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L. DRAGO
ELECTRICAL SOCKET HAVING CONDUCTIVE ARM
PIVOTALLY MOUNTED AT BOTTOM OF SOCKET
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3,155,788

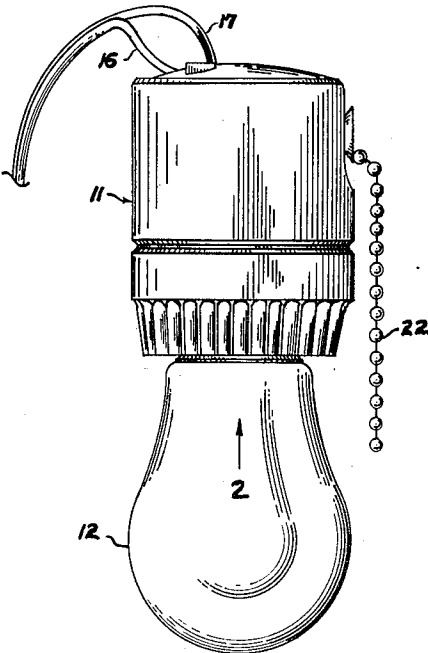


Fig. 1.

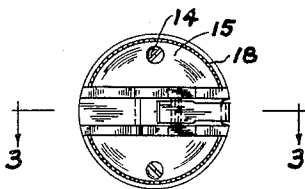


Fig. 2.

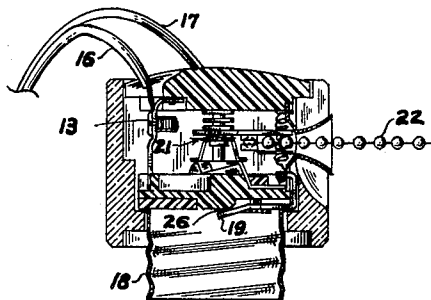


Fig. 3.

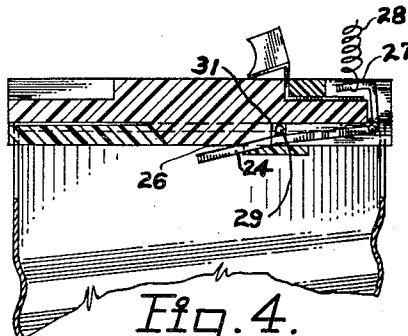


Fig. 4.

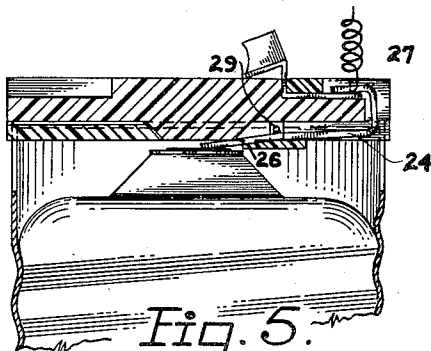


Fig. 5.

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3,155,788 ELECTRICAL SOCKET HAVING CONDUCTIVE ARM PIVOTALLY MOUNTED AT BOTTOM OF SOCKET

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3 Claims. (Cl. 200—51.09)

This invention relates to an electric light bulb socket and, more particularly, this invention relates to a safety switch for an electric light bulb socket whereby, when not in use, a current path through the socket is normally interrupted at three points, the first of the interruptions being adapted to be closed by the insertion of a bulb; the second of said interruptions being adapted to be closed only when said bulb is firmly seated in said socket; and the third interruption being controlled by a master switch so that even with the bulb in place, the current may be interrupted when not in use.

This invention also relates to a fuse socket, to which the foregoing description applies with the exception that a master switch is not ordinarily found in fuses.

It is, accordingly, an object of this invention to provide a light bulb or fuse socket which, when not actually in use, includes two normally open circuits so that there will be no electric shock caused to a person, such as a child, who might insert a finger or an electrical conductor therein.

It is another object of the invention to include in a light bulb, or fuse socket, a simple and highly efficient switch mechanism which will close making possible a completed circuit only when a light bulb is firmly seated therein in the threaded down seated position.

It is a general object of this invention to provide a safe light bulb or fuse socket of the type described more fully hereinafter which includes a switch mechanism which is adapted to be incorporated in conventional light bulb sockets of the type which are in current widespread use.

It is still a further object to provide a light bulb socket which is simple in operation, relatively inexpensive to manufacture and otherwise well adapted for the purposes for which it is intended.

In accordance with these and other objects which will become apparent hereinafter, the instant invention will now be described with reference to the accompanying drawings in which:

FIG. 1 is a side elevation view of a lamp socket and bulb constructed in accordance with this invention;

FIG. 2 is an inverted plan view of the socket with the bulb removed taken along arrow 2 of FIG. 1 and looking in the direction of the arrow;

FIG. 3 is a side elevation view of FIG. 2 taken along the line 3—3 and looking in the direction of the arrows;

FIG. 4 is an enlarged side elevation view illustrating the position of the switch mechanism when the bulb is removed; and

FIG. 5 is an enlarged side elevation view illustrating the position of the switch mechanism when the bulb is firmly seated in threaded engagement with the socket.

Referring more particularly to the drawings; wherein like reference characters designate like or corresponding parts throughout the different views, and referring particularly to FIG. 1, 11 designates a light bulb socket having a light bulb 12 threadedly received therein.

As is perhaps well known, the conventional light bulb is provided with (a) a base of insulating material having a central terminal of a conductive path leading to a glass enclosed filament and (b) a metal cylindrically shaped, threaded, upwardly extending, male shell which

is electrically connected to the filament and which provides a second terminal for the light bulb.

The socket, hereinafter disclosed more fully, is not conventional. Ordinarily, conventional sockets are provided with a female, electrically conductive receptacle having a non-conductive base with a centrally disposed terminal centrally projecting into the recess defined by the receptacle. Further, the conventional socket is provided with two separate terminals for accommodating two conductive leads from a source, each of said terminals being respectively electrically connected to the centrally disposed terminal and the receptacle; and, in addition, a master switch is provided which is adapted to interrupt the current path to one of the terminals, usually the centrally disposed one. When a light bulb is threadedly seated in the conventional socket, if the master switch is closed, a current path is completed through the central terminals of the bulb and socket, through the filament and thence to the male shell terminal and receptacle, whereby uninterrupted current flow is permitted from the source.

As is well known, this arrangement presents certain undesirable safety problems. If the master switch is closed and one accidentally touches both the receptacle and the centrally disposed terminal of the socket, he completes a current path which includes the person's body—assuming the potential of the current is sufficient to overcome the outer skin layer and reach the relatively highly conductive inner part of the body.

The socket of the instant invention is conventional in that it is provided, with two terminals 13 and 14 for accommodating electrical leads 16 and 17 from a source, with a female receptacle 18 and with a central terminal 19. (The terminal 14 is actually at the lower end of the screw, the head of which is designated 14 and which abuts the electrically conductive floor 15 of the receptacle 18.) If the socket is for a light bulb instead of a fuse; there is also provided, in the ordinary course, a master switch 21, which comprises a mechanism which provides for a closed circuit and an open circuit position plus an operator 22 to shift the switch to either position. In the illustration shown, the switch 21 comprises a cam having a conductive portion and a non-conductive portion, whereby a pulling force on the operator 22 causes the cam to rotate successively into and out of electrical contact with the conductive path from the source to the central terminal 19 of the socket.

The socket of the instant invention is not conventional in that an additional switch is provided. The construction of the additional switches will be apparent from the following description and reference to the drawings.

An electrically conductive arm 24 normally abuts a pivot point 26 on the socket and is adapted such that, upon a threadable seating of a bulb in the receptacle, the arm 24 is forced to pivot, causing an extension 27 to move into electrical engagement with the main current path of the circuit. A spring 28, which is affixed to the extension and the socket at either end, has energy stored therein by this action and upon removal of the bulb urges the extension out of engagement. The pin 29 is provided in a recess 31 to guide the movement of the arm 24 along a suitable path.

In operation, before a bulb or fuse is inserted into the receptacle, irrespective of whether or not there is a master switch in the open or closed position, current cannot flow through the device, even if a conductive path is provided between the central terminal and the receptacle by a tool or a finger, because the action of the spring maintains the safety switch in the safe, open position. When a bulb is threadedly inserted sufficiently into the receptacle, electrical contact is made between the central

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terminal of it and the socket and as it is firmly seated, it forces the central terminal, the arm 24, to pivot about point 26, and bring the extension 27 into electrical engagement with the main current path from the source so that the current will be permitted to flow through the light bulb, provided the master switch is in the closed position.

While the instant invention has been shown and described herein in a most practical embodiment, it is recognized that departures may be made therefrom within the scope of the invention, which is therefore not to be limited to the details disclosed herein but is to be awarded the full scope of the claims so as to embrace any and all equivalent apparatus and articles.

What is claimed is:

1. A light bulb or fuse socket comprising, in combination, a conductive female receptacle having an open end and a bottom; an electrically conductive arm pivotally mounted at the bottom of said receptacle, said arm having a first end extending toward and terminating substantially at the center of the bottom of said receptacle, said arm having a second end, and said arm being pivotally mounted between said ends; means forming a main current path in said socket with said means extending adjacent to the second end of said arm; leads connected to said receptacle and said means forming a main current path in said socket; and spring means pivotally urging the first end of said arm into said receptacle and the second end of said arm away from said means forming a main current path in said socket, the insertion of a light bulb or fuse in said receptacle forcing the first end of said arm inward pivoting said arm against said spring means and moving the second end of said arm into contact with said means forming a main current path in said socket.

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2. A light bulb or fuse socket comprising, in combination, a conductive female receptacle having an open end and a bottom; an electrically conductive arm pivotally mounted at the bottom of said receptacle, said arm having a first end extending to the center of the bottom of said receptacle, said arm being pivotally mounted adjacent to said first end, and said arm having a second end with an upward and inward facing extension; means forming a main current path in said socket with said means extending under the inward extension of said second end of said arm; leads connected to said receptacle and said means forming a main current path in said socket; and spring means pivotally urging the second end of said arm upward holding the inward extension of said second end of said arm above said means forming a main current path in said socket, the insertion of a light bulb or fuse in said receptacle forcing the first end of said arm inward pivoting said arm against said spring means and moving the inward extension of said second end of said arm into contact with said means forming a main current path in said socket.

3. The combination according to claim 2 wherein said means forming a main current path in said socket is a switch.

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