Sept. 30, 1952 E. W. SHERRARD 2,612,597

ILLUMINATED ELECTRIC OUTLET FIXTURE

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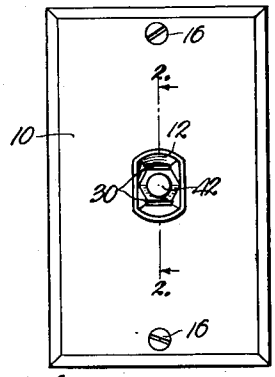

Fig. 1.

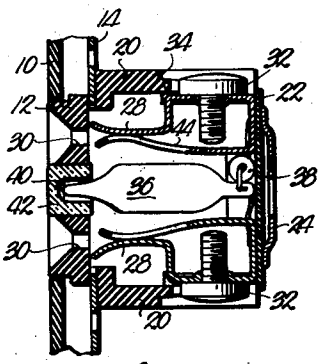

Fig. 2.

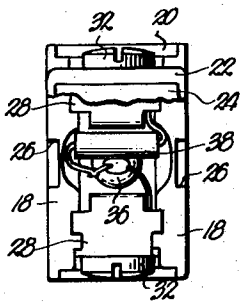

Fig. 3.

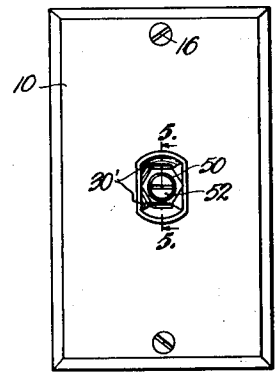

Fig. 4.

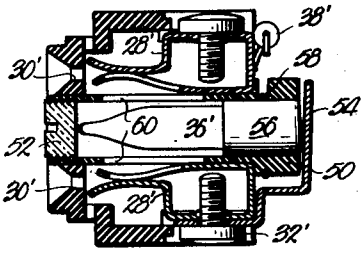

Fig. 5.

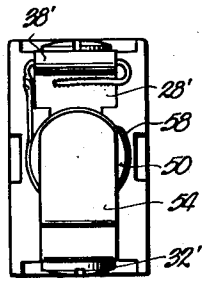

Fig. 6.

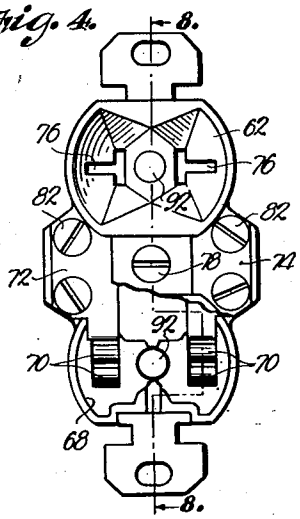

Fig. 7.

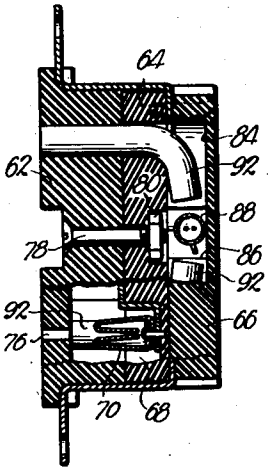

Fig. 8.

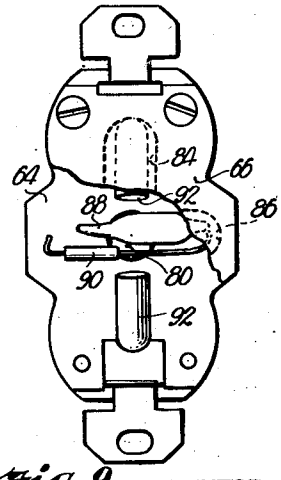

Fig. 9.

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ILLUMINATED ELECTRIC OUTLET FIXTURE

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11 Claims. (Cl. 240—2)

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The present invention relates in general to electrical fixtures and it deals more particularly with outlets or receptacles of the plug-in type.

Such outlets have in the face thereof apertures through which the prongs of a conventional electrical attachment plug may be inserted for the purpose of making electrical connection with the commercial power supply. Very frequently the outlets are situated on or near the floor, or in dark corners, or behind furniture, or in other out-of-the-way places. Under these circumstances it almost always is difficult to insert the plug in the outlet due to the difficulty of locating and bringing the prongs of the plug into registry with the apertures into which they must be thrust to complete the connection. Even if the outlet is more favorably situated in the room, the same difficulty is experienced if the room is dark.

Broadly speaking, it is the object of the present invention to provide an outlet which facilitates the insertion of the plug. To this end a source of light is provided inside the outlet housing to shine through the apertures into which the prongs of the plug must be inserted, thereby making the location of its apertures prominent and easily visible. According to the invention, the illumination of the apertures may be effected either by a diminutive lamp situated between the spring terminals or jacks that receive the plug prongs, or by a remotely situated lamp from which light is "piped" to the desired location by means of a suitable light transmitting body.

A feature of the invention resides in the use of a single source of light to illuminate the apertures of different outlets.

Another feature resides in the specific construction of the spring jacks which facilitates transmission of light to the apertures aligned with those jacks.

Another object of the invention is to provide an electrical outlet with a target or button artificially illuminated from inside the outlet housing in order to identify the location of the oulet in the dark.

According to the invention, the lamp in the outlet also serves as a telltale signal to indicate whether the circuit is energized. Another feature resides in the manner of mounting the lamp in the housing so that it no wise interferes with the normal use of the outlet. Still another feature resides in the provision of arrangements for easily replacing the lamp when necessary.

Other objects and features will appear in the course of the following description of the invention.

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In the accompanying drawings which form a part of the specification and are to be read in conjunction therewith, and in which like reference numerals are employed to identify like parts of the various views,

Fig. 1 is a front elevational view of an electrical outlet embodying the invention,

Fig. 2 is an enlarged vertical cross section taken along the line 2—2 of Fig. 1 in the direction of the arrows,

Fig. 3 is a rear elevational view of the outlet assembly with part of the cover plate cut away for purposes of illustration,

Fig. 4 is a front elevational view of a modified form of outlet,

Fig. 5 is an enlarged vertical cross section taken along the line 5—5 of Fig. 4 in the direction of the arrows,

Fig. 6 is a rear elevational view of the outlet shown in Figs. 4 and 5,

Fig. 7 is a front elevational view of a dual outlet embodying the invention, part being cut away for purposes of illustration,

Fig. 8 is a cross section taken along the line 8—8 of Fig. 7 in the direction of the arrows, and

Fig. 9 is a rear elevational view of the dual outlet with part of the cover plate cut away.

Referring first to Figs. 1 to 3, inclusive, these show an apertured face plate 10 behind which is mounted a housing 12 formed of insulating material. The housing is supported by a frame member 14 and its forward portion, shaped to conform with the aperture in the face plate, projects therethrough as shown. The face plate is fastened by screws 16 or the like so it is substantially flush with the wall.

Rearwardly of the supporting frame 14, the outlet housing comprises a pair of laterally spaced vertical side walls 18 joined at their top and bottom by horizontal webs or half walls 20. Together these form a generally rectangular enclosure, the rear of which is covered by a removable rectangular insulator 22 normally held in place by a cover plate 24. The manner of securing the cover plate in place on the housing forms no part of the present invention, but preferably it is accomplished by means of forwardly extending ears on opposite edges of the cover plate (not shown) which are bent to recesses 26 provided in the side walls 18.

Within the housing are a pair of identical spring terminals or jacks 28 adapted to receive the spaced apart prongs of a plug when the latter are inserted through apertures 30 in the front of the housing. Stamped of flat spring metal and

bent in the shape illustrated in Fig. 2, these jacks are drilled and tapped to receive flathead terminal screws whereby the outlet may be connected by suitable electrical wiring to the commercial power supply. Each jack is held in place in the housing by channels **34** in the side walls **18** adapted to receive the lateral edges of the flat portion of the jack disposed directly under the head of the screw.

Between the two jacks is a diminutive lamp **36** which may be of the incandescent filament type, but preferably is of the kind containing gas (such as neon) adapted to glow gently when ionized. The terminals of the lamp are in the form of pigtails, one of which is soldered or otherwise connected to one of the jacks while the other is connected to a resistor **38**, the other end of the resistor being connected to the second jack. Thus the lamp and resistor are connected in series across the terminals of the outlet whereby the lamp is lighted from the source of electrical power connected to those terminals.

It will be observed that the forward end of the lamp tapers to a point and is supported in a socket or dimple **40** provided in plug **42**, the plug being cemented or otherwise rigidly positioned in the forward wall of the housing between apertures **30**. The plug may be of opaque material, but preferably is transparent or translucent so that it forms a lighted target to assist in locating the outlet in the dark.

To further facilitate inserting a plug into the outlet in the dark, the light from lamp **36** is arranged to shine through apertures **30** whereby it can be perceived without difficulty that these are positioned above and below the target, rather than on either side or in diagonal relationship thereto. To permit light to reach these apertures, the jack blade nearest the lamp is made somewhat shorter than the other blade to provide a light passageway between the tip of the blade and the interior of the housing. Also, this blade is slotted longitudinally as shown at **44**, beginning at a point near its tip, whereby light from the lamp may pass through the slot and be reflected from the surface of the other prong out through aperture **30**.

This arrangement makes the location of apertures **30** immediately apparent even if the outlet is in a dark room or a poorly lighted area, and hence makes it unnecessary to "feel" for the apertures with the prongs of the plug which it is desired to insert into the outlet. The saving in time and temper has proved to be very material in comparative tests made with and without lighted apertures.

The outlet structure illustrated in Figs. 4 to 6, inclusive, is fundamentally like that already described, except for changes made to facilitate replacement of the lamp. A tubular lamp housing **50** is fixedly positioned in the main housing between the spring jacks as shown, the forward end of this being internally threaded to receive a screw-in cap **52** while the rear end is covered by a spring terminal **54**, mounted on the lower jack **28'** by screw **32'**. The central terminal of lamp **36'** is urged against spring **54** due to cap **52** bearing against the tip of the lamp. The other lamp terminal is in the form of a collar **56** engaged by a resilient ring **58** disposed in the annular groove in the lamp housing. The latter ring is connected to one end of a resistor **38'** whose other end is soldered or otherwise connected to the upper spring jack **28'**. Thus, the lamp and resistor are connected in series between the outlet terminals whereby the lamp is lighted by the source of current connected to those terminals, as already described.

The lamp housing contains longitudinal slots **60** through which the apertures **30'** are illuminated as hereinbefore explained, the spring jacks being formed in the same way as in Fig. 2 in order to facilitate this. Plug **52** may be opaque, transparent, or translucent, as desired, and is provided with a screw driver slot to permit its removal.

The manner in which the modified device of Figs. 4 to 6 functions, so far as assisting in the insertion of a plug into the outlet is concerned, is substantially identical to the structure shown in Figs. 1 to 3; the modified device is somewhat more expensive to fabricate but has the additional advantage that the lamp may be replaced when burned out without in any way disassembling the outlet, simply by unscrewing cap **52**, withdrawing the burned out lamp through the opening thus obtained, inserting a new lamp and replacing the cap.

Turning now to Figs. 7 to 9, inclusive, these show a dual outlet having a three part housing **62**, **64** and **66**. The intermediate part **64** has at its opposite ends a pair of pockets **68** adapted to receive spring jacks **70**; as shown in Fig. 7 the left hand jacks in the two pockets are connected by a terminal strip **72**, while the right hand jacks are connected by a terminal strip **74**. The front housing member **62** covers these pockets but has apertures **76** through which the spaced apart prongs of a plug may be inserted into the jacks. Members **62** and **64** are fastened together by a screw **78** and a nut **80**. The shank of member **62**, through which the screw passes, is rather narrow, leaving the intermediate portion of terminal strips **72** and **74** exposed. Screws **82** are provided in the exposed portions so that the power line can be connected thereto.

The rear housing member **66** contains a pair of crossed grooves or channels **84** and **86** which, with the back of member **64**, form intersecting longitudinal and lateral channels. In the lateral chamber is a small lamp **88** having one pigtail terminal connected to resistor **90**. The other pigtail of the lamp passes through member **64** and connects to terminal strip **72** in a manner not shown, while the second pigtail of the resistor likewise passes through member **64** and connects to terminal strip **74**. The lamp and resistor thus are connected in series between the terminals of the outlet so that the lamp is energized by the source of current connected to the terminals.

In the longitudinal channels **84** on opposite sides of lamp **88** are disposed the ends of curved rods **92** formed of Lucite (methyl methacrylate) or other light transmitting material. These rods serve to "pipe" the light from lamp **88** through members **64** and **62**, and a substantial portion of the light therefore issues from the opposite ends of the rods, which glow as two bright spots or targets between apertures **76** at the respective ends of the dual outlet.

As best shown in the lower portion of Figs. 7 and 8, the shank of each rod passes through pocket **68** between the two spring jacks **70** in the pocket, and the light leaving the rod laterally therefore illuminates the jacks and the apertures **76** aligned therewith. Thus it will be seen that by transillumination a single lamp is employed to light the apertures of both outlets as well as the targets located between the aper-

tures. This, in the manner already explained, facilitates finding the outlets and inserting a plug into them even though the room be dark.

It will be self-evident that the arrangements described above for illuminating an outlet in no way interfere with the normal use of the outlet. The lamps employed are small and long lived, consuming very little current and emitting only enough light to serve the intended purpose. Too strong a light has been found usually to be unsatisfactory from a decorative standpoint. In addition to facilitating the insertion of plugs into the outlets, the lighted condition thereof also serves to indicate that the circuit connected to the outlet is "live"; should the circuit be deprived of current due to a blown fuse or other trouble, this is immediately apparent due to the darkened condition of the outlet.

From the foregoing it will be seen that this invention is one well adapted to attain all of the ends and objects hereinbefore set forth, together with other advantages which are obvious and which are inherent to the device.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

Inasmuch as many possible embodiments of the invention may be made without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. In an electrical utility outlet, a housing apertured to received the prongs of an electrical connector plug, jacks in the housing aligned with the apertures to make electrical connection with said prongs, a source of artificial light within the housing between the jacks for illuminating the jacks and apertures, each jack comprising a pair of spring blades adapted to engage opposite sides of one prong, one blade of each pair being nearer said light source than the other, and said one blade being shorter than the other to permit the passage of light past its tip into the housing aperture with which that jack is aligned.

2. In an electrical utility outlet, a housing apertured to received the prongs of an electrical connector plug, jacks in the housing aligned with the apertures to make electrical connection with said prongs, a source of artificial light within the housing between the jacks for illuminating the jacks and apertures, each jack comprising a pair of spring blades adapted to engage opposite sides of one prong, one blade of each pair being nearer said light source than the other, said one blade being curved away from the other at its tip and having a slot beginning in the curved portion and running longitudinally of said blade to permit light to pass through that blade and reach the further blade.

3. A dual utility outlet, comprising a housing having a first pair of spaced apart apertures and a second pair of spaced-apart apertures, jacks within the housing aligned with said apertures, a rod of light-transmitting material between the jacks aligned with one pair of apertures, and a second rod of light-conducting material between the jacks aligned with the second pair of apertures, and a common source of artificial light within the housing illuminating the ends of both rods.

4. A dual utility outlet, comprising a housing having a first pair of spaced apart apertures and a second pair of spaced apart apertures, jacks within the housing aligned with said apertures, a pair of parallel light-transmitting rods in the housing, the axis of one rod being between one pair of apertures and the axis of the other rod being between the other pair of apertures, the ends of said rods being curved toward one another, and a source of artificial light between said ends.

5. In a two-pole electrical utility outlet, a housing having an opaque wall containing a pair of spaced apertures to receive the prongs of an electrical attachment plug, a pair of jacks in said housing aligned with said apertures to make electrical connection with said prongs, a source of artificial light within the housing for illuminating said jacks and apertures, said source disposed between said jacks and substantially against the inside of said opaque wall, and a restricted window of solid light-transmitting material in said wall midway between said apertures covering said light source.

6. An electrical utility outlet device for use with an electrical attachment plug of the type having a plurality of laterally spaced connector prongs; said outlet device comprising a housing having an opaque front wall with a window of solid light-transmitting material therein, said window being of restricted size and said wall containing, on opposite sides of said window and substantially equidistant therefrom, apertures to receive the prongs of said plug, jacks within said housing aligned with said apertures to make electrical connection with said prongs, and a source of artificial light in the housing disposed between said jacks and substantially against said window.

7. In a two-pole electrical utility outlet, a housing having an opaque wall containing a pair of spaced apertures to receive the prongs of an electrical attachment plug, a pair of jacks within the housing aligned with said apertures to make electrical connection with said prongs, said opaque wall having a third aperture midway between said pair of apertures, a socket in said housing spaced rearwardly from said opaque wall and aligned with said third aperture, an electrical lamp insertable into said socket through said third aperture and effective when inserted to emit light through said pair of apertures, and a removable closure for said third aperture, said closure being formed of light transmitting material.

8. In a two pole electrical utility outlet, a housing having an opaque wall containing a pair of spaced apertures to receive the prongs of an electrical attachment plug, a pair of jacks within the housing aligned with said apertures to make electrical connection with said prongs, said opaque wall having a third aperture midway between said pair of apertures, a source of artificial light in said housing to emit light through said apertures, said source comprising an elongated slender member disposed between said jacks with its longitudinal axis normal to the plane of said opaque wall and its tip in said third aperture, the outermost end of said member being substantially flush with the outside surface of said wall.

9. An electrical utility outlet device for use with an electrical attachment plug of the type having a plurality of laterally spaced parallel connector prongs projecting from the plug body; said outlet device comprising a housing having

an opaque front wall containing a central aperture of restricted size, a socket in said housing spaced rearwardly from said opaque wall and aligned with said aperture, an electrical lamp insertable into said socket through said aperture, a removable closure for said aperture, said closure being formed of light transmitting material, said opaque wall having a plurality of apertures to receive the respective prongs of said attachment plug, said prong-receiving apertures being on opposite sides of said first aperture and substantially equidistant therefrom whereby the plug body covers said first aperture when its prongs are inserted into the prong-receiving apertures, and jacks in the housing beside said lamp and aligned with said prong-receiving apertures to make electrical connection with said prongs when same are advanced into the housing through said prong-receiving apertures.

10. An electrical utility outlet device for use with an electrical attachment plug of the type having a plurality of laterally spaced connector prongs; said outlet device comprising a housing having an opaque front wall the inner surface of which contains a dimple, a source of artificial light within said housing, said source comprising an elongated slender member having one end received in said dimple, means supporting the other end of said member so the longitudinal axis of the member is substantially normal to the plane of said opaque wall, said opaque wall containing a plurality of apertures to receive the respective prongs of said plug, said apertures being on opposite sides of said dimple and substantially equidistant therefrom, and jacks in the housing beside said member and aligned with said apertures to make electrical connection with the prongs of said plug when same are advanced into the housing through said apertures.

11. An electrical utility outlet device for use with an electrical attachment plug of the type having a plurality of laterally spaced connector prongs; said outlet device comprising a housing

having an opaque front wall with a window of solid light-transmitting material therein; said window being of restricted size and containing a dimple in its inner surface; a source of artificial light within said housing, said source comprising an elongated slender member having one end received in said dimple, means supporting the other end of said member so the longitudinal axis of the member is substantially normal to the plane of said opaque wall, said opaque wall containing a plurality of apertures to receive the respective prongs of said plug, said apertures being on opposite sides of said window and substantially equidistant therefrom, and jacks in the housing beside said member and aligned with said apertures to make electrical connection with the prongs of said plug when same are advanced into the housing through said apertures.

ELWIN W. SHERRARD.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,100,505	Thomas	June 16, 1914
1,595,831	Gans	Aug. 10, 1926
1,759,805	Pollock et al.	May 20, 1930
1,906,194	Webster	Apr. 25, 1933
1,935,771	Fuerstein et al.	Nov. 21, 1933
1,955,418	Folen	Apr. 17, 1934
2,002,434	Despard	May 21, 1935
2,034,273	Smith	Mar. 17, 1936
2,188,617	Walpole	Jan. 30, 1940
2,189,676	Pfohl	Feb. 6, 1940
2,214,317	Bash et al.	Sept. 10, 1940
2,227,549	McNeill	Jan. 7, 1941
2,374,408	Braidwood	Apr. 24, 1945

OTHER REFERENCES

Illuminated Outlet, October 27, 1945 (page 27 of Electrical World Magazine).