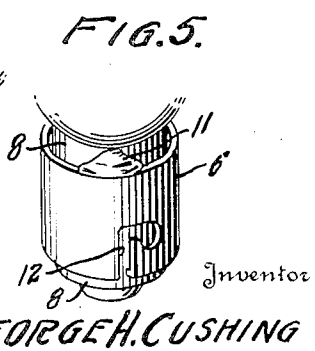
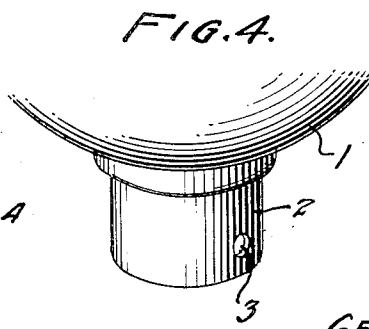
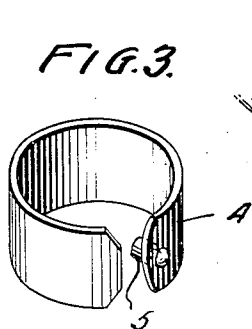
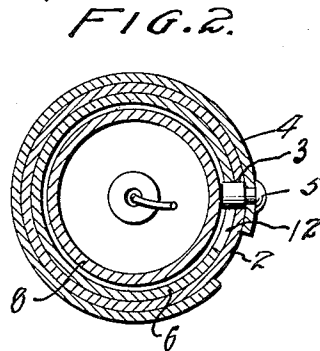
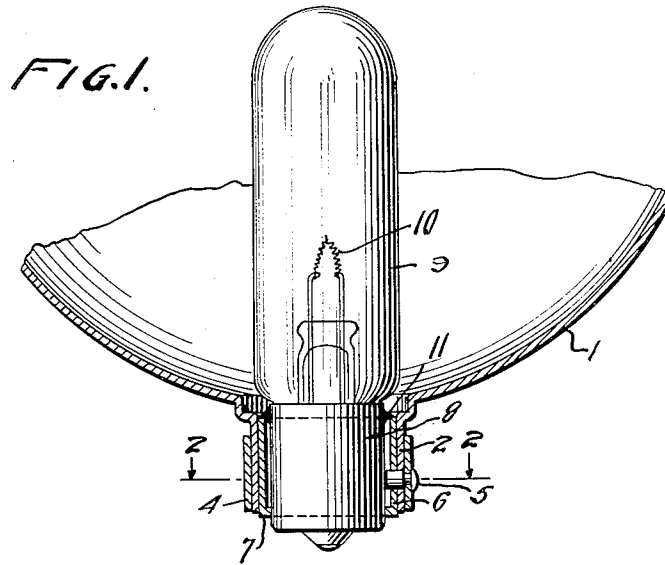


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G. H. CUSHING
PROJECTING LAMP BULB
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UNITED STATES PATENT OFFICE

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PROJECTING LAMP BULB

Application filed November 23, 1929. Serial No. 409,333.

This invention relates to the art of illumination and more particularly has reference to the mounting of electric light bulbs.

At the present it is practically impossible to obtain two electric light bulbs whose filaments are in the same relative position with respect to each other. This condition greatly affects the efficiency of reflectors with which the bulb is associated inasmuch as the reflector is designed for the location of the light source at a particular point. Obviously with the use of a bulb having an inaccurately positioned filament, positioning of the light source at the desired location cannot be attained.

An object of this invention is to devise a method of positioning the filament of an electric light bulb relative to a reflector.

Another object of this invention is to devise an apparatus by means of which a standard electric light bulb may be positioned in an accurately designed reflector, so that the filament of the bulb will be located at the focus of the reflector.

Yet another object of this invention is to devise an adapter whereby an electric light bulb may be mounted in a receptacle adapted to receive larger bulbs.

Still another object of this invention is to devise a mounting for electric light bulbs.

A further object of this invention is to devise a method and means for correcting the constructional error in the positioning of a filament in an electric light bulb.

A still further object of this invention is to devise a means for retaining the base of an electric light bulb within a socket adapted to receive the same.

With these and other objects in view, which may be incident to my improvements, the invention consists in the parts and combinations to be hereinafter set forth and claimed, with the understanding that the several necessary elements comprising my invention may be varied in construction, proportions and arrangement without departing from the spirit and scope of the appended claim.

In its broadest aspect, the present invention comprises arranging an electric light bulb

within an adapter, adjusting the position of the filament of the electric light bulb relative to the adapter and fixedly securing the adapter to the base of the electric light bulb. After the bulb is correctly positioned in the adapter, the bulb together with the adapter may be inserted in a receptacle therefor, properly positioned relative to a light projecting reflector so that the filament will be in the proper position relative to the reflector. This invention also comprises the provision of a means for retaining the electric light bulb in a socket adapted to receive the same. In this instance, the retaining means are in the nature of a split ring carrying a projection extending through apertures in the receptacle and the base and adapted to bear against the electric light bulb to maintain the same in position within the receptacle.

In order to make my invention more clearly understood, I have shown, in the accompanying drawings, means for carrying the same into practical effect without limiting the improvements in their useful applications to the particular constructions which, for the purpose of explanation, have been made the subject of illustration.

In the drawings:

Figure 1 is a fragmentary view showing a portion of the light projecting reflector with which is associated an electric light bulb, modified in accordance with the present invention.

Figure 2 is a sectional view of the structure shown in Figure 1, being taken on line 2—2 thereof.

Figure 3 is a perspective view of the resilient ring for retaining the electric light bulb within its receptacle.

Figure 4 is a fragmentary view of a reflector equipped with an electric light bulb receptacle constructed in accordance with the present invention.

Figure 5 is another fragmentary view showing an electric light bulb provided with an adapter mounted thereon in accordance with the present invention.

In the drawings, in which similar reference numerals represent similar parts throughout the several views thereof, there

is shown in Figure 1 a diagrammatic representation of a light projecting reflector 1, adapted to be associated with a projecting lamp. As shown in Figures 1 and 4, the reflector is provided with a tubular extension 2, which serves as a receptacle for the base of an electric light bulb. The tubular projection 2 which serves as a socket for the electric light bulb is so positioned relative to the reflector that when an electric light bulb is mounted therein, the filament of the bulb if properly designed would be at the focus of the reflector or at the point at which the light source was assumed to be in designing the reflector to direct light from the source to a definite location relative to the reflector.

As shown in the drawings, the tubular extension 2 is provided with an aperture 3 through which means for retaining the base of an electric light bulb in position within the receptacle 2 may be projected. For mounting an electric light bulb in this type of socket, the base of the bulb should be provided with a recess or with the usual bayonet slot connection so that a pin or other member may be projected through the aperture 3 into the recess or slot within the base of the receptacle. A satisfactory mechanism for securing the base of the electric light bulb within the receptacle 2 is shown in the drawings and more particularly in Figure 3 as being formed of a split resilient ring 4 provided with a pin or other projecting member 5. The pin 5 is of such a length that when the resilient ring 4 is mounted on the outside of the tubular projection 2 that the pin will project through the aperture 3 a sufficient distance so that it will bear against the portion of the base of the electric light bulb so as to yieldingly maintain the same in fixed relation relative to the socket. It will be appreciated that the mounting mechanism just described will securely maintain an electric light bulb within the receptacle. It will also be seen that the few parts just described are relatively simple and may be easily manufactured.

As hereinbefore pointed out, the present invention seeks as an object to compensate for any inaccuracies in the construction of an electric light bulb by providing an adapter between the base of the electric light bulb and the socket adapted to receive the same. In order to carry out this object of my invention, I provide an adapter 6 having an internal diameter slightly larger than the exterior diameter of the standard base of an electric light bulb. At one end of the adapter, I provide an inwardly projecting flange 7, which restricts the size of the opening so that the adapter at this end will snugly receive the standard base 8 of an electric light bulb.

Since the adapter 6 is of such a size as to be snugly received within receptacle 2 which is positioned relative to the light projecting

reflector of an illuminating device so that when the filament of an electric light bulb is positioned properly relative to the adapter 6 and inserted within the receptacle 2, a filament will be at its intended position relative to the reflector 1. In order to properly position the filament of the electric light bulb relative to the adapter 6, the adapter 6 is slipped on the base 8 of the electric light bulb 9 and the bulb 9 is adjusted relative to the adapter 6, so that the filament 10 will be in a predetermined position relative to the base 6. After the proper relation between the filament 10 and the adapter 6 is established, the large end of the adapter is secured to the base of the bulb so that the relation between the adapter 6 and the filament 10 can be maintained. For purposes of illustration, I have shown the base of the bulb secured to the adapter 6 by means of solder 11. I wish it to be clearly understood, however, that any other means for effecting a bond or attachment between the base of the electric light bulb and the adapter 6 may be employed.

While I have shown an electric light bulb having a base free of the usual pins for retaining the same in a receptacle, I wish it to be understood that if desired, the retaining pins may be left on the base of the receptacle, provided they do not interfere with the positioning of the filament of the electric light bulb relative to the adapter.

In order to secure the adapter 6 in the receptacle 2 carried by the reflector 1, any suitable means for retaining the bulb therein may be employed. For instance, the adapter 6 may be provided with the usual pins diametrically arranged on the base adapted to be received in bayonet slots carried by the receptacle. While any means of attachment may be employed, I find it to advantage to employ the attaching means shown in the accompanying drawings.

For instance, as shown in the drawings, the adapter 6 may be provided with the bayonet slot 12 into which the pin 5 carried by a split resilient ring 4 may project. This form of attachment is desirable, since by making the pin 5 of sufficient length, it will bear against the base 8 of the electric light bulb and thereby maintain the bulb within the receptacle 2 against accidental displacement.

It will be appreciated that the present invention provides a method and means for correcting the inaccuracies of the positioning of the filament of electric light bulbs, so that any bulb purchased on the market may be used in conjunction with an accurately designed reflector without the disadvantages of having the filament offset from the desired position upon which the design of the reflector was based. It will also be understood that the present invention provides a simple and effective means for maintaining an elec-

tric light bulb either with or without an adapter within a receptacle provided therefor.

While in the drawings accompanying this application, the means for maintaining the electric light bulb within the socket has been shown associated with an adapter, I wish it to be clearly understood that the means for retaining the base of the bulb within the receptacle may be applied to an electric light bulb in which an adapter is not employed.

While I have shown and described the preferred embodiment of my invention, I wish it to be understood that I do not confine myself to the precise details of construction herein set forth, by way of illustration, as it is apparent that many changes and variations may be made therein, by those skilled in the art, without departing from the spirit of the invention, or exceeding the scope of the appended claim.

I claim:

In combination with an electric bulb having a filament and base with a tubular holder therefor provided with an opening in its periphery, a tubular adapter having a bayonet slot and a resilient split ring provided with a pin, said adapter having an internal diameter greater than that of the bulb base, and such an external diameter as to provide a tight fit with the interior of said holder, one end of said adapter turned inwardly to provide a flange whose diameter is such as to allow axial and lateral adjustment of the bulb base when inserted therein, said flange also providing a compartment closed at one end between the bulb base and the adapter for solder by which the adapter is secured to the bulb base in predetermined position, said adapter with bulb secured thereto being maintained within said holder by said split ring encircling the holder and its pin cooperating with the opening therein and the bayonet slot of the adapter.

In testimony whereof I affix my signature.
GEORGE H. CUSHING.

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