

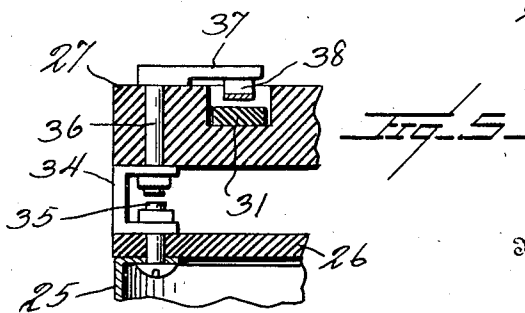
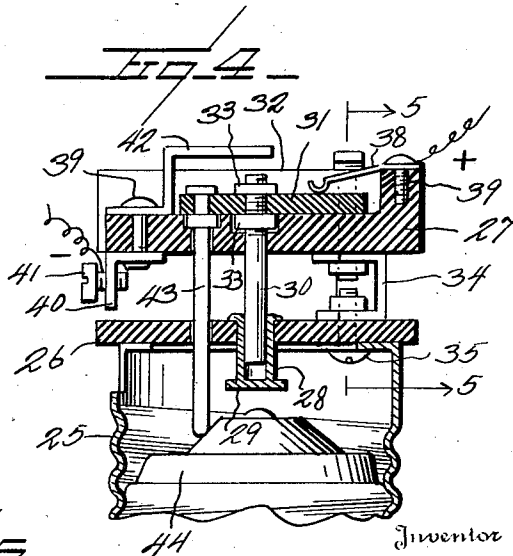
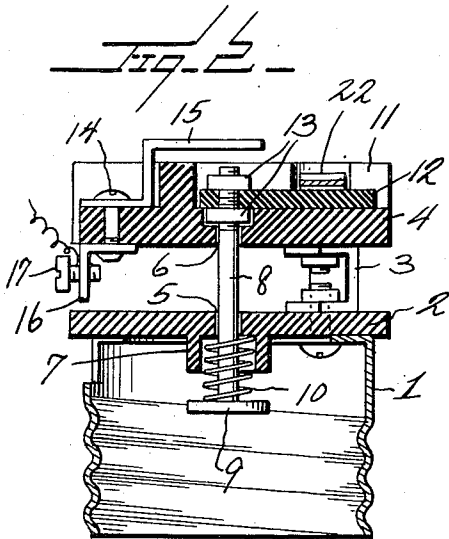
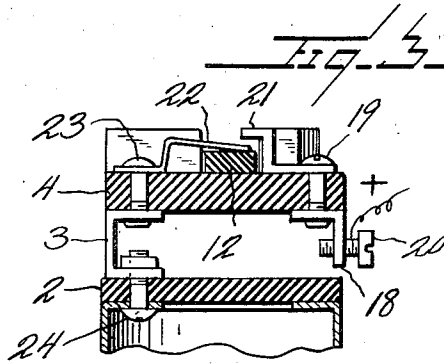
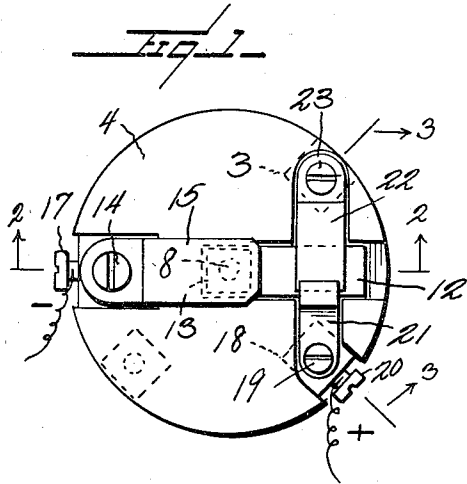
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SHOCK-PROOF ELECTRIC RECEPTACLE

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SHOCKPROOF ELECTRIC RECEPTACLE

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1 Claim. (Cl. 173—358)

This invention relates to electrical devices and pertains particularly to improvements in receptacles designed for the reception of electric light bulbs, connecting plugs and the like.

The primary object of the present invention is to provide a receptacle which is so constructed that the possibility of obtaining an electric shock by the insertion of a finger or other current conducting object into the receptacle, is avoided, the receptacle, however, being so constructed that circuit closing elements are actuated by the insertion into the receptacle of the base of an incandescent lamp or similar body so that current may flow through the elements of the receptacle in the normal manner.

The invention has for a more specific object the provision of a threaded receptacle having associated therewith between the current conducting terminals thereof, a pair of relatively movable current conductors which are shifted into electrical contact one with the other upon the insertion into the receptacle of an electric lamp base or an outlet plug or similar object whereby current may flow in the customary manner through the shell of the receptacle to the central electrode thereof.

A further object of the invention is to provide a receptacle having a threaded shell and a central terminal or electrode together with the usual screw threaded terminals for the connection of current conducting wires thereto, wherein the central terminal or electrode is shiftable and functions when shifted in one direction, to close certain normally open switch points so as to facilitate the passage of current from the screw threaded terminals to the shell and central terminal.

Still another object of the invention is to provide in a receptacle of the character stated having a threaded shell and a central terminal or electrode together with screw threaded terminals for the attachment of current conducting wires thereto, switch elements which are normally open and which, when shifted into closed relation, facilitates the transmission of current through the shell to the central electrode and a booster member engaged by the base of the incandescent lamp or the plug threaded into the shell and shifted to effect the closing of such switch elements.

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 claim.

In the drawing:

Fig. 1 is a view in top plan of the receptacle structure embodying the present invention, the usual enveloping housing and insulation being not shown.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a view in vertical section of a modified construction showing a booster element.

Fig. 5 is a sectional view on the line 5—5 of Fig. 4.

Referring now more particularly to the drawing, the numeral 1 in Fig. 2 designates the usual threaded shell of the receptacle into which the base of an electric lamp, an outlet plug or a similar body may be threadably secured. This threaded shell is secured to a head 2 of insulation material and in spaced relation to the head there is secured by means of the bracket 3, the top plate 4 which is also of insulation material.

The head 2 and the plate 4 are provided respectively with the aligned openings 5 and 6 and the inner side of the head 2 is formed to provide the shallow cup 7. Through the aligned openings 5 and 6, a central terminal pin or electrode 8 passes, the electrode having a head 9 which is located within the shell 1. Between the head 9 of the electrode and the insulation head 2 is an expansion spring 10, which positions in the cup 7 and normally urges the electrode to shift longitudinally toward the open end of the shell.

In the top side of the plate 4, a slot or recess 11 is formed in which is disposed a bar 12 of insulation material. The inner end of the electrode 8 passes through this bar 12 and is secured thereto by the spaced nuts 13. Thus it will be seen that when the electrode 8 is shifted against the tension of the spring 10, it will lift the bar or move the bar axially of the receptacle.

The upper end of the electrode 8 is exposed or projects above the bar 12 and secured to the plate 4 by means of the current conducting screw 14 is a contact finger 15, which overlies the end of the electrode 8 so that when the latter is shifted axially against the tension of spring 10,

it will come into electrical contact with this terminal finger 15.

A bracket 16 is secured to the under side of the plate 4 by the screw 14 and carries a binding screw 17 by which a current conducting wire is secured to the bracket.

A second bracket 18 is secured to the under side of the insulation plate 4 by a current conducting screw 19. This second bracket carries a binding screw 20 to facilitate the attachment of a current conducting wire thereto and upon the upper side of the plate 4, the screw 19 secures in position a switch contact finger 21 which overlies the end of the bar 12 remote from the central electrode 8.

Upon the opposite side of the bar 12 from the finger 21 is a second switch finger 22, which is of resilient material and is biased to bend downwardly away from engagement with the finger 21. This second finger 22 is secured to the plate 4 by the screw 23, which screw secures the upper part of the bracket 3 to the plate 4. The lower part of this bracket is secured to the head 2 and in electrical connection with the threaded shell 1 by the current conducting screw 24.

From the foregoing, it will be readily seen that the flow of electric current from the terminal binding screws 17 to 20 is controlled by two switches, one of which consists of the terminals 21 and 22, while the other one comprises the shiftable central terminal 8 and the contact finger 15, and until these two switches are closed, no current can reach the terminal head 9 or the shell 1 of the receptacle. Consequently, it will be readily seen that if any object is accidentally thrust into the receptacle, a short circuit will not be caused and the person handling or connected with such object will not be shocked. However, when the base of an incandescent lamp is threaded into the shell, it will first contact at its central electrode the head 9 of the central terminal 8 and shift this terminal axially until it comes into electrical engagement with the finger 15. At the same time the insulation bar 12 will be shifted and will force the resilient member 22 into electrical engagement with the finger 21. Thus the two circuit interrupters or switches will be closed and current may flow in the usual manner through the shell and central electrode of the receptacle and through the filament of the incandescent lamp.

Figs. 4 and 5 disclose a modification of the structure in which a booster element is employed for shifting the central electrode and the insulation bar connected therewith for the closing of the two current controlling switches. In these figures, the receptacle shell is indicated by the numeral 25 while the insulation head for the shell is indicated at 26 and the insulation plate secured in spaced relation with the head is indicated by the numeral 27.

The central electrode comprises a shiftable and a fixed part. The fixed part of the central electrode is in the form of a sleeve 28 secured in the head 25 and opening toward the plate 27 and closed at its outer end by the cap 29. Slidable in this sleeve 28 is an end of the shiftable portion 30 of the central electrode which is in the form of a metallic pin which passes through a suitable aperture in the plate 27 and through a bar of insulation material 31, which lies in a recess 32 in the top of the plate 27. As in the structure shown in Fig. 2, the shiftable element of the central electrode is secured to the insulation bar 31 by a pair of spaced binding nuts 33.

The plate 27 and head 26 are maintained in spaced relation by the metallic bracket 34 which at one end has connected therewith the screw 35 which is in electrical connection with the shell 25 while at its other end the bolt 36 secures it to the plate 27, this bolt passing through the plate, as shown in Fig. 5, and carrying a switch terminal finger 37 which corresponds with the finger 21 of Fig. 3. This terminal finger extends over the insulation bar 21 and interposed between the insulation bar and the terminal finger 37 is a resilient switch terminal finger 38 which is secured to the insulation plate 27 by the binding screw 39 by which a current conducting wire is connected with the finger. The resilient switch finger 38 normally flexes downwardly against the insulation bar 31 and when the bar is raised or moved axially of the receptacle, it forces the finger 38 into electrical contact with the finger or terminal 37. The plate 27 has secured thereto by the screw 39, the terminal bracket 40 which carries the binding screw 41, by means of which the current conducting wire is secured to the bracket and the screw 39 also secures to the plate 27 and in electrical connection with the bracket 40, the switch terminal finger 42 which extends over the upper end of the shiftable pin portion 30 of the central terminal for the receptacle.

Secured to the insulation bar 31 is a booster pin 43 which extends downwardly through suitable aligned apertures in the plate 27 and head 26 into the receptacle shell 25. The inner end of this pin extends beyond the head 29 of the fixed portion of the central electrode so that when an incandescent bulb base is threaded into the receptacle shell, as indicated at 44 in Fig. 4, it will first contact the end of the booster pin and will shift the pin axially to shift the insulation bar 31 and the pin 30 forming a part of the central electrode. By this means the pin 30 will be brought into electrical contact with the switch terminal finger 42 and the switch finger 39 will be flexed into electrical contact with the terminal 37. When these electrical connections are effected, the central terminal of the incandescent bulb base will come into electrical contact with the fixed portion 28 of the receptacle central terminal and thus current can flow through the two switches, which comprise the fingers 37 and 38 and the pin 30 and finger 42, and through the elements of the incandescent lamp or other electrical unit connected with the receptacle.

In the structure herein disclosed, by the provision of the plate and head bodies, an area is provided within which a conventional type of switch mechanism such as is commonly employed in electric light sockets and actuated by a button or pull chain, might be disposed, however, it will be readily apparent that the parts here shown as mounted upon the top of the plate 27 might be placed upon the top of the head 26, so that the plate would be eliminated. In this arrangement it will, of course, be understood that the head would be provided with the proper recesses to receive the insulation arm and the other parts which are now shown as being located within recesses in the plate. This construction might be employed in the making of fuse holders where the reduction of the size of the unit as much as possible is desirable. It will, therefore, be understood that in the appended claim, the support of the terminals by the shell is understood to be either directly upon the head or upon the plate which the head carries.

From the foregoing, it will be readily apparent that there has herein been disclosed a novel electrical receptacle which is so constructed that the possibility of anyone accidentally obtaining a shock by the extension of a finger into the shell or a current conducting article, is extremely remote, while at the same time no manipulation of parts of the shell is required to place the same into service, it being merely necessary to screw into the threaded shell, the base of an incandescent lamp socket or other type of electric fixture, in the customary manner to effect the closing of the current controlling switches.

What is claimed is:

An electric receptacle, comprising a threaded shell into which an electrical unit is engageable, an insulation closure fixed to one end of the shell and having a central aperture therethrough, a pair of terminals supported from said closure to which current conducting wires may be connect-

ed, an elongated body of insulation supported on the side of the closure away from the shell and extending across the axial center of the closure, a pin member secured at one end to said body and extending through the aperture of the closure into the shell, spring means connected between the closure and the end of said pin within the shell and normally urging movement of the pin in a direction to move the insulation body toward the closure, said pin being engaged by a unit inserted into the shell and shifted into electrical connection with one of said terminals, and a spring contact member overlying said insulation body and engaged and moved thereby into electrical connection with the other one of said terminals upon movement of the insulation body by the pin, said spring contact being electrically coupled with the shell.

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