Jan. 14, 1941. A. A. BARRELLE 2,228,683

OUTLET RECEPTACLE AND PLUG

Filed Oct. 14, 1939

Fig. 1

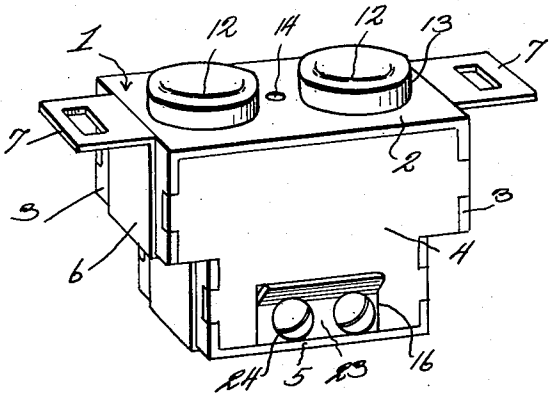


Fig. 2

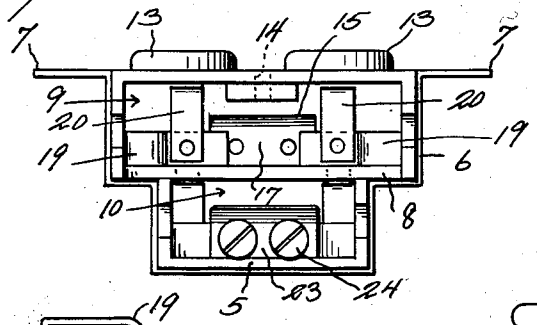


Fig. 4

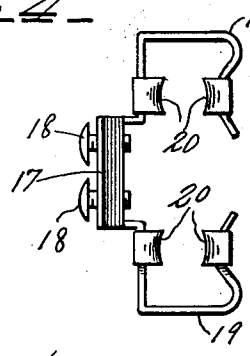


Fig. 5

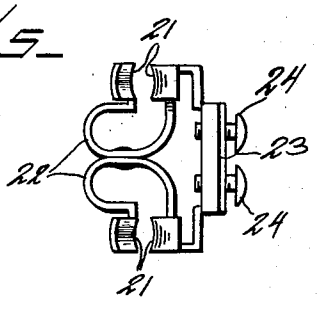
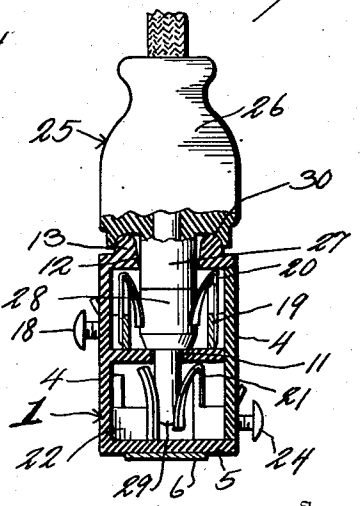


Fig. 3



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Patented Jan. 14, 1941 2,228,683

UNITED STATES PATENT OFFICE

2,228,683

OUTLET RECEPTACLE AND PLUG

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Application October 14, 1939, Serial No. 299,528

2 Claims. (Cl. 173—330)

This invention relates to improvements in electrical fixtures and pertains particularly to an improved form of outlet receptacle and plug.

The present invention has for its primary object to provide a novel and improved form of electrical outlet receptacle and plug therefor in which a novel arrangement of the terminals within the receptacle is employed whereby there may be used in association with the receptacle a plug of a single straight prong type which may be easily and quickly inserted to establish a desired connection between the electric circuit connected with the receptacle terminals and an electric cord through which current is to be carried to an electrical device.

Another object of the invention is to provide an electric outlet receptacle designed to receive a single straight prong type of plug, wherein the terminals of the receptacle are alined and separated in such a manner that a short circuit between the terminals is positively prevented as well as the passage of an electric arc from one terminal to the other.

Still another object of the invention is to provide a novel electrical outlet receptacle of the double type wherein novel construction of double terminals is employed and wherein such terminals are arranged in a novel manner in the receptacle so that each of the portions of one double terminal will be alined with a portion of the other double terminal and with an inlet opening for the receptacle whereby a single prong double contact plug may be readily inserted for electrical connection with the alined terminal portions.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not to be confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:

Fig. 1 is a view in perspective of the electric outlet receptacle embodying the present invention.

Fig. 2 is a view in side elevation of the same with a side wall removed.

Fig. 3 is a view through the receptacle and showing a single prong double contact plug connected therewith.

Fig. 4 is a view in plan of a pair of terminals enclosed in one chamber of the receptacle.

Fig. 5 is a view in plan of a pair of terminals enclosed in the other chamber of the receptacle.

Referring now more particularly to the drawing, the numeral 1 generally designates the housing or box of the present improved receptacle, such receptacle being here shown as of the double type although it may be made as a single type receptacle, if desired. This box or casing 1 is formed of suitable insulation material and has the outer or face wall 2, the end walls 3 and side walls 4, one of the side walls being removable and constituting a cover or closure plate facilitating access to the interior of the casing. The bottom wall or back wall 5 connects the end walls as shown, and as is also shown, each of the end walls has a portion inset so that substantially the inner half of the box is of less length than the outer half. However, it will be readily apparent that the box may be made of one length if desired.

Extending over and secured to the end walls and the back wall is a metallic band 6 which terminates at each end in a laterally extending slotted ear 7. These ears facilitate the securing of the receptacle in a metallic box or housing (not shown) such as is commonly employed in electrical wiring as a container or guard for the outlet receptacle and to which housing the electric wire carrying BX cable is attached in the usual well known manner. No illustration has been made of such housing for the receptacle or of the cable connections as these are of standard well known design and to those familiar with the art, the manner in which the outlet receptacle is secured in the housing will be readily understood.

Box 1 is provided with the interior partition wall 8 which divides the box into the upper and lower chambers 9 and 10. This partition wall 8 is provided, in the present double outlet type of receptacle, with two apertures 11 and alined with these apertures are outer or front wall apertures 12, which as shown, are formed through the wall 2. These apertures 12 are defined by annular ribs 13 formed on or integral with the wall 2. Between the outer apertures 12, the wall 2 is provided with the threaded aperture 14 which receives the securing screw (not shown) for the face plate (not shown) which is mounted over the receptacle to cover the latter and the housing in which it is held by the ears 7.

One side wall 4 is provided with a central opening or window 15 which opens into the up-

per chamber 9 and the other side wall is provided with a similar window 16 which opens into the lower chamber 10.

Within the upper chamber window 15 is located a metal plate 17 carrying a pair of wire securing terminal screws 18 and this plate has formed integrally therewith the laterally extending looped arms 19, which are substantially U-shaped and of resilient metal, and each of these arms carries the two spaced resilient contact fingers 20 which are vertically disposed within the chamber 9. The fingers 20 of each pair are disposed upon opposite sides of the axial center of the adjacent openings 11 and 12.

In the lower chamber 10 a similar pair of resilient contact fingers is disposed beneath each of the upper pair of fingers 20. These pairs of fingers in the lower chamber are indicated by the numeral 21 and the fingers of each pair are connected with looped arms 22 which are integrally joined with a plate 23 which carries terminal screws 24 and which is disposed in the window 16 of the lower chamber. The unit of the upper chamber made up of the parts 17 to 20 inclusive and the unit of the lower chamber made up of the parts 21 to 24 inclusive, is each of a length to fit snugly within its chamber so that when these units are slipped into place in the chambers and the removable side wall 4 is secured in position, they will be firmly held against movement as the plate of each unit will be disposed in the window in one side wall and the opposite sides of the resilient arms or loops will contact the opposite side wall and the ends of the loops will contact the end walls of the chamber. Since the plates 17 and 23 are in windows at opposite sides of the box, it will be readily apparent that the attachment of the current carrying wires thereto may be conveniently effected so that the box or receptacle may be readily placed in position in its protective housing, in the customary manner of securing outlet receptacles.

As will be readily seen from the foregoing, the double outlet receptacle here described includes two operatively arranged or alined pairs of terminals, one terminal of each pair being in the upper chamber 9 and being made up of the two resilient fingers 20 and the other pair being within the lower chamber or inner chamber 10 and being made up of the two resilient fingers 21 so that they may be electrically connected together only by a single prong member extended through the adjacent alined openings 11 and 12. Such a single prong plug member is indicated generally by the numeral 25 and includes a head 26 from which extends a stud or stem 27. This head and stem are preferably formed as a unit and are of insulation material and the stem 27 carries a contact ring 28 while extending through the stem is a central contact prong 29. This ring and prong are joined in a suitable manner with wires extending through the head 26 and the prong is of a diameter to pass snugly through an opening 11 for engagement between an inner pair of contact fingers 21 while the stud 27 and ring 28 are of a diameter to snugly engage between a pair of fingers 20.

The head 26 is formed around the stud 27 to provide the annular recess 30 which receives the flange or annulus 13 when the plug is in position, thus forming a tight connection between the head of the plug and the body of the receptacle. The spaced pairs of fingers 20 and 21, being forced apart by the parts 28—29 of the plug will act to firmly secure the plug against accidental displacement.

From the foregoing, it will be readily apparent that an outlet receptacle constructed in accordance with the present invention has the novel features of being so designed that a single prong coupling plug may be readily attached thereto, thus avoiding the difficulties attendant upon the connection of double prong plugs with the outlet receptacles of the type at present in use and so designed as to have a cooperating pair of terminals enclosed in separate or individual chambers so that all possibility of arcing between the terminals or of the terminals being short-circuited by material getting into the receptacle is avoided.

What is claimed is:

1. An electric outlet receptacle of the character stated, comprising a box having side walls and a front wall provided with an aperture designed to receive a straight single prong plug having a free end portion of smaller diameter than its inner end portion and each portion constituting an electric terminal, said box having an inner wall dividing it into an inner and outer chamber, said wall having an aperture therethrough coaxial with said outer wall aperture, the aperture of the wall between the chambers being of relatively small diameter as compared with the first-mentioned aperture to snugly receive the reduced terminal portion of said prong, a pair of resilient terminal fingers in each of said chambers, a current conducting base-like portion for and supporting each pair of terminals and secured in a chamber between said side walls, the base-like portions maintaining the pairs of fingers disposed on opposite sides of the axis of the alined apertures, and means accessible from the exterior of the casing for coupling a current conducting wire with a base portion for each pair of terminal fingers.

2. An electric outlet receptacle, comprising a casing having a front wall and a partition wall paralleling the front wall and dividing the casing into two chambers, the front wall having an aperture therethrough opening into one chamber and the partition wall having an aperture coaxial with the first aperture and opening into the other chamber, said apertures being designed to receive a single prong plug carrying two longitudinally spaced terminals, a resilient terminal in the said one chamber having a base supporting the terminal in offset relation to the axial center of the alined apertures for contact with one only of the terminals of the plug, a resilient terminal in the second chamber having a base supporting it in offset relation to the said center for contact only with the other terminal of the plug, means carried by each base for attaching a current conducting wire thereto, and said casing having two side walls, one of which is removable to uncover the chambers for the introduction of the terminals and bases into their respective chambers and said side walls having apertures for the exposure of the coupling means from the outside of the casing.

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