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ELECTRIC OUTLET CONNECTION

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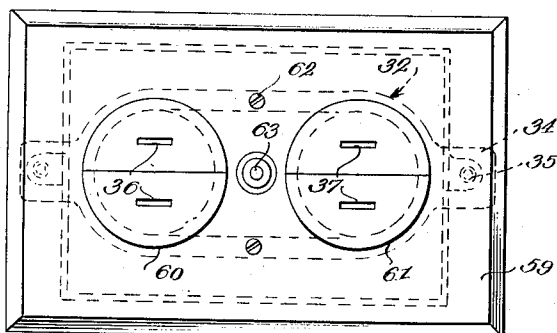


Fig. 1

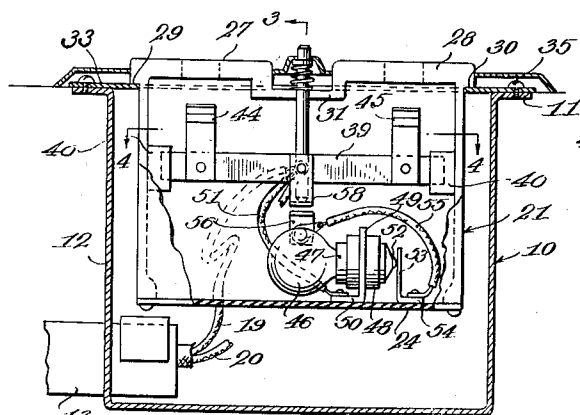


Fig. 2

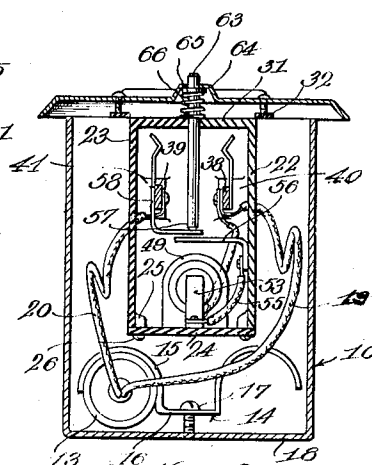


Fig. 3

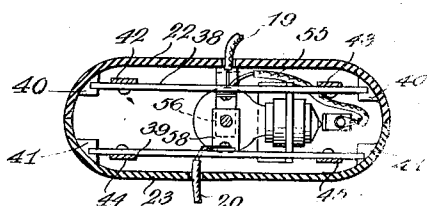


Fig. 4

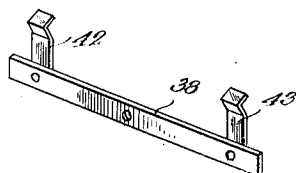


Fig. 5

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UNITED STATES PATENT OFFICE

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ELECTRIC OUTLET CONNECTION

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8 Claims. (Cl. 240—2)

This invention relates to electrical outlet connections and more particularly to a convenience plug or connection adapted to be embedded in a wall, floor or the like.

At the present time, the convenience plugs or outlets which are used for connecting electrical devices to the current supply are provided with a pair of slots for each pair of prongs carried by a connector and where the connector outlet is positioned in a wall it is a difficult matter at times to insert the prongs of the insertable connector in the outlet due to the fact that it is not possible at all times to see exactly where the prong slots are positioned or at what angle such slots are positioned. This makes it necessary for the person inserting the connector to obtain light in some manner to clearly see the slots in which the prongs of the connector are to be inserted. It is not infrequent that such outlet connections are positioned behind articles of furniture or the like, and being thus hidden the outlet connection cannot be readily seen by the person inserting the connector plug in the slots of the outlet.

It is therefore an object of this invention to provide in combination with what is termed a convenience outlet means whereby the slots in which the prongs of the connector are inserted will be lighted up so that the insertion of the prongs of the connector can be quickly and conveniently made without the necessity of providing outside lighting facilities for the outer face of the convenience outlet.

Another object of this invention is to provide a convenience outlet means formed as part of the outlet for illuminating the slots of the outlet from the interior of the outlet so that the light will shine through the slots.

A further object of this invention is to provide in an outlet of this type an illuminating means for the slots of the outlet which are manually controlled, being connected to a manually operable switch forming part of the outlet and which is adapted to be actuated in order to energize the illuminating means prior to the insertion of the plug or connector in the outlet.

A further object of this invention is to provide a convenience outlet of this type which is so constructed that it will readily pass the underwriters' regulations as to the possibility of the illuminating means remaining illuminated, the device being so constructed that in the event the illuminating means remains lighted the heat from the illuminating means will not burn the

insulation from the wires leading to the outlet connection.

A further object of this invention is to provide an outlet device of this kind which embodies the use of relatively few parts so that it can be readily connected to the circuit of a building and may take its place in the present outlet box used for connections or outlets of this type.

To the foregoing objects and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and as illustrated in the accompanying drawing wherein is disclosed embodiments of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the invention as claimed.

In the drawing:

Figure 1 is a detail front elevation of a convenience outlet device constructed according to an embodiment of this invention,

Figure 2 is a longitudinal section, partly broken away, of the device,

Figure 3 is a sectional view taken on the line 3—3 of Figure 2,

Figure 4 is a sectional view taken on the line 4—4 of Figure 2, and

Figure 5 is a perspective view of a pair of contacts and the supporting means therefor used with this outlet device.

Referring to the drawing, the numeral 10 designates generally a box or outer housing which may be formed of metal and which is provided at its outer open end with a pair of outstanding flanges 11. The housing or box 10 is adapted to be embedded in a wall or floor and a conduit 13 extends through one wall 12 thereof being clamped with an end thereof projecting into the housing 10 by a clamping device 14. The clamping device 14 comprises a pair of arcuate clamping arms 15 which are connected together by means of a connecting bar 16 and a screw or bolt 17 engages through the connecting bar 16, and is threaded into the inner end wall 18 of the housing 10. The conduit 13 is adapted to have a pair of wires or conductors 19 and 20 extend there-through, the wires 19 and 20 being connected at one end to a source of current supply.

An inner housing 21 is disposed within the outer housing 10 and this inner housing 21 is preferably constructed of insulated material. In practice, the inner housing 21 may be formed of complementary sections 22 and 23 which are held together by an inner end wall 24. The com-

plementary sections 22 and 23 are provided adjacent the inner end thereof with inwardly projecting bosses 25 and screws or bolts 26 are adapted to extend through the inner wall 24 and into the bosses 25 so as to detachably secure the inner end wall 24 to the inner end of the housing 21.

The inner housing 21 is provided at its outer end with a pair of disc-shaped plates or wall members 27 and 28 which at their marginal portions project outwardly of the housing 21 so as to provide arcuate flanges 29 and 30 respectively adjacent the opposite edges of the housing 21. The two plates 27 and 28 are preferably constructed of complementary half sections as shown in Figure 1, and the confronting portions of the two disc or plate members 27 and 28 are connected together by an inwardly offset connecting wall 31.

The housing 21 is supported from the outer or open end of the outer housing 10 by means of a supporting member 32. The supporting member 32 is constructed in the form of a looped bar 33 which is adapted to engage about the housing 21 and beneath the flanges 29 and 30. The looped member 33 is provided at the opposite end portions thereof with outstanding lugs 34 which may be secured to the flanges or lugs 11 by a bolt or screw 35. The two disc members or plates 27 and 28 are provided with a pair of slots 36 and 37 respectively which are spaced apart in parallel relation with one slot in each half portion of each disc or plate so that the prongs of a connector plug may be inserted through these slots 36 and 37 for engagement with contacts disposed within the inner housing 21.

A pair of contact supporting bars 38 and 39 are disposed in spaced apart parallel relation within the housing 21, the bar 38 being supported on a pair of bosses 40 provided in the end wall portions of the housing member 22 and the bar 39 is supported between a pair of bosses 41 provided in the housing member 23. The bar 38 is provided with a pair of resilient contacts or terminals 42 and 43 which are disposed inwardly of the slots 36 and 37 respectively. The bar 39 is provided with a pair of contacts or terminals 44 and 45 which are spaced inwardly from the slots 36 and 37 respectively and the contact 44 is disposed opposite from the contact 42 and the contact 45 is disposed opposite from the contact 43. The bars 38 and 39 are formed of metal or conducting material and the contacts secured thereto are fastened by rivets, welding or any other suitable means.

A light bulb 46 is disposed in the housing 21 adjacent the inner end or bottom thereof and the base portion 47 of the light bulb 46 engages in a socket 48 which is secured to an L-shaped bracket or supporting member 49. The bracket 49 has one leg thereof secured to the bottom or closure 24 and this one leg or base member 50 is adapted to be connected to one of the contact supporting bars by means of a conductor or wire 51. In the present instance, the wire 51 connects the socket 48 to the bar 38. The light bulb 46 has its central terminal 52 contacting with one leg 53 of an L-shaped terminal secured to the bottom or plate 24. The base leg 54 of this latter terminal is secured to the plate 24 in spaced relation to the L-shaped member 49—50. The terminal 53 has a wire or conductor 55 secured thereto and this wire 55 is connected at the opposite end to an L-shaped switch arm 56. The switch arm 56 has one leg thereof secured to a side wall of the housing member 22 and the oppo-

site leg thereof projects inwardly and transversely across the housing as shown in Figure 3. The transversely projecting leg of the switch member 56 is disposed slightly above the light bulb 46.

A resilient or movable switch member 57 which is substantially L-shaped in configuration has one leg thereof secured to the contact supporting bar 39 and the other leg is disposed in outwardly spaced relation to the transversely projecting leg of the stationary switch member 56. The wire 20 is secured as by a bolt or screw 58 to the bar 39 and in the present instance the screw 39 may also serve as a securing means for the resilient switch member 57.

A face plate or escutcheon 59 which is provided with a pair of openings 60 and 61 engages the outer or open end of the housing 10 and the plates 27 and 28 are received in and project slightly through the openings 60 and 61 respectively. The plate 59 is adapted to be secured to the looped bar 33 by means of a pair of screws 62. The plate 59 is of a size such that it will project beyond the end walls and the side walls of the outer housing 10 and is adapted to engage against the outer surface of a wall or floor within which the housing 10 is embedded. A switch operating pin 63 has one end thereof projecting through an outwardly offset detent or boss 64 provided in substantially the central portion of the plate 59, and the pin 63 projects through the web or intermediate portion 31 of the outer wall of the housing 21. The inner end of the pin or switch operator 63 is adapted to engage against the free leg of the L-shaped member 57 so that inward movement of the pin or operator 63 will cause the switch member 57 to contact with the stationary switch member 56 and thus close the circuit to the light bulb 46. The pin 63 is provided with a rib 65 adjacent the outer end thereof which engages against the inner side of the detent or boss 64 so as to limit the outward movement of the pin 63. A spring 66 engages about the pin 63, one end of the spring 66 bearing against the rib or bead 65 and the other end bearing against the web portion 31. In this manner the switch operator or button 63 will be resiliently maintained in inoperative position with a portion thereof projecting outwardly of the face plate 59.

In the use of this convenience outlet the box 10 is adapted to be embedded in a wall or to the support and the wires 19 and 20 are connected to the bars 38 and 39 as shown in Figure 3. When it is desired to insert a pronged connector in one portion of this outlet and as an example in the slots 36 the switch operator 63 may be pressed inwardly so as to close the circuit temporarily to the light bulb 46. The light bulb 46 will thereby be illuminated and the light from this bulb will illuminate the slots 36. The slots 36 being illuminated will facilitate the insertion of the connector prongs in such slots and when the connector has been inserted in the slots 36, the switch operator 63 may be released so that the circuit to the light bulb will be broken. It will be apparent from the foregoing that the insertion of a pronged connector in the slots of this outlet will be made easy in view of the fact that the slots in which the prongs are inserted will be lighted up from the interior of the outlet connection so that the person inserting the connector can determine at a glance the relative positions of the slots and in this manner to quickly insert the connector therethrough. The light

bulb 46 may be of a relatively small power being only sufficiently strong to produce enough light to illuminate the openings 36 and 37. Both pairs of openings will be illuminated when the light bulb 46 is energized.

What I claim is:

1. An electrical outlet device comprising in combination a housing provided with a pair of spaced apart slots in a wall thereof for the passage of prongs into the housing, a pair of contact members supported in said housing inwardly of said slots engageable by the prongs passed through the slots for closing an output circuit, illuminating means in said housing for illuminating said slots, and a lighting circuit within the housing leading from said contacts to said means and having interposed thereon a switch normally biased to an open position and controllable from the exterior of the housing.

2. An electrical outlet device comprising in combination a housing provided with a pair of spaced apart slots in a wall thereof for the passage of prongs into the housing, a pair of spaced apart contacts within said housing for engagement by the prongs passed through said slots to close an output circuit, independent supporting means for each of said contacts inwardly of said slots, a normally inactive electric lamp in said housing, a support for said lamp, a stationary terminal in said housing, a resilient terminal carried by one of said supporting means, means connecting said stationary terminal to one side of said lamp, means connecting the other side of said lamp to the other of said supporting means, and a spring-pressed operator engageable with said resilient terminal to provide for the latter coacting with the stationary terminal to make the lamp active for illuminating said slots.

3. An electrical outlet device comprising in combination an outer housing, an inner housing, means secured to the outer housing and encompassing the outer portion of the inner housing for suspending the inner housing within the outer housing, a pair of spaced parallel bars in said inner housing adapted for interposition in an output circuit, means suspending said bars in said inner housing, a pair of contacts carried by each bar, said inner housing having slots in a wall thereof aligning with said contacts for the passage of prongs of a connecting plug to engage the contacts to close the output circuit, an illuminating device in said inner housing, a lighting circuit leading from said bars to said device and having a switch interposed therein for controlling the activity of said device whereby when the latter is active it will provide for lighting up said slots from the interior of said inner housing to facilitate the insertion of the prongs in said slots.

4. An electrical outlet device comprising in combination an outer housing, an inner housing, means supporting said inner housing in said outer housing, a pair of parallel bars in said inner housing, means supporting said bars in said inner housing, a pair of contacts carried by each bar, said inner housing having slots in a wall thereof aligning with said contacts, an illuminating means in said inner housing, a stationary terminal in said housing connected to said illuminating means, a resilient terminal secured to one of said bars and engageable with said stationary terminal to close a circuit to said illuminating means, and an operator engageable with said resilient terminal to move said latter

terminal into engagement with said stationary terminal.

5. An electrical outlet device comprising a housing provided with a pair of slots in a wall thereof for the passage into the housing of the prongs of a connector plug, a pair of spaced contacts in said housing inwardly of said slots adapted to be engaged by said prongs for closing an output circuit, an electric lamp in said housing, means securing said lamp in said housing, a stationary terminal, means connecting said terminal to said lamp, means for connecting said lamp to one of said contacts, a resilient terminal secured to the other one of said pair of contacts and opposing and normally spaced from the stationary terminal, and a spring-controlled pin carried by and extending into said housing engageable with said resilient terminal to provide for the latter coacting with the stationary contact to provide the activity of said lamp to light up the slots from the interior of the housing.

6. An electrical outlet device comprising an outer housing open at one end, an inner insulated housing in said outer housing, said inner housing having spaced apart pairs of prong receiving slots in an outer wall thereof, a closure plate secured to the inner end of said inner housing, pairs of bosses carried by said inner housing, a pair of spaced apart parallel bars carried by said bosses, a pair of contacts carried by each bar inwardly of said slots, an apertured plate engaging about the outer end of said inner housing, outwardly projecting lugs carried by said apertured plate, means securing said lugs to said outer housing to support said inner housing in said outer housing, a light bulb in said inner housing inwardly of said contacts, a socket for said bulb, an L-shaped bracket secured to said socket, means securing said bracket to said closure plate, an L-shaped contact fixed to said closure plate and engaging said light bulb, an L-shaped terminal having one leg thereof fixed to a wall of said inner housing and the other leg extending transversely of said inner housing, means connecting terminal with said L-shaped contact, a second L-shaped terminal, means securing said one leg of said second terminal to one of said bars, said second terminal having the other leg disposed in spaced parallel relation to said other leg of said first terminal, a bar slidably carried by said inner housing engaging said other leg of said second terminal, a face plate secured to said second plate having an opening through which said bar projects, a rib carried by said bar inwardly of said face plate, and a spring about said bar between said rib and the outer wall of said inner housing.

7. An electrical outlet device comprising in combination, a housing provided with a pair of slots in one of its walls for the passage of the prongs of a connector plug, a pair of spaced bars of conducting material within the housing adapted to be interposed in a normally open output circuit, means within the housing for suspending said bars, contacts carried by said bars and engageable by the prongs passed through the slots for closing said circuit, a normally inactive illuminating means in said housing, a stationary terminal within the housing and conductively connected to said illuminating means, a conductor connecting said means to one of said bars, a resilient terminal carried by the other one of the bars opposing and normally spaced from the stationary terminal, and a shiftable operator carried by and extending into the housing and

engagable with the resilient contact to provide for the latter coacting with the stationary contact for making active the illuminating means for lighting up said slots.

- 5 8. An electrical outlet device comprising in combination, a housing provided with a pair of spaced slots in a wall thereof for the passage into the housing of the prongs of a connector plug, a pair of spaced contact means interposed in a normally open output circuit, said
10 contact means being suspended within the housing and adapted to be engaged by said prongs when these latter are passed through the slots for closing said circuit, a normally inactive il-

luminating element, a stationary terminal within the housing connected to said element, a resilient terminal within the housing, connected to one of said contact means and opposing and normally spaced from said stationary contact, a conducting connection between the other one of said contact means and said element, and shiftable spring controlled means carried by and extended into the housing for shifting the resilient terminal in a direction and to an extent to provide
10 for the latter coacting with the stationary terminal to make active said element for lighting up said slots.

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