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ELECTRIC LAMP SOCKET

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The purpose of this invention is to provide a socket for electric lamps or bulbs, or the like, in which the bulb may be pushed straight into the socket or pulled out without turning or screwing, and also in which it may be turned or screwed into or out of the socket; in which the only holding parts are adjacent the outer end of the socket.

The invention is an electric lamp socket having a plurality of spring fingers with yielding projections adjacent their outer ends in which the projections correspond with threads in the lamp base, and are adapted to hold the base through the threads, and also in which guiding means is provided for the inner end of the base, providing yielding guiding means continuously engaging the base with yielding holding means adjacent the outer portion only.

Many different types of sockets have been provided for holding electric lamps or bulbs in which the bulb may be screwed or pressed straight inward, and from which it may readily be removed by pulling straight outward or unscrewing, and some sockets have been provided with spring fingers permitting pressing straight inward; however, these spring fingers engage the surface of the base continuously and it will be appreciated that where holding means is provided at the inner end, the holding means at the outer end will have a tendency to spring outward so that with the holding means provided continuously of the spring members, the bulb will only be held by the last thread on the inner end thereof, and the outer end will be comparatively free to move laterally and therefore rattle or vibrate so that the life of the filament will be comparatively short. Other sockets have been provided with yielding balls or other types of holding means which involves comparatively difficult construction or machining, which increases the manufacturing cost so that the cost thereof is prohibitive, and furthermore where these bulbs are exposed in electric signs, the balls, or other intricate parts, rust and fail to function.

The object of this invention is, therefore, to provide a socket for electric lamp bulbs in which the bulb may be pressed straight inward, pulled straight outward, or screwed inward or outward, which firmly grips and holds the bulb adjacent the outer end of the base, which provides yielding guiding means for the inner end of the base, and which eliminates all intricate or delicate parts or other complicated machine work.

Another object is to provide an electric lamp

socket having a plurality of spring fingers with holding means at their outer ends which may readily be applied to sockets of different types and designs.

Another object is to provide means for mounting spring holding means in electric lamp sockets so that the outward movement of the spring holding means is eliminated.

A further object is to provide a plurality of spring clips in an electric lamp socket for engaging and holding the base of a lamp bulb adjacent the outer end thereof which are freely positioned so that corrosion or rust will not prevent operation thereof.

And a still further object is to provide an electric lamp socket having yielding holding means in the outer end thereof for permitting bulbs to be pressed or screwed inward or pulled outward, which is of a simple and economical construction.

With these ends in view the invention embodies an electric lamp socket having recesses in the inner surface thereof with spring holding clips in said recesses, and with projections adjacent the outer ends of the clips adapted to engage and hold an electric lamp or bulb inserted therein.

Other features and advantages will appear from the following description taken in connection with the drawing, wherein:

Figure 1 is a view showing a cross section through a socket as may be used in an electric sign with the spring clips incorporated therein.

Figure 2 is a detail showing one of the spring clips shown in Figure 1.

Figure 3 is a detail showing a spring clip of an alternate design.

Figure 4 is a detail showing a spring clip in combination with a portion of a socket in which means is provided in the outer end of a recess in the socket for limiting the outward movement of the spring clip.

Figure 5 is a view showing an alternate design in which the spring clip is provided with a plurality of holding members adjacent the outer end, and in which yielding means is provided at the base of the spring clip, permitting adjustment of the length thereof.

Figure 6 is a bottom plan view showing an alternate design in which the base is made of a thin cylindrical shell with parts for the contact members indented in the inner surface thereof and with the contact members omitted.

Figure 7 is a view showing the spring clips in a socket of another alternate design.

Figure 8 is a similar view showing the spring clips in another type of socket.

In the drawing the device is shown as it may be made wherein numeral 1 indicates a spring clip, numeral 2 a holding projection adjacent the outer end of the spring clip, and numeral 3 a socket in which the clip may be used.

In the design shown in Figures 1 and 2 the spring clip is formed of a flat piece of spring material with the back straight, and with the upper end bent over at the point 4, and extending downward to the point 5, thereby providing a relatively flat or straight yielding section forming a guide for engaging the outer surfaces of the threads of the inner end of the lamp base, and the projection 2 is formed in this section and formed on a slight angle, as shown in Figures 1 and 2, to correspond with the threads of the base. The projection 2 is shaped to correspond with the threads; however, this may be sharp or curved, or made of any shape, and it is preferred to make the lower portion 6 of a somewhat smaller angle than that of the upper section 7 which is made of a comparatively sharp angle. Forming this projection in this manner provides means for urging the socket inward as the long tapering surface on the lower side has a tendency to hold the thread downward, whereas clearance is provided by the comparatively sharp sloping surface on the upper side. The lamp socket is, therefore, resiliently held toward the base so that the contact in the center thereof will engage a spring contact member 8 in the center of the base of the socket. The spring member may also be provided with one loop, as indicated by the numeral 9, in Figures 3 and 4, or by two loops 10 and 11, as shown in the design shown in Figure 5, so that the distance from the projection 2 to the base of the socket may be automatically adjusted to compensate for different lengths of thread, or different positions of the thread, as it will be noted that with the spring member yielding in all directions, it may readily adjust itself to force the projection 2 into the base of the thread as soon as the lamp bulb arrives at its position in the socket. It will be understood, however, that any other means may be used for adjusting the positions of the projections 2. It will also be noted that the upper surface of the base 12 of the socket may be formed in steps, as indicated by the numeral 13 so that all the spring clips may be the same length and each clip mounted upon a projection of a different height to correspond with the varying points of the screw thread, as with each projection slightly higher than the preceding one the distances of the projections 2 from the base may gradually increase to correspond with the pitch of the thread. It will also be understood, however, that all the spring clips may be the same length, as shown in Figures 7 and 8, or any other means may be used for changing the positions of the projections 2.

At the lower end of the member 1 is a flange 14 forming a base having an opening 15 therein by which the spring clips may be held by screws or bolts to the base of the socket. This flange, or base, may be formed in any manner, and may extend straight outward from the lower end of the member 1, or may be provided with loops, as shown in Figures 3, 4, and 5, as hereinbefore described. These spring clips are placed in recesses 16 in the inner surface of a socket, as indicated by the numeral 3, and are positioned so that the projections 2 will extend into the socket a sufficient distance to grip and hold the threads

on the base of a bulb inserted therein, and it will be noted that with a clip of this design the band, or yielding part, is at the outer end, and not at the base, thereby making it possible to grip and hold the lamp base adjacent the outer end with the inner end of the base held by the guides formed by the ends, or sections extending downward below the projections 2. This provides means for steadying the inner end of the base of the bulb, and also means for positively gripping and holding the base adjacent the outer end.

The spring clips may, however, be made as shown in Figures 3 and 4 with the straight members corresponding with the inner surface of the socket and with loops at the lower ends providing yielding at the outer ends. In this design the clips are formed with straight portions 17 having projections 18 and the upper ends 19 extend straight upward from the projections. The lower ends are provided with bases 20 which are held similar to the bases 14 of the clip 1. In this design the recesses in the wall of the socket, which are indicated by the numeral 21, may be provided with lips 22 positioned to engage the ends 19, thereby forming stops limiting the outward movement of the spring members. The lips 22 may or may not be used, as may be desired.

These spring clips are mounted upon a base, as shown in Figure 6, in which the pins or bolts 23 extend through the base and into a common yoke 24 which may be connected through a terminal 25 into the electric current through a wire 26, and the center spring clip 8 is connected by a bolt 27 to a wire 28 through a clip 29, and it will be noted that all three of the spring holding clips engaging the surface of the base are in contact with the terminal of the electric current.

In the design shown in Figure 5 the spring clip is provided with a plurality of projections, as indicated by the numeral 30, and it will be understood that one, two, or any number of the projections may be used; however, it is preferred to position the projections adjacent the outer end of the clip so that the clip only positively holds the outer end of the base of the lamp or bulb.

The designs in Figures 7 and 8 are only used to show the spring clips in different types of sockets, and it will be understood that these clips may be used in sockets of any type, or for any purpose. The socket 31 shown in Figure 7 is provided with a base 32 by which it may be mounted, and the socket 33, shown in Figure 8, is of the thin metallic type with an insulating sleeve 34 on the inside, and with recesses 35 in the surface in which the spring fingers are positioned. This type of socket is provided with an insulating base 36 and a cap 27.

It will be understood that other changes may be made in the construction without departing from the spirit of the invention. One of which changes may be in the use of resilient holding clips of any other type or description that engage and hold the bulb adjacent the outer end of the base and provide guiding means for the inner end thereof, another may be in the use of holding means of a different design instead of the projections 2, and still another may be in the use of other means for mounting the spring clips in the socket.

The construction will be readily understood from the foregoing description. In use these sockets are preferably used in an electric sign, and the bulbs may readily be inserted by press-

ing straight inward, or removed by pulling straight outward, and it will be noted that considerable time will be saved in placing a large number of bulbs in an electric sign, as each bulb does not have to be screwed into place. This type of socket also facilitates replacing bulbs, as the bulb may readily be withdrawn and another bulb inserted. The socket is also adapted for many other purposes, especially in high points where it is necessary to use a holder for the bulb, as these bulbs may readily be inserted by pressing the bulb straight into the socket with a holding device instead of endeavoring to turn it. These sockets are also adapted for floor lamps and other places where the socket is not easily reached as it is only necessary to find the opening and press the bulb straight inward instead of trying to match the threads. Sockets with spring clips of this type are practical because the cost thereof is comparatively the same as that of sockets now in use, and the spring clips provide a freedom of movement which prevents locking the sockets by corrosion, and at the same time provide sufficient holding parts to prevent freedom of movement or shaking.

Having thus fully described the invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a resilient holding socket for electric fix-

tures of the type having screw bases, a receptacle having longitudinal grooves in the inner surface thereof extending from the base thereof to points adjacent the outer end, and resilient holding members each formed of a separate and independent piece of material positioned in said grooves, said resilient holding members mounted upon the base of said socket, extending to the outer ends of said grooves, bent over at the outer ends of the grooves, and extending backward in the same plane as that of the inner surface of the receptacle, said backward extending portions having slightly inclined V shaped projections extending therefrom and said resilient holding members having yielding portions adjacent the points at which they are attached to the base of the socket.

2. Spring contact holding members for electric light bulb sockets of the push and pull type, comprising individual spring members mounted on the base of the socket with V-shaped transverse projections adjacent their upper ends, and bends providing longitudinal resiliency therein adjacent their lower ends, providing resiliency back and forth and up and down in said spring members.

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