

SOCKET

Field of the Utility Model

Embodiments of the present utility model relate to a socket.

5 Background of the Utility Model

A socket is a commonly-used electrical device through which an electric/electronic device is connected to a power supply or signal source/signal receiving end. It is difficult to use ordinary sockets in a dark environment for the following reasons: first, an accurate position of the socket cannot be found quickly in
10 the dark environment; even though a general position of the socket can be found (e.g., touching an external profile or partial region of a body of the socket), it is still very difficult to accurately locate positions of receptacles in the socket. Since receptacles in the socket are usually very small, and more than two pins of one plug usually need to be inserted into different receptacles in the socket simultaneously, it is very difficult
15 to complete alignment of the plug and receptacles quickly in the dark environment. Furthermore, it is very dangerous to search for the positions of the receptacles by touching the socket with fingers, which is likely to cause an electric shock accident.

Therefore, it is desirable to provide a socket which assists in implementing insertion of the plug in the dark environment.

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Summary of the Utility Model

According to an aspect of the utility model, there is provided a socket, comprising: a body provided receptacles for insertion of a plug; and a movably-arranged protective door, when no plug is inserted into the receptacles, the protective door
25 shields the receptacles, and when the plug is inserted into the receptacles, the protective door is pushed open by the plug so that the plug can extend into the receptacles. The protective door is self-luminous to indicate positions of the receptacles.

According to another aspect of the present utility model, the protective door is
30 slideably or rotatably disposed in the interior of the body, the protective door is

provided with an inclined drive surface so that when the plug is inserted into the receptacles, the plug abuts against the inclined drive surface to drive the protective door to move in a direction different from an insertion direction of the plug so as to open the receptacles.

5 According to another aspect of the present utility model, the protective door abuts against a spring device so that when no plug is inserted into the receptacles, the spring device retains the protective door at a position where the receptacles are shielded.

According to another aspect of the present utility model, the protective door is made of a self-luminous material.

10 According to another aspect of the present utility model, on a side of the protective door facing towards the plug is printed a self-luminous layer or pasted a self-luminous substance.

According to another aspect of the present utility model, the socket is a wall-mounted socket or a wiring board.

15 According to another aspect of the present utility model, the socket is a power supply socket, a signal line socket or a combination of the power supply socket and signal line socket.

The socket according to the present utility model uses the protective door to protect the receptacles and provide safety protection, and, by providing the protective
20 door with self-luminous function, the protective door further has a function of indicating receptacles positions in the dark environment, so that the user can quickly and accurately insert the plug into the receptacles of the socket in the dark environment.

25 **Brief Description of Drawings**

These and other objects, features and advantages will be made apparent by reading through the following detailed description of exemplary embodiments with reference to figures. In the figures:

Fig. 1 is an exploded view of a socket according to an embodiment of the present
30 utility model;

Fig. 2 is a front view of a socket according to an embodiment of the present utility model.

Detailed Description of Preferred Embodiments

5 Various embodiments of the present utility model are described in detail only in an exemplary manner.

Fig. 1 is an exploded view of a socket according to an embodiment of the present utility model. In the embodiment, a socket panel mounted on a wall is taken as an example to illustrate the socket of the present utility model. As shown in Fig. 1, the
10 socket comprises a body consisting of a base 1 and a cover plate 2. Electrically conductive connection pieces 3 are mounted on the base 1, the cover plate 2 is provided with a plurality of receptacles 4. The electrically conductive connection pieces 3 respectively correspond to positions of corresponding receptacles 4 so that when a plug is inserted into the receptacles 4, respective pin of the plug can contact
15 the respective electrically conductive connection piece 3 to achieve electrical connection.

In the interior of the socket, namely, in a space encompassed by the cover plate 2 and the base 1, is provided a protective door 5. The protective door 5 is slideably disposed on a support 6 via a chute, or rotatably disposed on the support 6 via a pivot.
20 Certainly, the protective door 5 may also be directly mounted slideably or rotatably on a back side of the cover plate 2 without a separate support 6. The protective door 5 is positioned in a way of shielding the receptacles 4 when no plug is inserted into the receptacles 4. When the plug is inserted into the receptacles 4, the protective door 5 can be pushed open by the plug to slide or rotate to a position beside the receptacles,
25 so that the plug can extend into the receptacles 4 and come into contact with the electrically conductive connection pieces 3 in the receptacles 4. As such, when the socket is not in use, the protective door 5 can shield and close the receptacles 4 to thereby prevent accidental insertion of fingers into the receptacles to cause electrical shock or prevent foreign objects and dusts from entering the receptacles causing
30 contaminating or damaging the electrically conductive connection pieces 3 in the

receptacles.

Regarding plural receptacles 4 (e.g., two or three receptacles) for one plug, an integral protective door 5 may be used to shield said plural receptacles simultaneously, but an individual protective door may be provided for each of the receptacles 4. A
5 slope 51 may be disposed at the position on the protective door 5 corresponding to the receptacles 4 and on a side facing towards the socket. In this way, when the plug abuts against the slope 51 to push the protective door 5, the protective door 5 can be pushed in a direction substantially perpendicular to the insertion direction of the plug by a slant force component generated due to the slope 51. Hence, when the plug is
10 inserted in the receptacles 4, it can be ensured that the protective door 5 is smoothly pushed open to one side of the receptacles 4 to facilitate the insertion of the plug.

To enable the protective door 5 to return to the original position to shield the receptacles 4 again and mechanically protect the receptacles 4 after the plug is drawn out, a spring device 7 may be provided against and between the protective door 5 and
15 the support 6 supporting the protective door 5 or the cover plate 2. As such, when the plug is drawn out of the receptacles 4, the spring device 7 may bias the protective door 5 back to the positions where the receptacles 4 are shielded.

As shown in Fig. 2, the protective door 5 is self-luminous at least at a portion 52 exposed from the receptacles 4. As such, in the dark environment, the self-luminous
20 portion 52 of the protective door 5 further indicates accurate positions of corresponding receptacles. The user may, without aid of other illumination devices or groping, directly align the plug to the self-luminous portion and insert the plug, thereby easily completing the operation of inserting the plug in the receptacles.

To enable the protective door 5 self-luminous, a self-luminous material such as
25 various organic or inorganic self-luminous materials like fluorescent powder may be doped into a material (usually plastic) for fabricating the protective door 5. In this way, the resultant protective door 5 is wholly self-luminous. However, since the protective door 5 is located behind the cover plate 2, only the portions exposed from the receptacles are visible from outside the socket. Hence, the self-luminous
30 protective door 5 exposed from the receptacles 4 still presents the shape and positions

of respective receptacle 4 to provide accurate indication to the user.

The self-luminous protective door 5 may also be provided in other manners. For example, only on a side of the protective door 5 facing towards the plug is printed a self-luminous layer or pasted a self-luminous substance, or it is also feasible to print a self-luminous layer or paste a self-luminous substance on portions of the protective door 5 exposed out of the receptacles 4.

The above-mentioned self-luminous material, self-luminous layer and self-luminous substance refer to a material which can absorb and store light energy in the presence of external light irradiation and utilize the stored light energy to emit light by itself in the dark environment.

Although the socket of the present utility model is illustrated by way of the embodiments of the wall-mounted socket, it should be appreciated that the socket according to the present utility model may take other forms, e.g., commonly-used wiring board (namely, a patch board), or even various interface slots on electrical devices. Furthermore, the socket in the present utility model may be a power supply socket as well as various signal line sockets such as a network line socket, cabled TV line socket or telephone line socket, or a combination of a power supply socket and a signal line socket.

The description of the present utility model has already been presented for the sake of illustration and depiction, but it is not intended to exhaust or limit forms of the present utility model. Those skilled in the art may envisage many modifications and variants. For example, the protective door 5 may be mounted in the interior of the body of the socket or mounted external of the body of the socket, e.g., directly mounted on an external surface of the cover plate 2. In addition, the protective door 5 may be directly formed as a door curtain connected to the cover plate 2 and having flexibility, while a part of edges of each protective door 5 are connected with a side edge of the respective receptacle 4 so that when the plug is inserted into the receptacles 4, the protective door 5 will curve and deform towards the interior of the receptacles to open the receptacles.

Therefore, embodiments are selected and described to better illustrate principles

and actual application of the present utility model and enable those skilled in the art to understand the following content, that is to say, all modifications and substitutions without departing from the spirit of the present utility model fall within the protection scope of the utility model as defined by the appended claims.

WHAT IS CLAIMED IS:

1. A socket, characterized in that the socket comprises:

a body provided receptacles (4) for insertion of a plug; and

a movably-arranged protective door (5), when no plug is inserted into the
5 receptacles (4), the protective door (5) shields the receptacles (4), and when the plug
is inserted into the receptacles (4), the protective door (5) is pushed open by the plug
so that the plug can extend into the receptacles (4);

wherein the protective door (5) is self-luminous to indicate positions of the
receptacles (4).

10 2. The socket according to claim 1, characterized in that the protective door (5) is
slideably or rotatably disposed in an interior of the body, the protective door (5) is
provided with an inclined drive surface (51) so that when the plug is inserted into the
receptacles (4), the plug abuts against the inclined drive surface (51) to drive the
protective door (5) to move in a direction different from an insertion direction of the
15 plug so as to open the receptacles (4).

3. The socket according to claim 2, characterized in that the protective door (5)
abuts against a spring device (7) so that when no plug is inserted into the receptacles
(4), the spring device (7) retains the protective door (5) at a position where the
receptacles (4) are shielded.

20 4. The socket according to any one of claims 1-3, characterized in that the
protective door (5) is made of a self-luminous material.

5. The socket according to any one of claims 1-3, characterized in that on a side
of the protective door (5) facing towards the plug is printed a self-luminous layer or
pasted a self-luminous substance.

25 6. The socket according to any one of claims 1-3, characterized in that the socket
is a wall-mounted socket or a wiring board.

7. The socket according to claim 6, characterized in that the socket is a power
supply socket, a signal line socket or a combination of the power supply socket and
signal line socket.