

UNITED STATES PATENT OFFICE

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ELECTRIC LIGHT SOCKET

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The present invention relates to electric light sockets and more particularly of the type used in the assembly of electric lamps and light fixtures of all types.

The present invention contemplates the provision of an electric light socket which is composed of comparatively few parts and a minimum number of separate fastening means, such as screws.

The present invention further contemplates the provision of such light socket which may be easily assembled using comparatively unskilled labor in the assembly operations.

The present invention still further contemplates the provision of a light socket, which may be quickly taken apart by the ready separation of the parts comprising it for repair and service, the parts and wires being held together without the use of screws and the like, the entire assembly being tightly made upon fitting one part into the other.

The present invention still further contemplates the provision of an electric light socket, the parts of which may be cast or molded from a non-metallic insulating material, such as a heat resistant thermosetting plastic or formed from any other insulating material, such as a fibrous material.

The present invention still further contemplates the provision of an electric light socket which is adaptable to speedy production methods of manufacture and is therefore relatively less costly to produce.

Electric light sockets of the prior art, because of the larger number of parts comprising them are more difficult and costly to assemble. In addition, the shell or lamp receiving member of such sockets are made of metal that was readily accessible to persons so that, should a short occur in the socket, there was great possibility of serious injury because the short circuit would be made through a grounded connection with a person coming in contact with the shell or receiving member.

The present invention, on the other hand, constitutes a safety socket because, by reason of the socket construction, a short circuit that may develop in the socket can occasion no damage to a person who accidentally comes in contact with any ordinarily accessible part of the socket and in addition it serves to eliminate any danger of sparks which were a fire hazard thereby constituting an improvement over the prior art metallic socket.

These and other objects and advantages of the

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present invention will be clear from the description which follows and the drawing appended thereto in which

Fig. 1 is a top plan view of an electric light socket according to the present invention,

Fig. 2 is a front elevation thereof, partially broken away to condense the drawing,

Fig. 3 is a section on the line 3—3 of Fig. 1,

Fig. 4 is a section on the line 4—4 of Fig. 2,

Fig. 5 is a partial section on the line 5—5 of Fig. 4,

Fig. 6 is a plan view of a modified body portion for my socket, to reduced scale,

Fig. 7 is a bottom plan view of the light receiving member used therewith.

Referring now to the drawing, the lamp socket according to my invention, essentially comprises two elements, the cap 10 having the internally threaded opening 12, extending through the center thereof and the internally threaded sleeve or skirt 14, for threadedly receiving therein a conventional bulb or lamp (not shown).

The cap and the skirt are preferably made from a heat resisting, thermosetting plastic which is an electrical insulator and may be cast or molded therefrom or formed by well known conventional methods.

A thread 16 is formed in the interior of the collar 18 on the top of the cap 10 for connection, if desired to a unit (not shown) from which may extend the wire cable 20 threaded through the opening 12.

The skirt 14, for ease in manufacture, may comprise two units, the lamp or bulb receiving member 22 which fits into the body portion 24, in the recess of which the shoulder collar 26 dovetails, the member and body being preferably held together as by the screws 28 and 30, though it will be understood that the member or light receptacle 22 may have a press fit into the body member 24 to be tightly frictionally held therein. The materials from which the sleeve or skirt members are made, which as stated are preferably made from an electrical non-conducting material, such as a plastic, have sufficient inherent resiliency to be thus tightly held together.

It will of course be understood that the skirt 10 may be made of a single piece, the lamp or bulb receiving member 22 and body portion 24 being integral.

Extending from the underside of the cap 10 and secured thereto by the screws 32 and 34, I provide wire retaining prongs which are formed from a resilient electric conducting material,

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bent over upon itself to form the securing bases 36 and 38, which extend into the spaced elements 40 and 42 and 44 and 46.

To assemble the cap 10 on the body 24, the cable 20 is inserted in the opening 12 and one wire thereof 48 inserted by slipping it into the space between the prong elements 40 and 42 formed thereby and the other wire 50 inserted or slipped between the spaced prong elements 44 and 46 in the space formed thereby.

The prong elements are thus forced apart by the wire, which is held therebetween by the inherent tension of the prong elements.

It will at once be apparent that a very simple means is thus provided for securing the wire to the prongs 36 and 38 that lends itself peculiarly to production methods of assembly since it eliminates screws or soldering and yet provides, as will be seen, a secure connection.

If desired, the underface of the cap 10 above the recess 52, may be grooved to provide a recess in which the wire 48 and the wire 50 may lie. Upon thus connecting the wires of the cable 20 to the respective prongs formed by the spaced elements 40 and 42 and 44 and 46, the skirt 14 is pressed into and thus fitted in the recess 52 with the prong elements inserted respectively in elongated openings 54 and 56. These openings are preferably of such dimension that they also serve to press the prong elements against the respective wires thereby securely locking them together and thus effect a tight connection that serves to prevent the wires from disconnection with the prongs.

The body 24 and the recess 52, if desired, may be somewhat correspondingly beveled or tapered so that the ring or collar 58 around the cap 10 is somewhat resiliently forced away by the upper part of the body 24 thereby tightly locking the two together so that they may be separated and taken apart, should it be desired to repair or change the wires, prongs or skirt or sleeve.

The light receiving member or receptacle 22 is internally threaded at 60 in order that a bulb or lamp may be screwed thereinto.

The top wall 62 of the receiving member or receptacle 22 has an opening therein which is brought into alignment with the opening 56 in the body 24, when the two elements are secured together in order that the prong 38 will extend into a recess formed in the wall of the member or receptacle 22.

The prong 38 is of greater length than the prong 36 so that this arrangement will be accomplished, the electric circuit through the lamp being made from the prong 36, through a control or switch means, an example of which I shall describe, the terminal 64 at the base of the socket at the center of the wall 62, the base of the lamp, which is screwed in the threads 60 to contact the portion 66 of the prong 38 which extends in the recess provided therefor in the wall of the member 22.

As pointed out, the lamp receiving member or receptacle 22 is made from an insulating material so that a person accidentally contacting the outside of the socket may never be inadvertently shocked and, particularly, cannot be seriously injured should a short circuit develop in the socket, which injury is incurred because the socket is grounded through the body which contacts the outside metallic shell of prior art sockets.

In order to provide means for opening and closing the lamp circuit, I arrange in the recess

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68 which communicates with the opening 56, the shaft 70 which is journaled in the walls 72 and 74, the shaft and walls being formed from an insulating material. On one end of the shaft 70, on the exterior of the socket 14, I mount the insulated knob or button 76, which therefore constitutes a switch handle, and which is preferably knurled for ease in operatively moving the shaft 70 and intermediate the journaled walls 72 and 74, I secure the engaging member 78, which is also formed from an insulating material.

Secured to the terminal 64 above the wall 62, I provide the resilient electric conducting switch member 80, the element 82 of which is positioned above the wall 62 and normally out of contact with the element 40 of the prong 36, as illustrated by the unbroken line of Fig. 3. Upon properly rotating the shaft, the engaging member 78 is brought against the element 82, forcing it against the prong element 40 to complete a circuit through an electric light screwed into the member or receptacle 22, as illustrated by the broken lines of Fig. 3.

Upon turning the shaft 70 in the opposite direction, the member 78 is brought away from the element 82, which because of its resiliency, returns to its normal position out of contact with the prong 36 to thus open the electrical circuit through the lamp or bulb.

In order to accommodate this movement of the member 78, the recess 84 is provided in the body portion 24 communicating with the recess 68.

If desired, in order to prevent possibility of accidental rotation of the skirt or sleeve 14 in the cap 10, there may be provided on the outside of the body portion 24 the scalloped portions 86, which are received in the corresponding grooves 88 in the interior of the cap 10 (see Figs. 6 and 7). These scalloped portions and grooves, in addition, serve to locate the sleeve or receptacle 14 in the cap 10, so that relatively unskilled labor will be helped to perform the assembly operations.

It will of course be understood that a switch or control means of a different construction may be utilized to open and close a circuit through the lamp, for example, of the push button type, or the switch illustrated itself being modified, it being necessary only to provide some means for selectively connecting to the terminal 64 and the prong 36.

While I have described the specific details of an embodiment of my invention, it will be understood, of course, that various changes may be made thereto without departing from the spirit thereof and I, therefore, intend to be limited only by the scope of the appended claims in view of the prior art.

I claim:

1. In an electrical socket, a sleeve member formed from a plastic electrically non-conducting material and open at one end and closed at the other end, a cap formed from a plastic electrically non-conducting material and removably mounted on the sleeve member at the closed end thereof and recessed to receive the sleeve member therein, said sleeve member threaded at said open end to receive therein the threaded base of an electric bulb and which base has an electrically conducting material around the periphery of the base on the outside thereof connected to one side of the filament of the lamp and which base has at the center thereof an electrode connected to the other side of the lamp filament, the

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electrically conducting material and the electrode being insulated from each other spaced prongs extending from the cap into the sleeve member upon mounting the cap thereon, each prong comprising two elements for holding a wire therebetween, said sleeve member having openings therein at the closed end thereof for receiving the prongs therethrough upon inserting the sleeve member in the cap recess to mount the cap on the sleeve member, the openings being of such dimensions with respect to the spacing of the elements with the wire therebetween that the elements of each prong are forced together to grip the wire therebetween to hold the wire against removal from the prong upon inserting the sleeve member in the cap recess an insulating wall forming a closed compartment above the open end of the sleeve member, a switch member movably mounted in the sleeve member and positioned in said compartment, an electrode extending from the switch member through the wall into the open end of the sleeve member for contacting the electrode in the lamp base and normally disengaged from contact with a first mentioned one of the prongs and movable into engagement for contact with said first mentioned prong, said sleeve being recessed adjacent said threaded open end to receive in the recess a second mentioned one of the prongs whereby said second mentioned prong is positioned for contacting the threaded electrically conducting material of the base of a lamp in the sleeve for the thereby completion of an electrical circuit through the filament upon moving the switch member into engagement with the first mentioned prong.

2. In an electrical socket, a sleeve member formed from a plastic electrically non-conducting material and closed at one end and open at the other end for threadably receiving therein the base of an electric lamp having a threaded sleeve of electrically conducting material around the outside thereof and an electrode at the center of the base and insulated from the sleeve, a cap formed from a plastic electrically non-conducting material and removably mounted on the sleeve member, said cap recessed on the underside thereof to frictionally receive the closed end of the sleeve member therein, spaced prongs extending from the underside of the cap member into the sleeve member upon mounting the cap thereon, each prong formed from an open ended strip of resilient electric conducting material, said strip bent over upon itself to form a securing base at the open end of the strip and spaced elements extending from the securing base for inserting a wire therebetween, said sleeve member having openings therein at the closed end thereof for receiving the prongs therethrough upon inserting the sleeve member in the cap recess to mount the cap on the sleeve member, the openings in the sleeve member being of such dimension with respect to the spacing of the elements of the prong with a wire therebetween that the elements of each prong are pressed together to grip the wire therebetween and hold the wire against removal from the prong upon mounting the cap on the sleeve member an insulating wall between the open and closed ends of the sleeve member to form a compartment above the open end, a switch member in the compartment for

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selectively moving the switch member into and out of contact with one of the prongs and for electrical connection to one side of the lamp filament circuit upon threadably receiving a lamp in the sleeve member, said open end adapted to receive the other of said prongs for contacting the other side of said lamp filament circuit through the sleeve upon threadably receiving said lamp in the sleeve member whereby the circuit through the lamp filament is closed upon moving the switch element into contact with the first mentioned one of the prongs.

3. In an electrical socket, a sleeve member formed from an insulating material, said sleeve member open at one end for threadably receiving therein the electrical conducting base of an electric light and closed at the other end, a cap removably mounted on the sleeve member at the closed end thereof and formed from an insulating material, spaced prongs extending from the cap into the sleeve member upon mounting the cap thereon, each prong for connecting a lamp received in the socket into an electric circuit, said sleeve member having openings therein for receiving the prongs therethrough upon mounting the cap on the sleeve member, an insulating wall in the sleeve member between the open and closed ends of the sleeve member, an electrical contact on the said wall and positioned to engage one side of the filament circuit of a lamp received in the open end of the sleeve member and said wall having an opening for receiving therethrough a first mentioned prong of said prongs, said first mentioned prong being of sufficient length to extend beyond said wall upon mounting the cap on the sleeve member and said sleeve member recessed to position said first mentioned prong for engagement by the electrical conducting base of an electric light received in the open end of the sleeve member to complete a circuit through the lamp filament, a second mentioned prong of said prongs extending toward but not reaching said wall upon mounting the cap on the sleeve member and switch means connected to said contact for selectively engaging said second mentioned prong said switch element electrically connected to said electrical contact on the said insulating wall.

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