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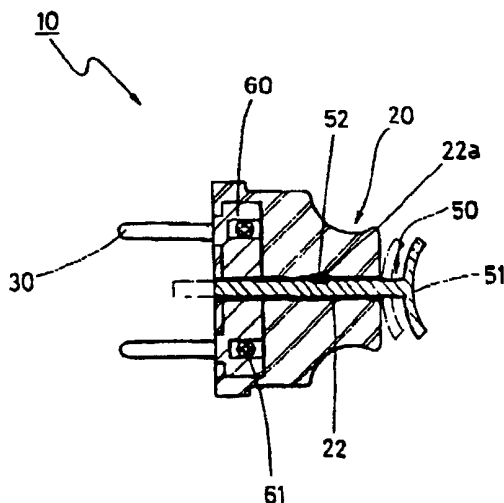
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(54) Title: ELECTRIC PLUG



(57) Abstract: Disclosed is an electric plug molded by a synthetic resin or having upper and lower cases joined to each other by a clamp screw, terminal bars (30), a power line (40), and a body (20) integrally formed, including a mounting hole (22) formed through the body (20) parallel with the terminal bars (30); and a separator (50) slidably inserted into the mounting hole (22) and serving to separate the electric plug from the socket. The plug further includes a race (22a) formed on a given position of the mounting hole (22), and a catch (52) formed in the separator (50) and having an elasticity to mate with the race (22a). The body (20) has concavities (21) formed on a rear part so as to let the body (20) be easily seized with fingers. The separator (50) has a seizing part (51) formed on an end to push the separator (50) to the body's inside and prevent the separator (50) from being completely removed from the body (20). The present invention prevents an erroneous operation of an electric appliance and a leakage of electricity that may occur due to an inappropriate removing method.

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ELECTRIC PLUG

BACKGROUND OF THE INVENTION

Technical Field of the Invention

The present invention relates to an electric plug. More particularly, it relates
5 to an electric plug that can be easily removed from a socket.

Discussion of Related Art

All the electrical appliances using a commercial power have electric plugs,
and each electric plug has two terminal bars corresponding to power supply terminals
provided to a socket.

10 FIG. 3 depicts a conventional electric plug. An electric plug 100 includes an
upper case 110 and a lower case 120 joined to each other by a clamp screw 131, a
pair of conductive terminal bars 140 connected to a power line (not illustrated)
installed protruding to the rear of cases 110 and 120.

As shown in FIG. 4, a space 121 is provided to the inside of upper case 110
15 and lower case 120. A fixture 150 fixing terminal bars 140 is installed not to be
moved in this space 121. More specifically, after terminals 140 are each inserted into
coupling holes 151 of fixture 150, fixture 150 is installed not to be moved in space
121.

Semicircular fixing grooves 111 and 122 for terminal bars 140 and a fixing groove 123 for the power line (not shown) are provided to the front surface and rear surface of upper and lower cases 110 and 120, respectively. A clamp screw 132 for joining the power line is joined to one end of each terminal bar 140.

5 A fixing hole 112 into which clamp screw 131 is inserted to join upper case 110 to lower case 120 is provided to upper case 110. A coupling part 124 with a screw hole is formed to protrude upward in space 121 of lower case 120 corresponding to fixing hole 112. After terminal bars 140 are inserted into coupling holes 151 of fixture 150 for fastening, clamp screw 132 fasten the unclad supply line
10 to terminal bars 140 while terminal bars 140 are being mounted protruding to the front of cases 110 and 120 through fixing grooves 111 and 122, and the power line is installed to protrude to the rear via fixing groove 123 and upper and lower cases 110 and 120 are held together by clamp screw 131. In such a manner, terminal bars 140 and power line are fastened to upper and lower cases 110 and 10 not to be moved.

15 To insert electric plug 100 into a socket outlet, as terminal bars 140 protruding to the front of cases 110 and 120 are tightly fit into the socket's power supply terminal, electric plug 100 is not separated from the socket, and the commercial power is applied to an electric appliance with electric plug 100 through

terminal bars 140 to actuate the appliance. However, there is a problem that the terminal bars, tightly fit into the socket's power supply terminal, are not easily removed from the socket. Some users often remove the electric plug from the socket holding the power line. In this occasion, the power line is broken to induce damages to the electric appliance and a leakage of electricity. In addition, when the conventional plug is being inserted into an external socket, an unfixed socket, a user must remove the plug from the socket with one hand, holding the socket with the other hand.

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SUMMARY OF THE INVENTION

Accordingly, an object of the present invention is to provide an electric plug that can be easily removed from a socket, thus preventing an erroneous operation of an electric appliance and a leakage of electricity that may occur due to an inappropriate removing method.

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To achieve these and other advantages and in accordance with the purpose of the present invention, as embodied and broadly described, the present invention provides an electric plug molded by a synthetic resin or having upper and lower cases joined to each other by a clamp screw, terminal bars, a power line, and a body

integrally formed, includes a mounting hole formed through the body parallel with the terminal bars; and a separator slidably inserted into the mounting hole and serving to separate the electric plug from the socket. The plug further includes a race formed on a given position of the mounting hole, and a catch formed in the separator and having an elasticity to mate with the race.

The body includes concavities formed on a rear part so as to let the body be easily seized with fingers.

The separator includes a seizing part formed on an end to push the separator to the body's inside and prevent the separator from being completely removed from the body.

BRIEF DESCRIPTION OF THE ATTACHED DRAWINGS

The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the drawings:

In the drawings:

FIG. 1 is a perspective view of an electric plug in accordance with the present

invention;

FIG. 2 is a cross-sectional perspective view of the electric plug of FIG. 1;

FIG. 3 is a perspective view of a conventional electric plug; and

FIG. 4 is an exploded perspective view of the electric plug of FIG. 3.

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DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings.

FIG. 1 depicts an electric plug of the present invention, and the plug includes
10 terminal bars 30, a power line 40, and a body 20 integrally formed therewith. A pair
of terminal bars 30 are formed to protrude to the front of body 20 formed by molding
synthetic resin, and power line 40 connected to terminal bars 30 is installed to
protrude downward.

Concavities 21 are formed on the rear part of body 20 to easily hold body 20
15 with fingers. A separator 50, serving to separate plug 10 from the socket, is slidably
mounted in body 20 parallel with terminal bars 30. A seizing part 51 is provided to
the end of separator 50.

As shown in FIG. 2, a pair of terminal bars 30 are each inserted into

coupling holes (not shown) of fixtures 60. Unclad power line 40 is connected to terminal bars 30 via a clamp screw 61.

The inventive plug 10 can be molded by putting fixtures 60, connected with terminal bars 30 and power line 40, in a mold and injecting synthetic resin to the mold. A mounting hole 22 is formed on the middle of body 20 to receive slidingly
5 separator 50, removing plug 10 from the socket, and a race 22a is formed on a given position of mounting hole 22. A catch 52 is provided to separator 50 inserted into mounting hole 22 and has elasticity to mate with race 22a, and a seizing part 51 is formed on the end of separator 50. As separator 50 is fit into mounting hole 22 of
10 body 20 molded by the synthetic resin, catch 52 with the elasticity shrinks to let separator 50 be inserted into mounting hole 22. As catch 52 comes in race 22a, catch 52 that has shrunken becomes wider and is seated in race 22a.

As catch 52 is fit in race 22a, separator 50 cannot move backward but move forward. As there is a limit in moving separator 50 forward by seizing part 51 formed
15 on the end of separator 50, removing separator 50 from body 20 is prevented.

If a user wants to remove plug 10 from the socket, he or she seizes concavities 21 of body 20 with second and middle fingers and presses seizing part 51 of separator 50 with thumb, pulling body 20, so the end of separator 50 is protruded

to the inside of body 20 and supported by the socket thereby easily separating plug 10 from the socket. An electric plug having upper and lower cases joined to each other by a clamp screw may have a mounting hole and a separator slidably inserted into the mounting hole as illustrated in the preferred embodiment of the present invention, thereby easily removing the plug from the socket.

According to the inventive plug, the body, the terminal bars and the power line are integrally formed by molding the synthetic resin or holding the upper and lower cases together by a clamp screw, and the separator serving to remove the plug from the socket is slidably inserted into the mounting hole so that the plug can be easily removed from the socket. Accordingly, the present invention can prevent an erroneous operation of an electric appliance and a leakage of electricity that may occur by inappropriately removing its plug from the socket. In addition, in case that the inventive plug is inserted into an unfix socket, a user can easily remove the plug therefrom with one hand only.

It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without departing from the spirit or scope of the invention. Thus, it is intended that the present invention cover the modifications and variations of this invention provided they come within the scope of the appended

claims and their equivalents.

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What is claimed is:

1. An electric plug molded by a synthetic resin or having upper and lower cases joined to each other by a clamp screw, terminal bars, a power line, and a body integrally formed, said electric plug comprising: a mounting hole formed through the
5 body parallel with the terminal bars; and a separating means slidably inserted into the mounting hole and serving to separate the electric plug from the socket.
2. An electric plug according to claim 1, further comprising:
a race formed on a given position of the mounting hole; and
a catch formed in the separating means and having an elasticity to mate with the race.
- 10 3. An electric plug according to claim 1, wherein the body includes concavities formed on a rear part so as to let the body be easily seized with fingers.
4. An electric plug according to claim 1, wherein the separating means includes a seizing part formed on an end to push the separating means to the body's
inside and prevent the separating means from being completely removed from the
15 body.

Drawing

Figure 1

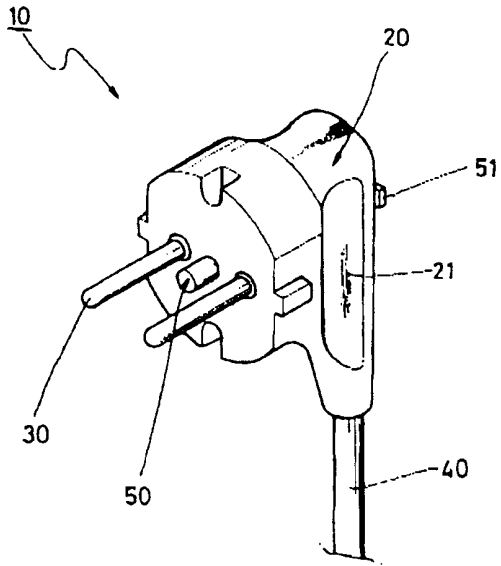


Figure 2

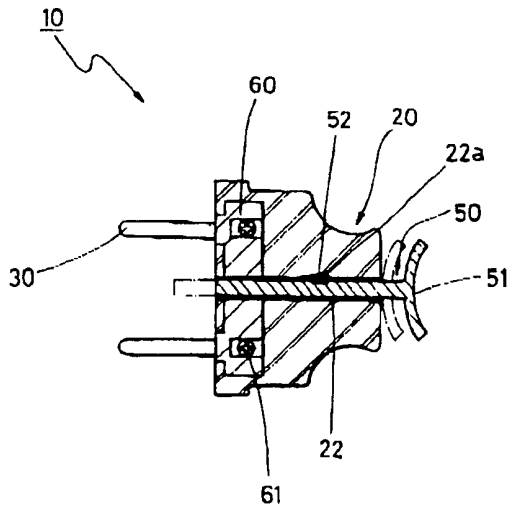


Figure 3

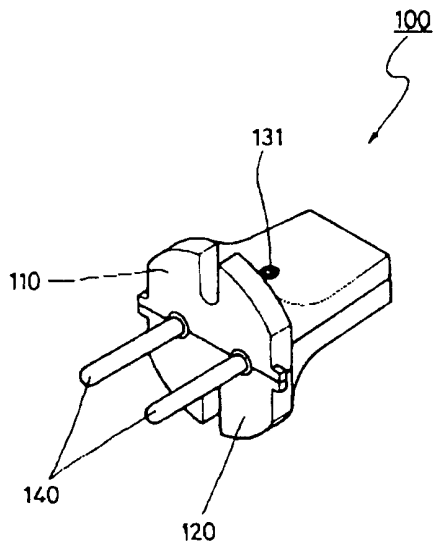
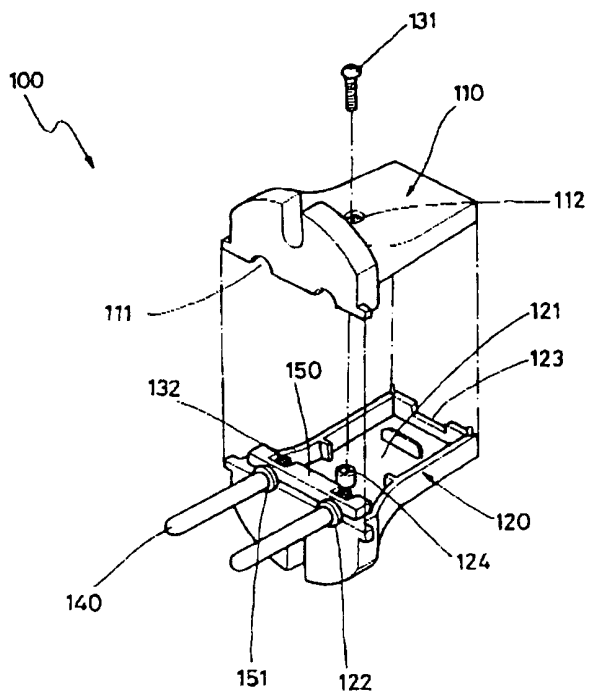


Figure 4



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR00/00621**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 H01R 13/62**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 H01R 13/62

Documentation searched other than minimum documentation to the extent that such documents are included in the files searched
Korean Patents and applications for inventions since 1975 / Korean Utility models and applications for Utility models since 1975/
Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 03-133073, A (TORAY IND INC), 6. June 1991 (06. 06. 91) (Family : none)	1,2,4
Y	JP 02-281580, A (MATSUSHITA ELECTRIC IND), 19 November. 1990 (19. 11. 1990) (Family : none)	1,2,4
A	JP 01-102869, A (MITSUBISHI ELECTRIC CORP, MITSUBISHI ELECTRIC HOME APPLIANCE CO.Ltd) 20 April, 1989 (20.4.1989) (Family : none)	1,2,4

 Further documents are listed in the continuation of Box C. See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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