Oct. 6, 1925.

1,556,342

J. P. PETH

NONREMOVABLE ELECTRIC LAMP BULB

Filed Oct. 29, 1923

Fig. 1

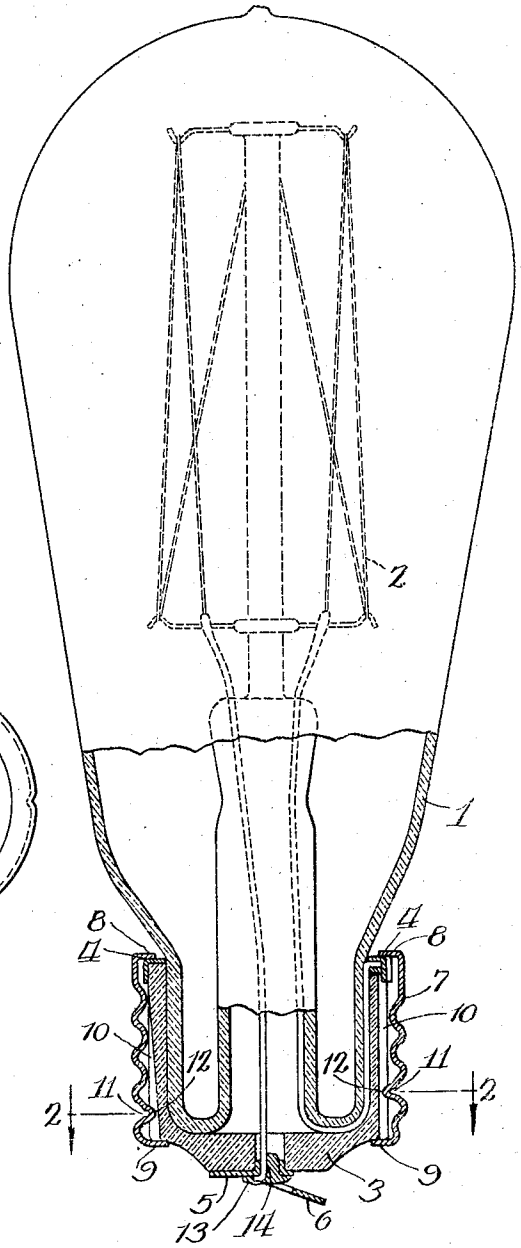


Fig. 3

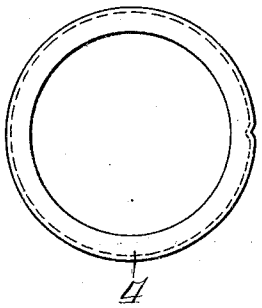


Fig. 4

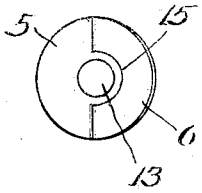
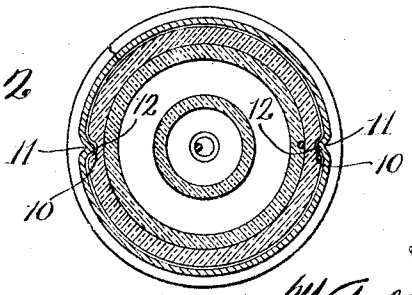


Fig. 2



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UNITED STATES PATENT OFFICE.

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NONREMOVABLE ELECTRIC-LAMP BULB.

Application filed October 29, 1923. Serial No. 671,349.

To all whom it may concern:

Be it known that I, JOHN P. PETH, a citizen of the United States, and resident of Chicago, Cook County, Illinois, have invented a certain new and useful Improvement in Nonremovable Electric-Lamp Bulbs, of which the following is a specification.

This invention contemplates certain improvements in the construction and manufacture of non-removable electric lamp bulbs, or bulbs which can be screwed into a socket, in the ordinary way, but which cannot be unscrewed after being thus inserted in the socket of the electric light fixture.

The object of the invention is to provide a novel and improved construction which will ensure, or which will tend to ensure, against injury of the lamp bulb, and of its screw threaded attaching portion, when screwed into the socket, in the use of a nonremovable lamp bulb of this character, which will tend to ensure the proper and necessary insertion of the screw threaded metal portion of the bulb when it is screwed into the socket, notwithstanding the fact that different sockets vary in depth to the extent that in some cases the lamp would close the contact at its inner end with less insertion than in some other cases, so that the lamp would in some cases screw a less distance into the socket than in other cases, as will hereinafter more fully appear.

To the foregoing and other useful ends the invention consists in matters hereinafter set forth and claimed, and shown in the accompanying drawings in which—

Figure 1 is a side elevation of an electric lamp bulb embodying the principles of the invention, showing the base or attaching portion thereof in vertical section.

Figure 2 is a transverse section on line 2—2 in Figure 1.

Figure 3 is a plan view of one of the parts of the lamp.

Figure 4 is a similar view.

As thus illustrated, the glass bulb 1 is of the usual form or shape, and contains a filament 2 of the ordinary or any suitable character. A poreclain base portion 3 is provided, as shown, and the glass bulb is fixed in this in the ordinary or any suitable or desired manner. One terminal of the filament is suitably connected to the metal ring 4, which encircles the edge of the porcelain base 3, and the other terminal of the filament is connected to the sheet metal contact piece 5, being soldered thereto, or connected in any suitable manner. It will be seen that this contact piece 5, which may be of sheet brass, has an outwardly bent springy portion 6 which is relied upon to make proper contact with the center contact of the socket. The ring 4 is in contact with the brass or other metal screw threaded sleeve 7 which surrounds the porcelain base 3, it being understood that this sheet metal and screw threaded sleeve 7 makes contact with the screw threaded metal sleeve of the socket in the usual and well known manner, so that this sleeve 7 and the portions 5 and 6 are connected in series in the circuit of the filament when the lamp bulb is screwed into the socket. The edge portion 8 of the sleeve 7 is crimped or bent over upon the ring 4 as shown, and the other edge portion 9 of the sleeve is bent over upon the outer end portion of the base 3, so that the base 3 and the glass bulb attached thereto are held firmly in said sleeve. The base 3 has longitudinal grooves 10, preferably, and the sheet metal sleeve 7, in the manufacture of the lamp, is provided with dents 11 which form small projections 12 on the inner surface of the sleeve 7, which project into the said grooves. Thus, normally, relative rotation between the sleeve 7 and the porcelain or other insulating member 3 is prevented.

Now in use the lamp bulb is screwed into an ordinary socket in the ordinary way, until the sleeve 7 reaches the end of the thread of the socket, and then the lamp cannot be rotated any farther. However, the user will turn the glass bulb 1 forcibly, in the same direction which was necessary to screw the bulb into place, and the result will be that the small dents 12 in the sheet metal of the sleeve 7 will be forced out of the grooves 10, as the metal of the sleeve 7 is rather soft and pliable, being made to act in this way, and the glass bulb 1 will then rotate freely in either direction. Consequently, the lamp bulb can not be unscrewed from the socket, for the locking connection between the porcelain base 3 and the sleeve 7 has been destroyed, and the glass bulb 1 will rotate in either direction in the sleeve 7, thus absolutely preventing the sleeve 7 from being unscrewed from the socket of the stationary electric light fixture.

Now the portion 6 will contact with the center contact or electrode of the socket, as

previously explained, and can yield as the lamp is screwed farther into the socket, but such pressure will not tend to force the porcelain base 3 out of the sleeve 7, as the pressure will not be sufficient to distort the rim 8 of the threaded sleeve, but which would be the case if the contact 6 were not of a yielding nature, because in that case the positive pressure exerted, by the continued rotation of the lamp before it reaches the end of the thread, would gradually force the lamp bulb and its base 3 partially out of the metal sleeve 7, which would be a serious injury to the lamp bulb as a whole. Some sockets are deeper than others, and if the contact 6 were rigid and solid there would be considerable danger of lamps of this kind being broken before being entirely screwed into the sockets in which they were to be used, but with the yielding contact 6 the sockets can vary somewhat in depth without causing any harm to the lamp, for if the contact 6 strikes the center contact of the socket a little too soon, it will simply bend back toward the base of the bulb until the end of the thread is reached, so that further rotation of the bulb is then prevented. The grooves 10, of course, permit sliding movement of either of the projections 12, or might, under certain conditions, and this would distort the flange 8 or the flange 9, depending upon in which direction the relative axial movement between the sleeve 7 and the base 3 is produced. If a socket were of less depth than usual, and if the contact 6 were rigid, the bottom of the socket would be reached before the sleeve 7 would reach the limit of its rotation, and consequently the base 3 and the sleeve 7 would rotate together, but the base 3 would not move axially while the sleeve 7 would, by its forced rotation, continue to screw into the socket, thus producing relative axial movement between the base or insulator 3 and the sleeve 7, and the consequent distortion or outward pressing of the flange 8 in the manner described. However, with the contact 6 made flexible, the base or insulator 3 can continue its axial movement into the socket until the sleeve 7 reaches the limit of its screw thread rotation and thus serve to prevent distortion of the sleeve 7 in the manner described. Again, should the socket be a little deeper, the flexible contact 6 will strike the bottom of the socket at about the time that the sleeve 7 is fully screwed into the socket. Thus the screw threaded base of the bulb may be a little shorter, and provided with the projecting flexible contact 6, and can be screwed into sockets of different depths without danger of disrupting the sleeve flange 8, particularly when the socket is perhaps so shallow that considerable screw thread rotation of the sleeve 7 is possible, after the contact 6 strikes the bottom of the socket, and there is no danger of distortion of the flange 8 by rotation of the sleeve 7 after the base or insulator 3 strikes the bottom of the socket and is then held against further axial movement. No matter how deep the socket might be, it is obvious that the threaded sleeve 7 cannot be screwed into the socket beyond a certain depth, as the cylindrical portion of the socket adjacent the flange 8 is not threaded, so that the sleeve can only screw into the socket until the end of the thread is reached, and then the rotation must stop. Thus the spring contact 6, in the combination shown and described and claimed, compensates for different depths of socket, inasmuch as the sleeve 7 will be screwed the same distance into any and all sockets, and the spring contact 6 automatically compensates for variations in the distance between the insulator 3 and the bottom of the sockets into which the lamp may be inserted. And, as described, the portions 12 are strong enough to keep up the rotation of the sleeve 7 until this sleeve reaches the end of its thread and reaches the limit of its rotation imposed by the character of the screw threads themselves, so that the lamp will have the same depth of insertion in any and all sockets, but may have a variable deflection or position of the contact 6, depending upon the variation in the depth of the sockets, as shown and described.

But, in any event, as stated, a forcible rotation of the glass bulb, after the threaded sleeve thereof reaches the end of the screw thread, disrupts the locking connection between the sleeve 7 and the glass bulb, by distortion of the sheet metal of the sleeve 7, and allows its base 3 to rotate freely in either direction in the sleeve 7, without in any way interfering with the electrical contacts which are necessarily established to complete the circuit of the lamp.

It will be understood that the yielding contact which forms one terminal of the lamp filament can be of any suitable or known form. As shown, referring more particularly to Figure 4, it comprises a disc-like piece of sheet metal, such as soft sheet brass, with a central hole 13 for the solder 14 by which one terminal portion of the lamp filament is soldered to the sheet metal. A semi-circular cut 15 is made in the disc of metal, to form the portion 6, which portion 6 is then bent out as shown. This is a very cheap and inexpensive way of making the yielding contact, but the invention is not limited to any form of contact for this purpose, and contemplates broadly any contact which will yield when it strikes the center contact of an ordinary socket, in the event that the threaded sleeve 7 has not yet reached the end of the thread of the socket, so that the lamp must be screwed a little

farther into the socket. At such time, as explained, the portion 6 bends back toward the porcelain base 3, and in thus yielding prevents injury to the lamp itself.

What I claim as my invention is—

1. In a non-removable electric lamp bulb, the combination of a threaded member to be screwed into an ordinary socket, a glass bulb, metal means to normally lock the bulb against rotation in said member, but permitting axial displacement of said member on the bulb, adapted by distortion thereof to be rendered inoperative by a forcible rotation of the bulb after said member reaches its final position in the socket, so that the bulb will then rotate in either direction in said member, said member serving as one of the terminals of the filament of the lamp, and a yielding contact serving as the other terminal of said filament, adapted to yield when it strikes the bottom of the socket and prevent axial displacement of said member on the bulb, before reaching said final position.

2. A structure as specified in claim 1, said member being bent over at one edge thereof to hold it on the lamp, and said yielding contact serving to prevent injury to this bent over edge portion by axial displacement of said member on the bulb, in the event that said yielding contact closes connection with the socket before said threaded member reaches the end of the screw thread of the socket.

3. A structure as specified in claim 1, said means for preventing relative rotation between the said member and the glass bulb comprising one or more small projections on the inner surface of said member, and means to engage said projection or projections, said member being made of sheet metal which will yield and disengage said projection or projections from said engaging means when the glass bulb is forcibly rotated in the manner stated.

4. A structure as specified in claim 1, said yielding contact comprising a section of sheet metal bent to provide an attaching portion and a contact portion, with the contact portion bent out a distance.

5. In a non-removable electric lamp bulb, the combination of a sheet metal sleeve having screw threads, a glass bulb held in said sleeve, said sleeve forming one of the terminal contacts of the lamp, and means to normally prevent relative rotation of said sleeve and the glass bulb, comprising one or more small projections on the inner surface of said sleeve, together with means carried by the lamp bulb to engage said projection or projections, said sleeve being made of sheet metal which will yield to disengage said projection or projections from said engaging means when the glass bulb is forcibly rotated after the sleeve reaches its final position in an ordinary socket, whereby rotation of the bulb in the sleeve is accomplished by distortion of the sheet metal, so that the bulb is then inoperative to rotate the sleeve, thereby to prevent the lamp from being unscrewed from the socket.

6. A structure as specified in claim 5, in combination with yielding means to cooperate with said sleeve to complete the circuit of the lamp filament, adapted to yield if closure of the circuit is effected before said sleeve reaches the end of the thread of the socket.

JOHN P. PETH.