

June 4, 1946.

H. S. BIXBY

2,401,408

LOCK FOR FLUORESCENT LAMPS

Filed May 3, 1944

Fig. 1.

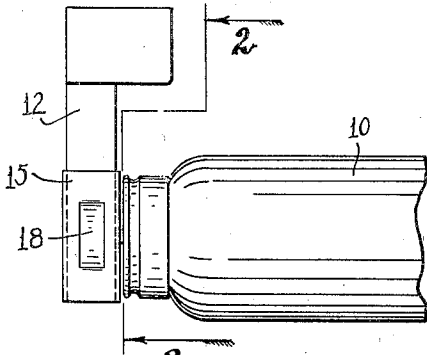


Fig. 2.

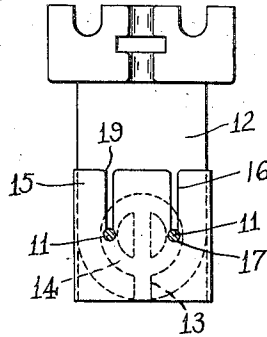


Fig. 3.

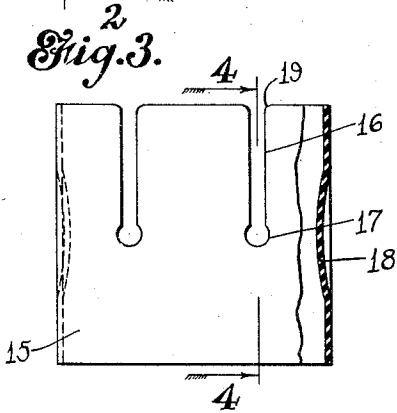


Fig. 4.

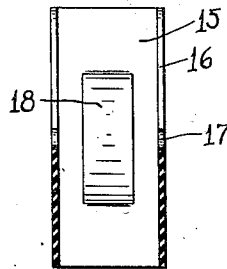


Fig. 5.

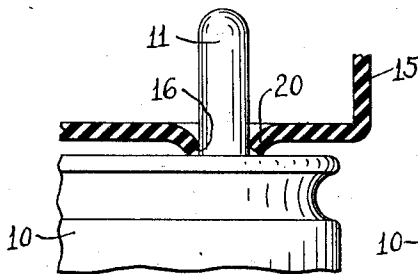
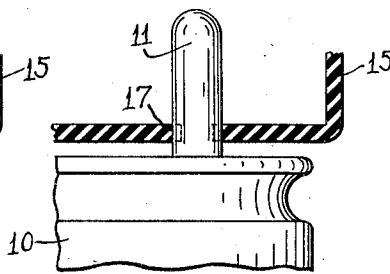


Fig. 6.



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UNITED STATES PATENT OFFICE

2,401,408

LOCK FOR FLUORESCENT LAMPS

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Application May 3, 1944, Serial No. 533,868

10 Claims. (Cl. 173—328)

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This invention relates to locks for fluorescent lamps, and more particularly to a locking device to prevent tubular lamp bulbs commonly used in connection with fluorescent lamps from becoming detached from their sockets. Devices for this same purpose have been previously patented by me in United States Patents Nos. 2,336,587 and 2,336,588, and the present device is adapted for universal use in that it may be employed with sockets of various types.

As shown in my prior patents referred to, fluorescent lamps are usually of cylindrical or tubular shape and are provided upon their end faces with extending prong-like contact members adapted to be received in end sockets or fixtures disposed adjacent each end face of the lamp, these contact members serving both to make electrical contact with elements in the socket and to sustain the lamp in position.

These contact members are normally slipped into slots opening through one edge of the socket members, and then moved either laterally or rotatably to a position in which they are retained in the sockets, usually by the spring contacts with which they engage. It has been found, however, that due to vibration and other causes it often occurs that the lamps will be caused to move in their sockets and be released therefrom, usually to drop on the floor and break. The present invention provides means for locking the lamps against movement after they have been properly placed in their sockets, so that there will be no danger of their being accidentally released. At the same time, however, lamps may be removed from the sockets when desired by releasing the securing or locking means.

While the present invention is shown in connection with a socket similar to that shown in my prior Patent No. 2,336,587, wherein the prongs of the lamp are inserted into a vertical slot in the socket and thereafter rotated to final position, it will be understood that the same device may also be employed in connection with lamp sockets wherein the prongs are introduced into two vertically extending slots and thereafter moved laterally to their final position. Thus the present device may be employed in any case where tubular lamps having end contact prongs are employed.

One object of the present invention is to provide improved locking means for tubular or fluorescent lamps so that the lamp will be prevented from becoming accidentally disengaged from the socket.

A further object of the invention is to provide

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locking means of universal character for fluorescent lamps, so that the same locking means may be employed regardless of the type of socket with which the lamp is used.

Still another object of the invention is to provide locking means for securing fluorescent lamps in their sockets, which locking means shall be of simple and inexpensive construction, and be capable of being applied to the socket and removed therefrom easily and conveniently.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing:

Fig. 1 is a front elevational view of the lamp socket at one end of a lamp, having thereon a locking device embodying my improvements;

Fig. 2 is a sectional view on line 2—2 of Fig. 1;

Fig. 3 is a front elevational view of the locking device, certain parts being broken away;

Fig. 4 is a sectional view on line 4—4 of Fig. 3;

Fig. 5 is an enlarged fragmentary sectional view of one of the locking devices, showing the device as it appears when being installed; and

Fig. 6 is an enlarged fragmentary sectional view similar to Fig. 5, showing the device after it has reached its final position.

To illustrate a preferred embodiment of my invention, I have indicated a portion of a fluorescent lamp 10 having projecting end contact members 11 adapted to be engaged in an end socket 12. As shown, this socket is provided with a vertical slot 13 which communicates with a circular slot or recess 14, and it will be understood that, as is the usual practice, the contact members 11 upon the end face of the lamp 10 are inserted into the slot 13, and thereafter rotated in the recess 14 until they assume the position shown in Fig. 2. In this position they are aligned horizontally and are also symmetrical with respect to the side edges of the socket 12; that is, each pin 11 is positioned at the same distance from the edge of the socket. As this is also true of the type of socket shown in my Patent No. 2,336,588, when the pins 11 are in their final positions, it will be understood that the locking device may also be used with sockets of that type, as it is not applied until the lamp is in place.

The locking device comprises a hollow tubular member 15 having open ends. As shown, the member is of rectangular shape in cross section, and is of such dimensions to fit snugly the socket 12, which in this case is also of rectangular shape in cross section. It will be understood that the shape of the member 15 will be adapted to that

of the socket device with which it is adapted to be used.

The member 15 is provided in each face thereof with slots 16 extending downwardly from the upper end thereof, these slots being of slightly less width than the diameter of the pins 11, and being provided at their lower ends with enlarged circular portions 17 of substantially the same diameter as the pins so as closely to embrace the latter. These slots 16 will be spaced according to the spacing of the pins 11, and will be at the proper distance from the side edges of the tubular body member 15 to receive the pins 11 when the device is slipped upon the socket 12.

Although the locking device will be made of such dimensions that its walls will frictionally engage the outer walls of the socket 12, additional means may be provided to prevent its detachment from the socket, such means comprising inwardly displaced portions 18 at the side edges of the body 15. These portions are merely bowed inwardly from the end walls of the device, and will engage the end walls of the socket frictionally to hold the locking device thereon.

The locking member 15 will preferably be made of fiber or some suitable insulating material. This material possesses a certain amount of resilience, and it will be found that the locking members may be readily slipped upon the sockets and remain in place due to the frictional engagement of the members 18 with the socket, and also due to the engagement of the pins in the enlarged portions 17 of the slots 16.

It will be recalled that the width of the slots 16 is slightly less than the diameter of the pins 11, and in order that the pins may readily enter the slots, the latter may be slightly flared at their upper ends, as shown at 19. After the lamp has been placed in final position in the socket, the locking device 15 is slipped upwardly upon the socket, the pins entering the slots 16. As these pins are slightly larger than the slots, the edges of the slots will be sprung outwardly to a slight extent to receive the pins, as shown at 20 in Fig. 5. When, however, the device has been telescoped upon the socket 12 to its final position, the pin will enter the enlarged recess 17 at the bottom of the slot, and the side edges of the slot will then assume their normal flat positions in the plane of the side walls of the locking member. Thus the member 15 will also be held in place by reason of the fact that the side edges of the slots will resume their normal positions and will overlies to some extent the upper surface of the pins, so that it will require exertion of positive force upon the locking member to move it downwardly and thus cause the pins to enter the narrow slots 16. However, when it is desired to remove the lamp from the socket, the locking device may by a positive pull be drawn downwardly from locking position and be removed entirely from the socket 12, at which time the lamp may be removed in the usual manner.

While I have shown and described a preferred embodiment of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. A device for securing to its socket a lamp having contact pins projecting from the end face thereof, said device comprising a member having a wall adapted to lie between the socket and the end face of the lamp, said wall being provided

with slots closed at their lower ends but opening through the upper edge of the wall, said slots being adapted to receive the contact pins therein, and means for securing said member to the socket.

2. A device for securing to its socket a lamp having contact pins projecting from the end face thereof, said device comprising a member having a wall adapted to lie between the socket and the end face of the lamp, said wall being provided with slots closed at their lower ends but opening through the upper edge of the wall, said slots being adapted to receive the contact pins therein, the width of said slots being less than that of the pins, and said slots being enlarged at their lower ends, and means on said member adapted to frictionally engage the socket.

3. A device for securing to its socket a lamp having contact pins projecting from the end face thereof, said device comprising a member having a wall adapted to lie between the socket and the end face of the lamp, said wall being provided with slots closed at their lower ends but opening through the upper edge of the wall, and said slots being adapted to receive the contact pins therein, and means frictionally securing said member to the socket.

4. A device for securing to its socket a lamp having contact pins projecting from the end face thereof, said device comprising a member having a flat portion insertable between the end face of the lamp and the socket after the lamp has been seated in the socket, and said portion having pin-receiving slots therein opening through an edge thereof whereby the pins may be received in the slots, and means for securing said member in place.

5. A device for securing to its socket a lamp having contact pins projecting from the end face thereof, said device comprising a hollow open-ended member adapted to embrace a socket, and said member having pin-receiving slots in one face thereof, said slots opening through an edge of said member.

6. A device for securing to its socket a lamp having contact pins projecting from the end face thereof, said device comprising a hollow open-ended member adapted to embrace a socket, and said member having pin-receiving slots in one face thereof, said slots opening through an edge of said member, and means for securing said member to the socket.

7. A device for securing to its socket a lamp having contact pins projecting from the end face thereof, said device comprising a hollow open-ended member adapted to frictionally embrace a socket, and said member having pin-receiving slots in one face thereof, said slots opening through an edge of said member.

8. A device for securing to its socket a lamp having contact pins projecting from the end face thereof, said device comprising a hollow open-ended member adapted to snugly embrace a socket, and said member having pin-receiving slots in one face thereof, said slots opening through an edge of said member, and portions of the opposite walls of said member being displaced inwardly to frictionally engage the socket.

9. A device for securing to its socket a lamp having contact pins projecting from the end face thereof, said device comprising a hollow open-ended member adapted to snugly embrace a socket, and said member having pin-receiving slots in one face thereof, said slots opening through an edge of said member, and said slots

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being of less width than that of the pins and being enlarged at their lower ends.

10. A device for securing to its socket a lamp having contact pins projecting from the end face thereof, said device comprising a hollow open-ended member adapted to snugly embrace a socket, and said member having pin-receiving slots in one face thereof, said slots opening

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through an edge of said member, and said slots being of less width than that of the pins and being enlarged at their lower ends and flared at their upper ends, and portions of two opposing walls of said member being displaced inwardly to provide socket-engaging members.

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