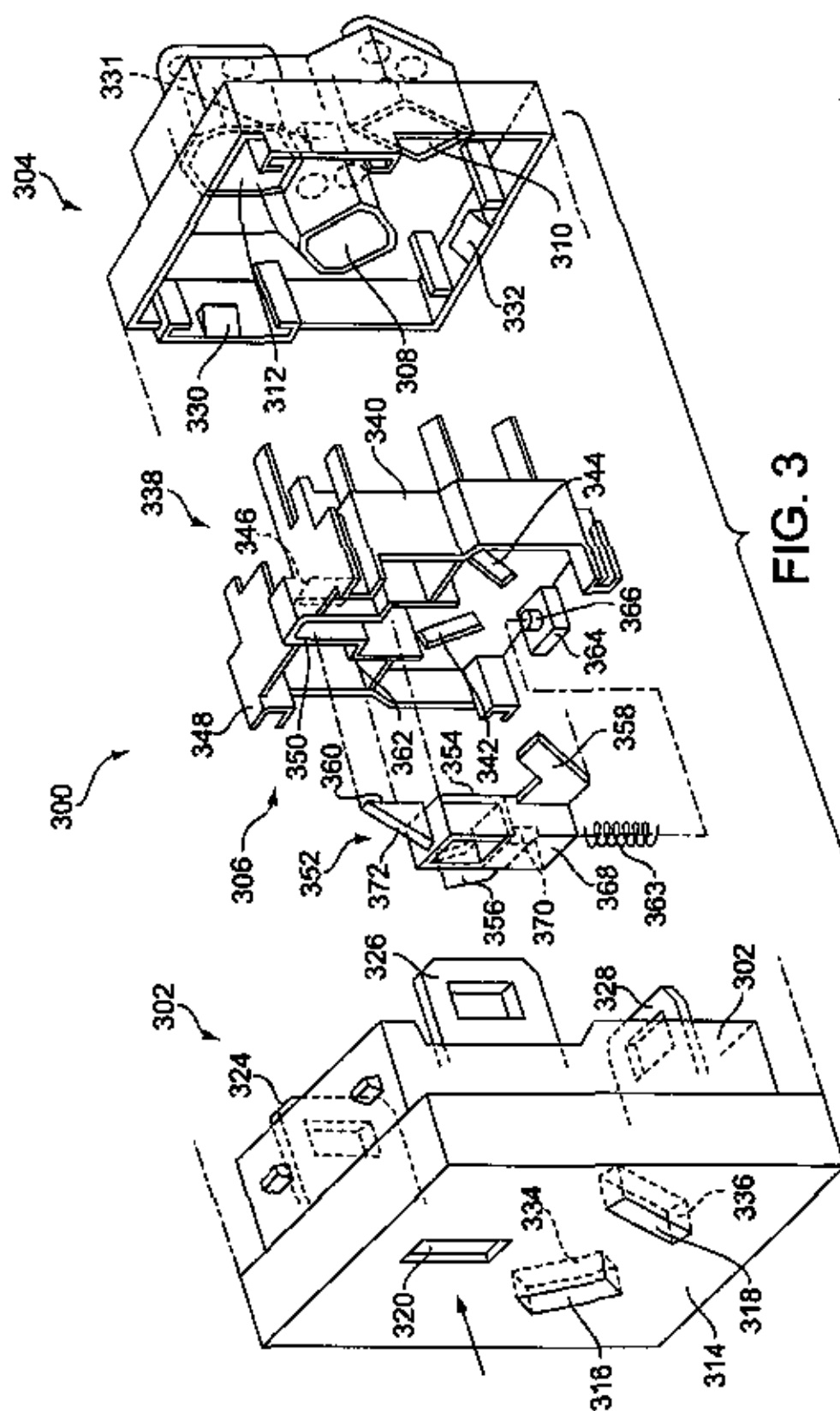


FIG. 1B



SHUTTER DEVICE FOR CLOSING OFF THE COMPARTMENTS OF A POWER SOCKET

FIELD OF THE INVENTION

The present invention relates to a shutter device for closing off compartments of a power socket.

DESCRIPTION OF THE PRIOR ART

A typical power socket consists of an insulating body, generally made up of two shells fastened together, housing a plurality of compartments each of which contains a metal spring contact for connection to an electrical mains. In particular, the power socket comprises a live compartment and a neutral compartment, each of which houses a metal spring contact for connection to a first (live) and second (neutral) power supply cable, respectively; typically, the power socket also includes a third or earth (aka: ground) compartment housing a metal spring contact for connection to an ground cable connected to something of practically zero potential (earth).

On a front plate of the insulating body of the power socket are typically front apertures for accessing access to the compartments; in the power socket described above there are two front apertures for access to the live and neutral compartments, respectively, and a third front aperture for access to the ground compartment. The shape and position of the front apertures giving access to the compartments vary from country to country and are prescribed by different standards.

When a power plug comprising a plurality of contact pins is inserted in the power socket, the various pins are pushed into the insulating body through corresponding access apertures on the front, until they reach the compartments and contact the corresponding metal spring contacts.

Power sockets are often fitted with a shutter device which prevents access under certain conditions to the live and neutral compartments through the corresponding front apertures. This shutter ensures that an inappropriate conducting item (for example, a nail) cannot be inserted into the power socket and contacted with a metal spring contact connected to a power supply cable. The shutter prevents accidental contact with live electrical parts and is highly useful as a safety device, for example when there are children around. The shutter device is generally fitted inside the insulating body of the power socket between the front apertures and the compartments and is moveable between a rest position in which it closes off the front apertures and an operational position in which it offers free access to the live and neutral compartments.

A number of different types of mechanism are possible for operating these shutter devices. Some shutter devices are constructed so as to allow access to the live and neutral compartments only when a pair of pins are simultaneously inserted into the front apertures leading to these. Other shutter devices are constructed in such a way that the insertion of a pin into the front aperture giving entrance to the earth compartment moves the shutter device, which in turn allows the insertion of the power supply plug. It can be seen that this shutter device still allows any object to be pushed in through the front earth aperture; this does not however create any risk since this aperture gives access to a compartment housing a metal spring contact connected to the ground cable, which is therefore not live.

One particular kind of shutter device that is especially simple to manufacture consists of a shutter piece provided

with a shutter plate which in the rest position is behind the front apertures giving access to the live and neutral compartments, and is moved translationally between the rest position and the operational position.

A particular power socket will now be considered in which the front apertures are rectangular with their longitudinal axes inclined at an angle to the direction of translation of the shutter device, as illustrated in the front views of FIGS. 1a and 1b. The figures both show a power socket that comprises a front plate 110 with a front live aperture 120 and a front neutral aperture 130. Behind the front plate 110 is a shutter plate 140 (depicted in dashes) moveable along a direction of translation 150. As illustrated in the figures, the front apertures 120 and 130 are rectangular and are so arranged that their longitudinal axes 160 and 170, respectively, are inclined at an angle to the direction of translation 150.

The shutter plate 140 is illustrated in FIG. 1a in a rest position in which it closes off the front live 120 and neutral 130 apertures and in FIG. 1b in an operational position in which it offers free access to them. It can be observed that in order to move between the rest position and the operational position, the shutter plate 140 requires a travel equal to at least the height of the front apertures 120 and 130 along the direction of translation 150. This travel is marked d1 in FIG. 1b.

These shutter devices therefore require considerable working space and may be impossible to use where the dimensions of the front plate of the power socket have to be kept within tight limits.

SUMMARY OF THE INVENTION

It is an object of the invention to overcome these drawbacks of the prior art. The present invention provides a shutter device for closing off the compartments of a power socket that has a front plate with a first and a second front apertures giving access to a live compartment and to a neutral compartment, respectively, the shutter device fitting between the front plate and the compartments and comprising a shutter piece moveable along a direction of translation between a rest position in which the front apertures are closed and an operational position in which the front apertures are open, the first and second front apertures being essentially rectangular with a first and a second longitudinal axes, respectively, inclined at an angle to the direction of translation, wherein the shutter piece has a first and a second arms which in the rest position are behind the first and second front apertures, respectively, and which have a first and a second edges, respectively, that are essentially parallel with the first and second longitudinal axes, respectively, and that pass over the first and second front apertures, respectively, during a movement between the rest position and the operational position.

The shutter device in accordance with the present invention has a shape such as to require a short travel and hence less working space. It is structurally very simple, is reliable and is simple to mass produce. Furthermore, the shutter device in accordance with the present invention requires no special modifications to the insulating body of the electrical socket to which it must be fitted and can therefore also be used with standard power sockets.

BRIEF DESCRIPTION OF THE DRAWINGS

A number of different embodiments of the present invention will now be described by means of examples, offered by way of indication and without implying any restriction, with reference to the accompanying drawings in which:

FIGS. 1a and 1b show respective front views of a known shutter device in different functional positions;

FIGS. 2a and 2b show respective front views of the shutter device in accordance with the present invention in different functional positions;

FIGS. 2c and 2d show in front view two different embodiments of the shutter device in accordance with the present invention; and

FIG. 3 is an exploded perspective view of a power socket incorporating a preferred embodiment of the shutter device in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference now to the figures, and in particular with reference to FIGS. 2a and 2b (FIGS. 1a and 1b having been described earlier), a front view is shown of a power socket incorporating the shutter device in accordance with the present invention in the rest position and operational position respectively (parts common to the power socket of FIGS. 1a and 1b bear the same reference numerals).

The power socket illustrated comprises a front plate 110 with a live front aperture 120 and a neutral front aperture 130. Behind the front plate 110 is a shutter device comprising a shutter piece 210 (shown in dashes) that can be moved along a direction of translation 150. The front apertures 120 and 130 are rectangular and their longitudinal axes, 160 and 170 respectively, are inclined at an angle to the direction of translation 150.

The shutter piece 210 has two arms 220 and 230 which, in the rest position shown in FIG. 2a, are located behind the live front aperture 120 and the neutral front aperture 130, respectively. The two arms 220 and 230 have respective edges 240 and 250 which are essentially parallel with the longitudinal axes 160 and 170, respectively. When the shutter piece 210 moves out of the rest position of FIG. 2a into the operational position of FIG. 2b, the edges 240 and 250 pass over the live front aperture 120 and neutral front aperture 130, respectively.

The particular shape and arrangement of the arms 220 and 230 allows the front apertures 120 and 130 to be cleared with a short travel of the shutter piece 210, this travel being marked d2 in FIG. 2b. The shutter device in accordance with the present invention therefore offers the advantage of requiring a shorter travel of the shutter piece 210 than is necessary with known devices, and hence reduces the size of the whole shutter device and enables it to be used even in power sockets of restricted dimensions.

Those skilled in the art will recognize that the shutter device in accordance with the present invention can also be made in shapes other than that of the example shown in FIGS. 2a and 2b, as illustrated in certain alternative embodiments shown in FIGS. 2c and 2d.

With reference now to FIG. 3, an exploded perspective view is shown of a power socket incorporating a preferred embodiment of the shutter device in accordance with the present invention.

The electrical power socket 300 consists of an insulating body formed by a front shell 302 and a rear shell 304, with a shutter device 306 fitted between the two.

The rear shell 304 houses three compartments, each of which contains a metal spring contact (not shown in the figures) for connection to an electrical mains. In particular, the rear shell 304 comprises a live compartment 308 and a neutral compartment 310 which house two metal spring

contacts for connection to two power supply cables, one live and one neutral, respectively. A third or ground compartment 312 houses a metal spring contact for connection to a ground cable; in electrical systems without a ground cable, the latter metal spring contact is left free.

The front shell 302 comprises an essentially flat front plate 314 containing front apertures giving access to the compartments. The front plate 314 comprises two front apertures 316 and 318 giving access to the live compartment 308 and neutral compartment 310, respectively, and a front earth aperture 320 giving access to the earth compartment 312. As shown in the figures, each front aperture is in front of its corresponding compartment.

The front apertures 316-320 are essentially rectangular with rounded corners; the front or earth aperture 320 is, furthermore, not in line with the front apertures 316 and 318, which are inclined at an angle to the direction defined by the front or earth aperture 320. This particular electrical socket (which is common in Australia, China and Thailand, for example) is used in connections with power plugs having three flat pins arranged in the same way as the corresponding front apertures.

The front shell 302 comprises a rectangular frame 322 projecting perpendicularly to the plane of the front plate 314 towards the interior of the power socket. The rectangular frame 322 is provided with a plurality of spring tabs which project perpendicularly to the plane of the front plate 314 in the same direction as the rectangular frame 322. In the example illustrated in the figure, there are three spring tabs 324, 326 and 328, each of which is situated on one side of the rectangular frame 322. Each of the spring tabs 324-328 ends in a locking slot to enable the front shell 302 to be snap-fastened onto the rear shell 304, which has three locking teeth 330, 331 and 332 located in corresponding positions to the three slots present on the respective spring tabs 324, 326 and 328.

The front shell 302 comprises two more frames 334 and 336 formed around the front apertures 316 and 318, respectively, and projecting perpendicularly to the plane of the front plate 314 in the same direction as the rectangular frame 322, though not as far as the latter. These frames 334 and 336 form a guide for pins that will be inserted in the front apertures 316 and 318, as described in detail below.

The shutter device 306 comprises an essentially flat rear plate 338 which, when the socket is assembled, is arranged parallel to the plane defined by the front plate 314. Around the perimeter of the rear plate 338 is a frame 340 projecting perpendicularly to the plane of the rear plate 338 in both directions. The shape and dimensions of the rear plate 338 are such as to allow the shutter device 306 to be fastened with limited play inside the housing formed on the front shell 302 by the rectangular frame 322 and by the tabs 324-328.

Additional rear apertures are formed in the rear plate 338 with shapes and dimensions corresponding essentially to the front apertures 316-320 present on the front plate 314. The rear apertures are positioned on the rear plate 338 in such a way that, when the shutter device 306 is inserted into the housing formed on the front shell 302 by the rectangular frame 322 and tabs 324-328, each of the rear apertures is in line with a corresponding front aperture. In particular, a rear live aperture 342 and a rear neutral aperture 344 are in line with the front live aperture 316 and front neutral aperture 318 respectively, while rear earth aperture 346 is in line with the front earth aperture 320.

It should be observed that in the embodiment of the present invention described in the figure, the frame 322 is

essentially rectangular (not square) and is provided with three tabs 324-328 only, so that one side of the frame 322 is left free. In this way the shutter device 306 can be inserted into the housing formed by the rectangular frame 322 and tabs 324-328 in only one correct position in which the various rear apertures 342-346 are in line with the corresponding front apertures 316-320. The rectangular shape of the housing and the presence of only three tabs stop the shutter device 306 from being inserted in a different position rotated relative to the correct position (for example by 90° or 180° in either clockwise or anticlockwise directions). This feature is particularly useful when the insulating body of the power socket is being assembled, as it prevents accidental misassembly. Those skilled in the art will recognize that the same result can be obtained with any other asymmetrical form of the rear plate 338 and of the corresponding housing formed on the front shell 302 such that they can be fastened together only with the rear plate 338 orientated in one defined direction.

The rear plate 338 is provided with projections 348 projecting perpendicularly to the plane of the rear plate 338 in both directions. The length of the projections 348 is such that, when the shutter device 306 is inserted into the housing formed on the front shell 302 by the rectangular frame 322 and by the tabs 324-328, and the rear shell 304 is then snap-fitted over the front shell 302, the shutter device 306 is basically fixed within the insulating body of the electrical power socket.

On that face of the rear plate 338 which, when the electrical power socket is assembled, is towards the front plate 314, a guide 350 is formed in relief around the rear earth aperture 346. Other relief parts are provided on both faces of the rear plate 338, in order to give it increased strength.

The guide 350 defines a housing for a shutter piece 352. The shutter piece 352 comprises a central body 354 of essentially parallelepipedal shape, free to move within the guide 350 parallel to the plane defined by the rear plate 338. It should be observed that the central body 354 of the shutter piece 352 has a length in the direction perpendicular to the plane defined by the rear plate 338 slightly less than that of the turrets 348 which project from the rear plate 338 towards the front plate 314 so that, when the power socket is assembled, the shutter piece 352 is contained with limited play between the front plate 314 and the rear plate 338.

Projecting from the central body 354 of the shutter piece 352 are three shutter arms 356, 358 and 360. The two arms 356 and 358, in particular, project symmetrically from the central body 354, in such a way that the entire shutter piece 352 is in the approximate shape of an anchor.

The shutter piece 352 is free to move between a rest (or closed) position and an operational (or not-closed) position. The rest position is defined by the interference between the central body 354 and a stop shoulder 362 present in the guide 350. In this position, the arms 356 and 358 are behind the live 316 and neutral 318 front apertures, respectively, while the arm 360 is behind the front earth aperture 320.

The shutter piece 352 is held in the rest position by an elastic means 363, e.g. a helical spring. The spring 363 is mounted between the rear plate 338 and the shutter piece 352 itself. More specifically, the rear plate 338 possesses a shoulder 364 projecting from the face nearest the front plate 314 perpendicularly from the plane of the latter; the shoulder 364 comprises a peg 366 directed towards the guide 350 to engage one end of the spring 363. The central body 354 of the shutter piece 352 comprises, in turn, a recess 368 having

a wall fitted with another peg 370 directed towards the shoulder 364 to engage another end of the spring 363. It will be seen that this particular system of engaging the helical spring 363 makes the assembling of the shutter device 306 very simple; the presence of a special cavity for the helical spring 363 in the form of the recess 368 also makes the structure comparatively stable even when the shutter device 306 is not fitted in the power socket 300. It is thus possible to assemble the shutter device 306 in advance and then transfer it, already fully assembled.

The arms 356 and 358 corresponding to the front apertures 316, 318 and rear apertures 342, 344 are of a basically flat structure parallel to the plane of the rear plate 338. The two arms 356 and 358 project in opposite directions from the central body 354 on its face nearest the rear plate 338; the two arms 356 and 358 are inclined at an angle to the direction of translation of the shutter piece 352.

In the rest position of the shutter part 352, the arms 356 and 358 therefore prevent any object from being inserted into the power socket and coming into contact with a metal spring contact connected to a power supply cable. It will be seen that the frames 334 and 336 formed on the front plate 314 form a guide for the pins to be inserted into the corresponding front live 316 and neutral 318 apertures; these frames 334 and 336 are shorter than the projections 348 that project towards the front shell 302, so that when the power socket is assembled they do not obstruct the movement of the arms 356 and 358 past the rear live 342 and neutral 344 apertures.

The arm 360 corresponding to the front 320 and rear 346 earth apertures is, however, provided with a plane 372 facing the corresponding front ground aperture 320 and inclined at an angle to the parallel planes defined by the front plate 314 and the rear plate 338; in particular, the inclined plane 372 slopes away from that face of the central body 354 which is positioned against the front plate 314 until it reaches the plane defined by that face of the central body 354 which is positioned against the rear plate 338. The inclined plane 372 intersects the plane of the rear plate 338 and divides it into two half-planes; the same inclined plane 372 forms with the half-plane containing the rear apertures 342 and 344 an acute angle, preferable of 45°.

In this way, a force applied to the inclined face 372 by any object through the front earth aperture 320 (indicated by an arrow in the figure) will include a component acting in the direction of translation of the shutter piece 352 down the guide 350 which, by countering the action of the spring 363, tends to move the shutter piece 352 into the operational position, in which the arms 356 and 358 are no longer behind the live 316 and neutral 318 front apertures, respectively. Consequently, when a power plug is pushed into the socket, the contact pin corresponding to the front earth aperture moves the shutter piece 352 into the operational position, thereby enabling the other contact pins to be pushed through the corresponding front live and neutral apertures.

It can be seen that, because the arms 356 and 358 are at a distance from the front plate 314, the pin of the power plug inserted through the front earth aperture always comes into contact with the arm 360 before the other pins can reach the arms 356 and 358; in this way, when these pins reach the depth of insertion into the power socket corresponding to the arms 356 and 358, the latter have already been moved out of the rest position under the action of the force applied to the arm 360, thus allowing the power plug to be inserted correctly.



US005702259A

117 46

United States Patent [19]

Lee

[11] Patent Number: 5,702,259

[45] Date of Patent: Dec. 30, 1997

[54] SAFETY SOCKET AND PLUG ARRANGEMENT

[76] Inventor: Chiu-Shan Lee, No. 4, Alley 14, Lane 53, Hung-Tao St., Hsi-Chih Town, Taipei County, Taiwan

[21] Appl. No.: 695,594

[22] Filed: Aug. 12, 1996

[51] Int. Cl.⁶ H01R 13/453

[52] U.S. Cl. 439/137; 439/145; 439/172; 439/518

[58] Field of Search 439/137, 145, 439/139, 220/242

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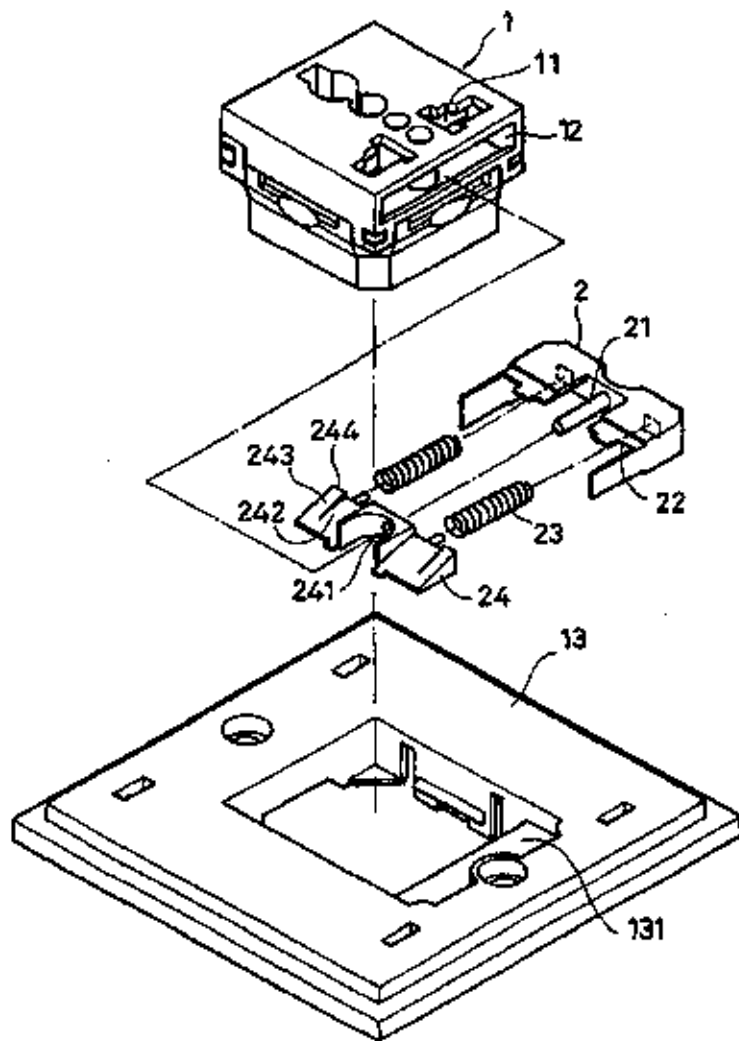
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Primary Examiner—P. Austin Bradley
Attorney, Agent, or Firm—Morton J. Rosenberg; David I. Kleix; Jun Y. Lee

[57] ABSTRACT

A safety socket and plug arrangement in which the socket has a spring-supported safety baffle plate blocking in the plug blade insertion slots, the safety baffle plate being moved out of the plug blade insertion slots when the metal contact blades of an electric plug are inserted into the plug blade insertion slots, or tilted and stopped in place when a child inserts a rod member into one plug blade insertion slot; the plug includes a plug shell and a replaceable plug head detachably coupled to the plug shell for connection to an electric socket.

10 Claims, 10 Drawing Sheets



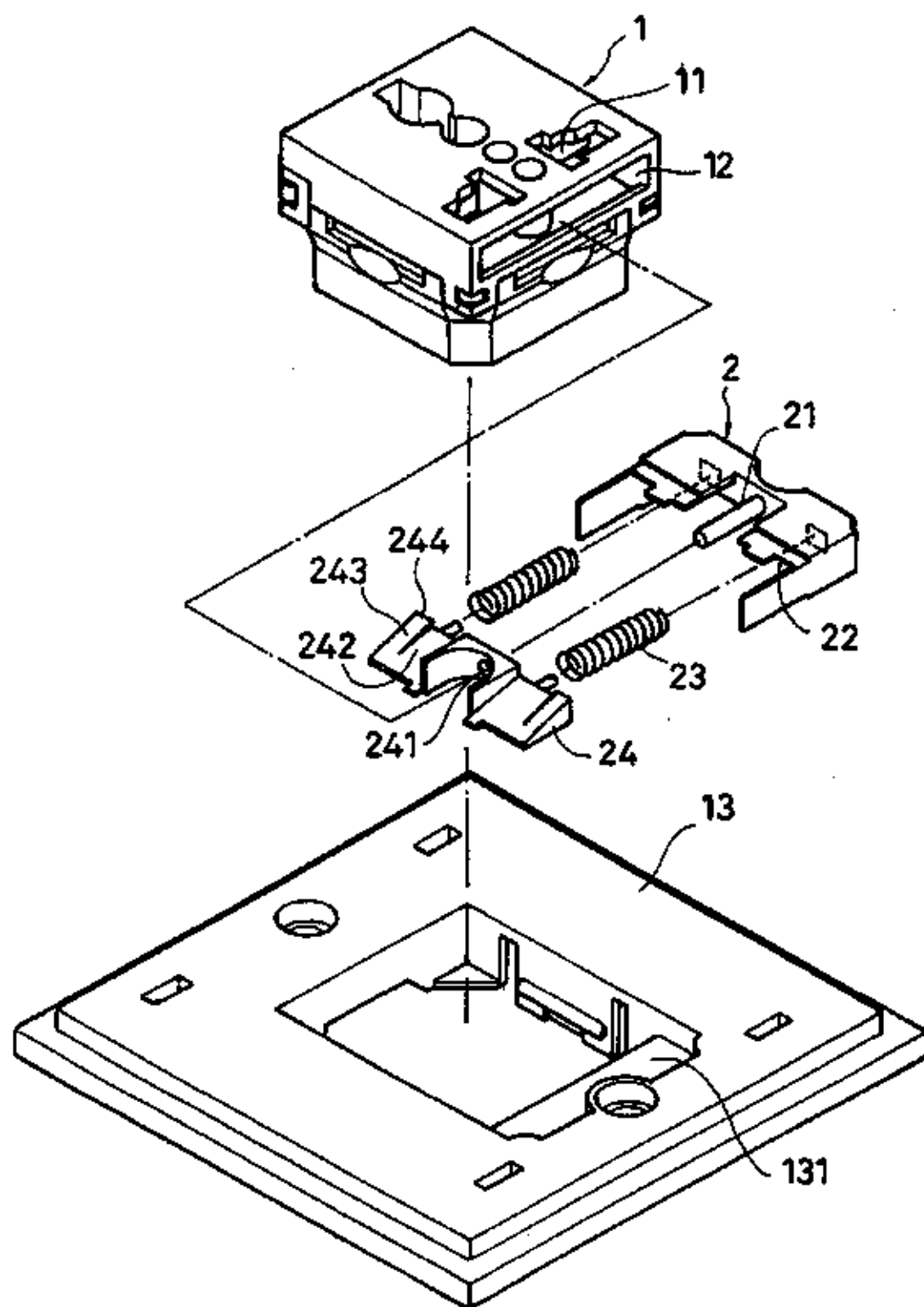


FIG.1

opposite sides and sloping in the same direction, two second top slopes 242 disposed at two opposite sides between the center axle hole 241 and the first top slopes 243 at a lower elevation than the first top slopes 243. The first top slopes 243 have a respective top end terminating in a respective top flange 244. The baffle holder 2 has two recessed portions 22 adapted for receiving the top flanges 244 of the first top slopes 243 when the safety baffle plate 24 is tilted. When assembled, the safety baffle plate 24 is forced inwards by the springs 23 to block up the slots 11 of the socket body 1. When the metal contact blades 14 of an electric plug are inserted into the slots 11 of the socket body 1, the metal contact blades 14 are forced downwards against the first top slopes 243 or the second top slopes 242 (subject to the type of the metal contact blades 14), thereby causing the safety baffle plate 24 to be moved outwards toward the baffle holder 2. When the safety baffle plate 24 is moved outwards, the metal contact blades 14 are allowed to be moved into contact with the neutral and hot terminals of the socket body 1, and at the same time, the springs 23 are compressed. When the metal contact blades 14 of the electric plug are removed from the slots 11 of the socket body 1, the springs 23 automatically push the safety baffle plate 24 back to its former position. If a child inserting a rod member 15 into one slot 11 of the socket body 1, the safety baffle plate 24 will be forced to turn about the sliding rod 21 of the baffle holder 2, causing the top flange 244 of one first top slope 243 to be forced into engagement with the corresponding recessed portion 22 of the sliding rod 21 (see FIGS. 3 and 3A). Therefore, the safety baffle plate 24 is prohibited from backward movement.

Referring to FIG. 4, the electric socket 3 comprises a receiving chamber 31 on the inside, a sliding rod 32 horizontally projecting into the receiving chamber 31, two recessed portions 33 bilaterally and downwardly disposed inside the receiving chamber 31, a safety baffle plate 34 sliding on the sliding rod 32, and two springs 35 bilaterally mounted inside the receiving chamber 31 to impart a forward pressure to the safety baffle plate 34. The recessed portions 33 are adapted for stopping the safety baffle plate 34 from backward movement when the safety baffle plate 34 is tilted by an object being inserted into the electric socket 3.

Referring to FIGS. 5, 5A, 5B, and 5C, the plug shell, referenced by 4, comprises a circular open chamber 41 at the back adapted for receiving a plug head 5, a plurality of locating grooves 42 of different sizes spaced on the inside around the circular open chamber 41, a plurality of electric terminals 43, and a coupling portion 44 disposed inside the circular open chamber 41 at a suitable location. The plug head 5 fits the circular open chamber 41, comprising a plurality of metal contact blades 51 adapted for connecting to an electric socket, a plurality of locating tabs 52 of different sizes spaced around the periphery and adapted for fastening to the locating grooves 42 through a rotary motion, and a coupling portion 53 adapted for coupling to the coupling portion 44 of the plug shell 4. When the plug head 5 is inserted into the circular open chamber 41 of the plug shell 4 and turned through an angle to force the mounting tabs 52 into engagement with the locating grooves 42, the metal contact blades 51 of the plug head 5 are respectively forced into contact with the electric terminals 43 of the plug shell 4, and the coupling portion 53 of the plug head 5 is forced into engagement with the coupling portion 44 of the plug shell 4. This design allows different plug heads having metal contact blades of different specifications to be alternatively fastened to the plug shell to fit different electric sockets.

FIG. 6 shows an electric extension line made according to the present invention, having a socket holder 36 at one end holding a plurality of electric sockets 3, which is made according to the embodiment shown in FIG. 4, and an electric plug at an opposite end, which is made according to the embodiment shown in FIG. 5.

Referring to FIG. 7, a plug head 7 is detachably fastened to a transformer 6, and adapted for connecting the transformer 6 to an electric socket. The transformer 6 comprises a back recess 61 extending to the border and adapted for receiving the plug head 7, two longitudinal sliding grooves 62 at two opposite sides of the back recess 61, a plurality of electric terminals 63 mounted in the back recess 61 and connected to the internal electric circuit, a coupling portion 64, and a plurality of upright stub rods 65 disposed in the back recess 61. The plug head 7 comprises two sliding rails 72 at two opposite sides adapted for inserting into the sliding grooves 62 of the transformer 6, a plurality of metal contact blades 71 adapted for inserting into respective slots of an electric socket, and a coupling portion 73 adapted for coupling the coupling portion 64 of the transformer 6. When the sliding rails 72 of the plug head 7 is inserted into the sliding grooves 62 of the transformer 6, the coupling portion 73 of the plug head 7 is forced into engagement with the coupling portion 64 of the transformer 6, and the metal contact blades 71 are respectively forced into contact with the electric terminals 63 of the transformer 6.

Referring to FIGS. 8 and 8A, the plug head 7 shown in FIG. 7 further comprises two downward back troughs 74, two spring-supported baffle plates 75 respectively mounted in the back troughs 74, and two covers 77 respectively covered on the back troughs 74. Each of the covers 77 has two downward sliding slots 78, and a bottom opening 79 between the downward sliding slots 78. Each of the spring-supported baffle plates 75 has two bottom notches 76 corresponding to the downward sliding slots 78 of the corresponding cover 77. When the plug head 7 is installed in the back recess 61 of the transformer 6, the stub rods 65 of the transformer 6 are forced into the sliding slots 78 of the covers 77 into engagement with the bottom notches 76, causing the baffle plates 75 to be lifted upwards, for permitting the metal contact blades 71 of the plug head 7 to be forced into contact with the electric terminals 63 of the transformer 6.

Referring to FIG. 8B, the plug head 7 may be made having one back trough 741 adapted for receiving one spring-supported baffle plate 751, which has two bottom notches 761; and covered with a cover 771, which has two downward sliding slots 781 and two bottom openings 791 spaced between the downward sliding slots 781. This alternate form acts in the same manner as that shown in FIGS. 7 and 8.

Referring to FIG. 9, a plug head 9 is detachably fastened to a transformer 8, and adapted for connecting the transformer 8 to an electric socket. The transformer 8 comprises a recessed back hole 81 adapted for receiving the plug head 9, two longitudinal sliding grooves 82 at two opposite sides of the recessed back hole 81, a plurality of electric terminals 83 mounted in the recessed back hole 81 and connected to the internal electric circuit, a coupling portion 84, pairs of vertically spaced notches 821 respectively disposed in communication with the longitudinal sliding grooves 82, and a transverse locating groove 822 connected between the longitudinal sliding grooves 82 at the top. The plug head 9 comprises pairs of mounting tabs 92 adapted for inserting through the notches 821 into the longitudinal sliding grooves 82, a plurality of metal contact blades 91 adapted for

**SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIRECCIÓN DE NUEVAS CREACIONES**

2020
Bogotá, D.C.,

Abogado:
JUAN PABLO CADENA SARMIENTO

ASUNTO	Radicación	07-68716
	Trámite	002
	Evento	003
	Actuación	430
	Oficio	008854
	Folios	010

Patente de Invención	☒	Patente de Modelo de Utilidad	☐
Vía Nacional	☒		
Vía PCT (fase nacional)	☐	Cap. I	☐ Cap. II ☐

Como resultado del examen de fondo, realizado con fundamento en el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le comunica:

1. Documentos estudiados

<u>Descripción:</u>	Folios: <u>6</u> a <u>11</u> como se radicó inicialmente
<u>Reivindicaciones:</u>	Folios: <u>12</u> a <u>13</u> como se radicó inicialmente
<u>Dibujos:</u>	Folios: <u>14</u> a <u>16</u> como se radicó inicialmente
<u>Prioridad:</u>	Folios: <u>33</u> a <u>39</u> (2006-07-11, ES, No. MU200601647)

2. Objeto de la invención

La presente solicitud se titula "BASE DE ENCHUFE CON OBTURADOR DE SEGURIDAD" Folio N° 1.

El objeto de la presente solicitud se refiere a una toma de corriente provista de un dispositivo obturador de seguridad con el cual solo puede accederse a los contactos interiores cuando son introducidas dos espigas al unísono.

De otra parte, el pliego reclama: una base de enchufe con obturador de seguridad relacionada en las reivindicaciones 1 a 5.

El objeto de la solicitud definido anteriormente se clasificó en la IPC H01R 24/00.

3. De la solicitud de Patente

3.1. Título

El título de la solicitud debe reflejar el objeto y el campo industrial con el cual se relaciona la invención y debe ser concordante con la materia descrita y las reivindicaciones de la solicitud.

La presente solicitud comparte el mismo título con las solicitudes No. 07-69278 y No. 07-69281; "*Base de Enchufe con Obturador de Seguridad*". Distintas solicitudes con títulos iguales no son aceptables, por lo cual se recomienda acumular (unir) los tres expedientes o cambiar los títulos de manera que cada título refleje el campo industrial y especialmente el objeto que se pretende proteger.

3.2. Reivindicaciones (artículo 30 D 486)

La materia contenida en el pliego reivindicatorio calificado presenta los siguientes problemas de definición y claridad:

La reivindicación 1 reclama el resultado a alcanzar con el uso de la base de enchufe. La forma de uso y efectos del mismo, deben ser presentados en la descripción. En las reivindicaciones solamente se deben especificar las características técnicas de la invención, tal como los componentes y la forma de acople de los mismos.

La reivindicación independiente también debe definir todos los elementos que conforman la invención, especialmente aquellos que no se encuentran especificados en el estado del arte. La reivindicación 1 NO define de forma suficiente componentes importantes tales como el obturador y la placa portaobturador. Cabe aclarar que las reivindicaciones dependientes se usan para aclarar o delimitar los elementos contenidos en la reivindicación principal, no para especificar nuevos elementos o elementos diferentes de la materia contenida en tal reivindicación.

Debe especificarse que son las "dimensiones adecuadas" reclamadas en la reivindicación 2.

Las reivindicaciones 3 a 5 se refieren a las situaciones de uso cuando se introducen a los agujeros del obturador una sola espiga o dos espigas al tiempo. Estas características corresponden a la operación (uso) de la base lo cual debe especificar en la descripción (como ya se hizo) NO en las reivindicaciones.

En conclusión, el pliego reivindicatorio calificado no cumple los requisitos exigidos en el Art. 30 de la Decisión 486.

4. **Determinación del Estado de la Técnica**

Considerando que la solicitud reclama prioridad del 11 de julio de 2006, se buscaron documentos del estado de la técnica relacionados, con fecha de publicación anterior a esta. Se realizó búsqueda de documentos relevantes dentro del estado de la técnica, entendiendo como estado de la técnica la definición provista en el Art. 16 D 486, y las excepciones fijadas en el Art. 17 de la misma.

No obstante la solicitud presenta problemas de claridad, se realizó una búsqueda de anterioridades parcial que se completará una vez se realicen los ajustes a la solicitud.

Se encontró como anterioridades los documentos relacionados a continuación que afectan la patentabilidad del objeto de la presente solicitud

N°	Documento*	Título	Fecha de publicación
D1	US5839909	SHUTTER DEVICE FOR CLOSING OFF THE COMPARTMENTS OF A POWER SOCKET	1998-11-24
D2	US5702259	SAFETY SOCKET AND PLUG ARRANGEMENT	1997-12-30

*El documento se anexa con el requerimiento.

5. Análisis de patentabilidad (artículo 14 D486)

En cumplimiento del Art. 14 D486 se procedió a evaluar los requisitos de novedad, nivel inventivo y aplicabilidad industrial, con el fin de establecer la patentabilidad de la invención reivindicada de la solicitud en estudio.

5.1. Novedad (artículo 16 D486)

El requisito de novedad se evaluó por comparación entre lo solicitado y los documentos encontrados en el estado de la técnica y que se relacionan con el objeto reivindicado.

Las reivindicaciones 1 a 5 se refieren a una base con obturador de seguridad que se caracteriza por:

- Poseer un obturador ubicado bajo la placa de tapa que impide el acceso accidental de cualquier objeto por alguna de las aberturas rectangulares de la tapa de la base.
- Un portaobturador donde se ubica el obturador, posicionado entre la placa de tapa y la parte superior de un cuerpo base.
- Donde la placa de tapa y el cuerpo base quedan solidarizados mediante patillas de cierre de la placa de tapa y oquedades laterales del cuerpo base.
- Donde el obturador es de forma rectangular para permitir su colocación en el interior del portaobturador.
- Donde el obturador esta provisto de dos zonas rectangulares simétricas inclinadas en rampa y una zona central rebajada para el alojamiento de un muelle cilíndrico.
- Donde el cuerpo base posee unos salientes prismáticos huecos para la colocación de los contactos eléctricos, así como los salientes para el contacto de toma de tierra.

La anterioridad D1 se refiere a un dispositivo obturador para cerrar todos los compartimentos de una toma de potencia eléctrica. El dispositivo de obturación comprende una pieza de obturación que se traslada entre una posición de cerrada y una posición de operación. Donde el dispositivo esta constituido por una tapa delantera 302, una tapa posterior o base 304, donde la tapa delantera comprende ranuras inclinadas con respecto al eje de simetría 316, 318 adecuadas para recibir espigas rectangulares, y una tercera abertura 320 dispuesta para recibir la espiga de toma de tierra. El dispositivo presentado en D1 comprende las siguientes características iguales a las reclamadas en la presente solicitud (ver Fig. 3):

- Una pieza de obturación 352 ubicada bajo la tapa delantera 302, pieza que impide el acceso accidental de cualquier objeto por alguna de las aberturas rectangulares 316, 318 de la tapa 302.
- Un plato trasero 338 donde se ubica la pieza de obturación 352, posicionado entre la tapa delantera 302 y la parte superior de la tapa posterior 304.

- Donde la tapa delantera 302 y la tapa posterior 304 quedan solidarizados mediante patillas de cierre 324, 326 y 328 de la tapa delantera 302 y oquedades laterales 330, 331 y 332 de la tapa posterior 304.
- Donde la pieza de obturación 352 tiene la forma adecuada para se ubicada dentro del plato trasero 338 (col. 4, líneas 44 a 53).
- Donde el obturador esta provisto de dos zonas rectangulares simétricas inclinadas en rampa 356, 358 y una zona central 368 para el alojamiento de un muelle cilíndrico 363.
- Donde el cuerpo base posee unos salientes prismáticos huecos 308, 310 para la colocación de los contactos eléctricos, así como los salientes 312 para el contacto de toma de tierra.

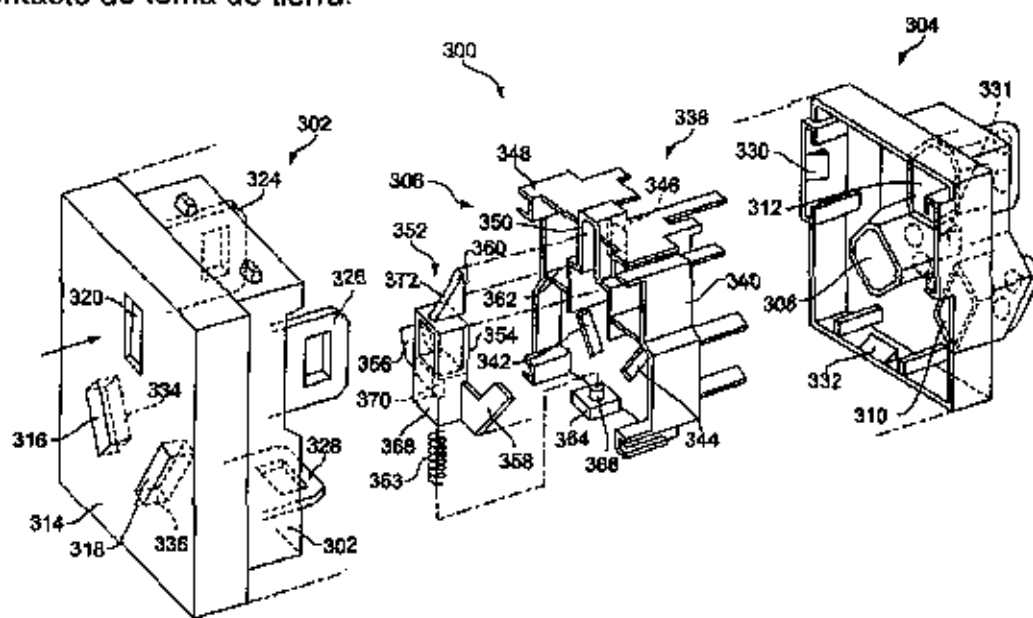


Fig. 3, anterioridad D1

De acuerdo a lo anterior, se puede concluir que el documento D1 comprende las mismas características reclamadas en la solicitud, razón por la cual está no tiene novedad.

Por otro lado, la anterioridad D2 se refiere a una toma corriente de seguridad y una configuración donde un obturador bloquea las aberturas de inserción, donde el obturador solo se mueve cuando los contactos de metal de una clavija son insertados en la toma. El toma corriente esta conformado por un cuerpo 1 y una tapa posterior 13, donde el cuerpo 1 comprende ranuras 11 para recibir espigas rectangulares y una tercera abertura dispuesta para recibir la espiga de toma de tierra. El dispositivo presentado en D2 comprende (Fig. 1):

- Una placa de obturación 24 ubicada bajo el cuerpo 1 que impide el acceso accidental de cualquier objeto por alguna de las aberturas rectangulares 11.
- Un portaobturador 2, posicionado entre el cuerpo 1 y la parte superior de la placa posterior 13.
- Donde la placa de obturación 24 se ubica en el interior del portaobturador 2.
- Donde la placa de obturación 24 esta provista de dos zonas rectangulares simétricas 242 inclinadas en rampa, una zona central 241 y un muelle cilíndrico 23.

La anterioridad D2 también comprende las características reclamadas en la solicitud, lo cual afecta la novedad de la misma.

En conclusión, al hacer la comparación elemento por elemento entre lo solicitado y el estado de la técnica, se encuentra que las características esenciales del objeto de esta solicitud son idénticas a lo comprendido en los documentos D1 y D2, razón por la cual la solicitud no cumple con los requisitos de novedad establecidos en el artículo 16 de la Decisión.

6. Conclusión:

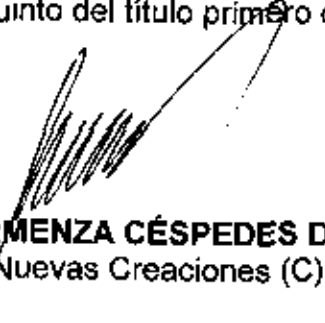
Los requisitos de patentabilidad de la presente solicitud se encuentran afectados así:

N°	Documento N°	Reivindicaciones afectadas	Requisito que afecta
D1	US5839909	1 a 5	Novedad
D2	US5702259	1 a 5	Novedad

Se recomienda, que tenga en cuenta que el replanteamiento de esos apartes NO podrá implicar una ampliación de la protección que correspondería a la divulgación contenida en la solicitud inicial, de acuerdo a lo que establece el artículo 34 de la Decisión 486.

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de sesenta días contados a partir de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única N° 10 de 2001.


ALIX CARMENZA CÉSPEDES DE VERGEL
 Directora Nuevas Creaciones (C)

El anterior requerimiento fue notificado por fijación en lista, de fecha
15 JUL. 2010

CONCEPTO TÉCNICO No. 2368	EXAMINADOR TÉCNICO Código No. 202082
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