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H. S. BIXBY

2,336,588

LOCKING DEVICE FOR TUBULAR LAMPS OR THE LIKE

Filed March 25, 1942

*Fig. 1.*

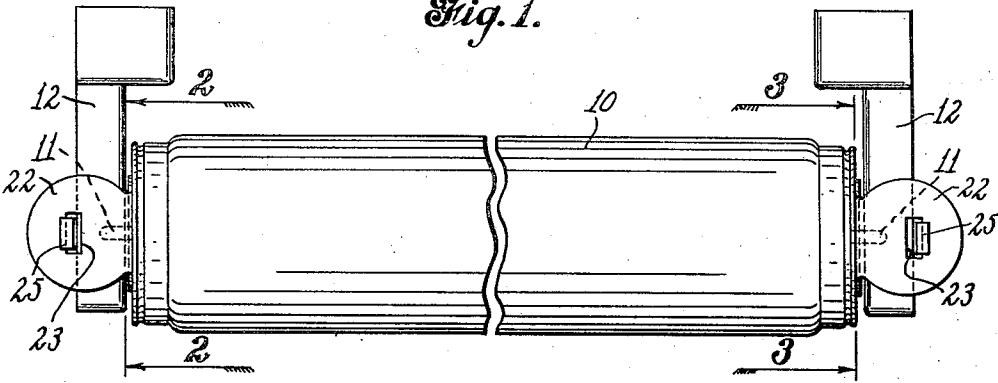


*Fig. 2.*

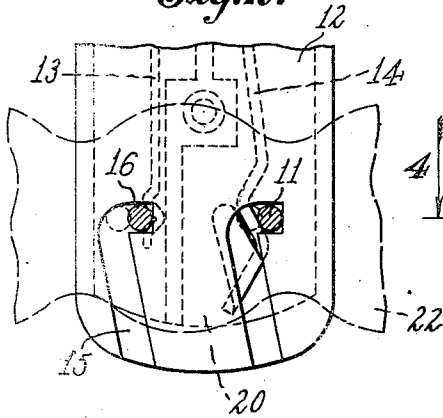


*Fig. 3.*

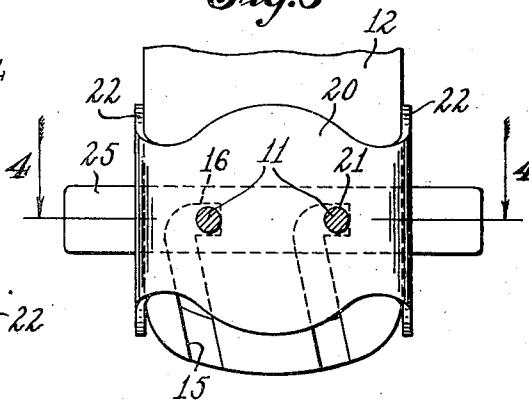


*Fig. 5.*

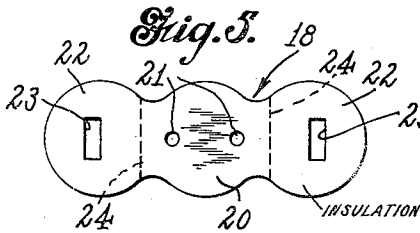


*Fig. 6.*

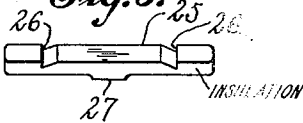
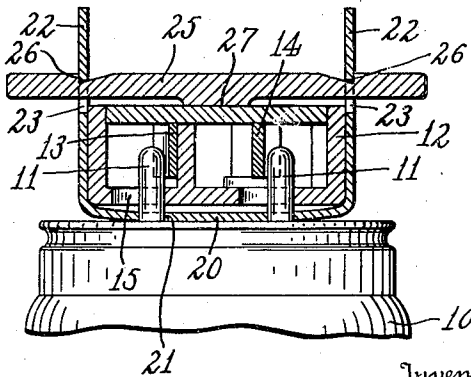


*Fig. 4.*



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## UNITED STATES PATENT OFFICE

2,336,588

LOCKING DEVICE FOR TUBULAR LAMPS  
OR THE LIKE

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direct and mesne assignments, of one-half to  
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10 Claims. (Cl. 173—328)

This invention relates to locking devices for tubular or fluorescent lamps.

The fluorescent lamps in present use are of cylindrical or tubular shape, and normally are provided upon their end faces with extending prong-like contact members which are 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 is designed to provide 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, but the lamps may be removed from the sockets when desired by releasing the securing or locking means.

It also occurs in some instances that the end sockets in which the lamps are held are spaced apart a distance slightly greater than the length of the lamps themselves, so as to leave some endwise play of the lamp between the socket members. When the lamp, due to vibration or other causes, tends to move in one direction or the other as far as is permitted by the socket and the adjacent end face of the lamp, the prong-like contact members will not be sufficiently long to securely hold the lamp in position. That is, while the contact members at the other end of the lamp may still engage the socket member, any slight outward movement of the latter might result in the release of that end of the lamp, with the result that it would fall from the socket.

One object of the present invention is to provide a locking means for tubular or fluorescent lamps such that endwise play of the lamp in the socket will be prevented or greatly reduced.

Another object of the invention is to provide a locking means for fluorescent lamps such that once the lamp is installed in the socket it will be prevented from a reverse movement, and hence may not be removed from the socket until the locking means is released.

Still another object of the invention is to pro-

vide a relatively inexpensive locking means for tubular or fluorescent lamps which may be easily installed in position to engage the lamp and socket members, and prevent relative movement between the two so as to obviate any likelihood of accidental release of the lamp from the sockets.

The particular object of the present invention is to provide means for locking a tubular lamp to its socket when the socket is provided with slots of inverted L-shaped form, so that the lamp, when being installed, moves longitudinally of the socket and then laterally thereof to its final position, the locking means preventing a reverse lateral movement of the lamp with respect to the socket and thereby preventing detachment of the lamp from the socket.

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 a tubular lamp and end sockets therefor provided with my invention;

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

Fig. 3 is a sectional view on line 3—3 of Fig. 1;

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

Fig. 5 is a front view of one of the locking members prior to installation of the same; and

Fig. 6 is a perspective view of the second or cooperating locking element.

To illustrate a preferred embodiment of my invention I have shown a fluorescent or tubular lamp 10, having at each end a pair of projecting prong-like contact members 11 adapted to be received in the end socket members or fixtures 12, which it will be understood are usually secured to some suitable support. The socket members may be provided with spring contacts 13 and 14 designed to make electrical contact with the prong-like members 11 to complete the circuit through the lamp.

As shown in Figs. 2 and 3, the socket members 12 are provided with slots of inverted L-shaped form, these slots extending through one edge of the socket and having longitudinally extending portions 15 and laterally extending portions 16, which latter communicate with the portions 15. In order to install the lamp in the socket the prong-like contact members 11 are entered through the lower ends of the slots 15, and moved upwardly until these members reach the laterally extending portions 16, when they are moved laterally with respect to the socket into the positions shown in Figs. 2 and 3. In

this position the lamp is releasably retained in place by the shape of the contact member 14 and its frictional engagement with the adjacent contact 11. It has been found, however, that in some instances this retaining means is inadequate to hold the lamp in place, and a further securing means is necessary in order to be absolutely sure that the lamp will not become disengaged from the socket.

In order that the lamp may be effectively secured in place, I have provided a locking element 18, shown in Fig. 5, this locking element comprising a central portion 20 provided with openings 21 designed to receive the contact members 11 so that the element 18 will be secured to the lamp itself. This member is also provided with end portions or wings 22 having slots 23 formed therein, the wings being adapted to be folded or bent rearwardly along the dotted lines 24 so as to embrace the sides of the sockets 12, as shown more especially in Fig. 4.

The element 18 is formed of an insulating material so that it will not short-circuit the contacts 11. It may be conveniently formed of a relatively thin sheet of fiber so that it may be readily bent along the dotted lines 24 and have some inherent resiliency or springiness so that it may be readily retained in place.

As shown in Fig. 4, the end or wing portions 22 of the member 18 embrace the sides of the socket member 12, and the openings 23 lie adjacent the rear wall of the socket member. In order to hold this member in embracing relation with the socket, I provide a key or wedging member 25, shown more especially in Figs. 4 and 6. This member comprises a bar which may also be made of fiber, which bar is provided with notches 26 adjacent its ends, so that when these ends are slipped through the slots 23 of the wing members 22, the edges of these slots will engage in the notches and hold the wing members in the position shown in Fig. 4, in which they closely embrace the side walls of the socket. The member 25 may also be provided with a fulcrum lug 27 upon its lower face, which lug bears against the back of the socket, as shown in Fig. 4, and tends to maintain the notched portions of the member 25 in secure engagement with the edges of the slots 23 in the wing members 22. It will be seen that this fulcrum portion 27 of the member 25 maintains the body of this member in slightly spaced relation with the rear face of the socket 12, so that the end portions of the member 25 may be sprung downwardly, as shown in Fig. 4, in order to release the members 22 when it is desired to remove the lamp from the socket.

When it is desired to install the lamp in the employment of my invention, the wing members 22 are bent along the dotted lines 24, and the member 18 applied to the end face of the lamp, as shown in Fig. 4, with the contacts 11 passing through the openings 21 and the wing members projecting rearwardly or outwardly from the end face of the lamp. The contact members 11 are then slipped into the slots 15, with the central portion 20 of the locking element 18 lying between the lamp and the socket member. When the contact members 11 reach the upper ends of the sockets they are moved laterally in the usual manner into their final position, shown in Figs. 2 and 3. It will be understood that the wing members 22 are sufficiently resilient to permit this movement without being permanently deformed. When the lamp is in its final posi-

tion, the key or cooperating element is then slipped into place, as shown in Fig. 4, the ends of this member passing through the slots 23, and the fulcrum portion 27 forcing the end portions of this member upwardly due to its inherent resiliency, so that the wing members 22 are securely retained in the notches 26.

It will be apparent that when the parts are in the position shown in Fig. 4, lateral movement of the lamp will be prevented in the slots 16 by reason of the fact that the contacts 11 are received fairly snugly in the openings 21, and the member 18 is prevented from lateral movement with respect to the socket by reason of the fact that the wing members 22 are held in a position closely embracing the side walls of the socket member. When it is desired to remove the lamp from the socket one end of the member 25 may be sprung downwardly about the fulcrum 27, until the adjacent wing member 22 is released from the notch 26, and the member 25 can then be slipped out, and the lamp may be moved laterally with respect to the socket as the wing members 22 are released, and will yield sufficiently to permit this lateral movement.

It will also be apparent that as the member 18 is made of relatively thin material and possesses a certain amount of inherent resilience, the bending of the wings 22 will tend to cause the central portion 20 of the member 18 to arch or bow outwardly, as shown in Fig. 4, and press against the end face of the lamp. As a result, any end play which the lamp may have been the sockets is eliminated or greatly reduced, and the lamp is prevented from moving far enough in one direction of its length to release the contacts 11 from the other socket.

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 principles of the invention and within the scope of the claims.

What I claim is:

1. In combination with a tubular lamp having an end extension and a socket member having an L-shaped slot, the inner end of said slot being laterally disposed and receiving said extension when the lamp is in place, and an element secured to said lamp at the end face thereof and engaged with side faces of the socket member to prevent relative lateral movement between the parts.

2. In combination with a tubular lamp having an end extension and a socket member having an L-shaped slot, the inner end of said slot being laterally disposed and receiving said extension when the lamp is in place, and an element secured to said lamp at the end face thereof and embracing the sides of said socket member to prevent lateral movement between said parts.

3. In combination with a tubular lamp and socket therefor, means for holding said lamp from release from its socket, the socket being positioned against the end face of the lamp and the lamp being releasable by a lateral movement with respect to the socket, said means comprising an element secured to the lamp and having a body portion disposed against the end face of the lamp, and end portions embracing the sides of the socket, and means for securing said end portions together at the outer face of the socket to hold said element in place.

4. In combination with a tubular lamp and socket therefor, means for holding said lamp from release from its socket, the lamp being releasable

by a lateral movement with respect to the socket, said means comprising an element engaged with the lamp and having a body portion disposed against the end face of the lamp, and transversely turned end portions embracing the sides of the socket, and means for securing said end portions together to hold said element in place, said element being formed of flexible insulating material.

5. In combination with a tubular lamp and socket therefor, means for holding said lamp from release from its socket, the lamp being releasable by a lateral movement with respect to the socket, said means comprising an element engaged with the lamp and having a body portion disposed against the end face of the lamp, and rearwardly projecting end portions embracing the sides of the socket, and means for securing said end portions together to hold said element in place, said end portions having slots formed therein, and said securing means comprising a bar passing through said slots and engaged with the edges thereof.

6. In combination with a tubular lamp having projecting end contacts and a socket member to receive said contacts upon a lateral movement of the lamp relatively to the socket member, means to prevent removal of the contacts from said socket member comprising a disk-like member of insulating material engaged with the contacts and having rearwardly extending wings embracing the sides of the socket member, and means connecting said wings at the rear face of the socket member to prevent relative lateral movement between said lamp and socket member.

7. In combination with a tubular lamp having projecting end contacts and a socket member to receive said contacts, means to prevent lateral movement of the contacts in said socket member comprising a disk-like member engaged with the

contacts and having rearwardly extending wings to embrace the sides of the socket member, and means connecting said wings at the rear face of the socket member, said disk-like member being formed of flexible insulating material and urging said lamp outwardly from the socket member.

8. In combination with a tubular lamp having projecting end contacts and a socket member to receive said contacts, means to prevent removal of the contacts from said socket member comprising a flexible disk-like member of insulating material engaged with the contacts and having rearwardly extending wings embracing the sides of the socket member, means connecting said wings at the rear face of the socket member, and said disk-like member being flexed outwardly to limit end play between the lamp and socket member.

9. Means for securing to its socket a tubular lamp having contact pins projecting from the end face thereof, said means comprising an element having a plate-like body portion provided with openings to snugly receive said pins, end portions transversely turned with respect to the body portion to embrace the sides of the socket, and means for securing said end portions together to secure said element to the socket.

10. Means for securing to its socket a tubular lamp having contact pins projecting from the end face thereof, said means comprising an element having a plate-like body portion provided with openings to snugly receive said pins, end portions transversely turned with respect to the body portion to embrace the sides of the socket, and a bar extending across the rear face of the socket and releasably secured to said end portions to hold said element against movement relatively to the socket.

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