May 6, 1952 L. C. DOANE 2,595,515

FLUORESCENT LAMP RETAINER

Filed June 2, 1948

Fig. 1.

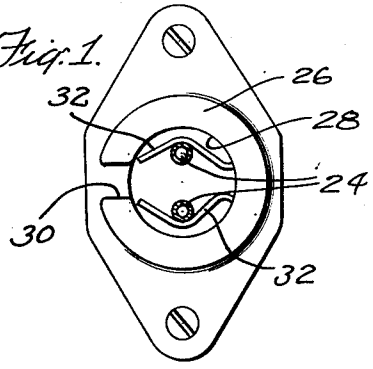
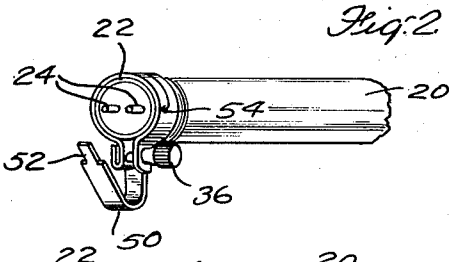


Fig. 2.



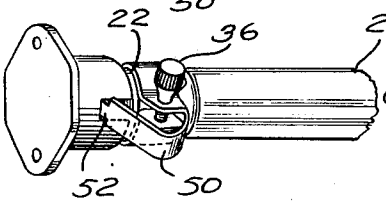


Fig. 3.

Fig. 4.

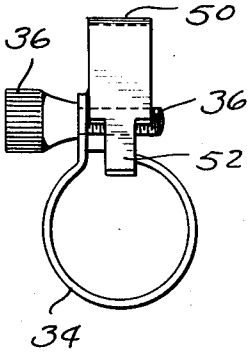


Fig. 5.

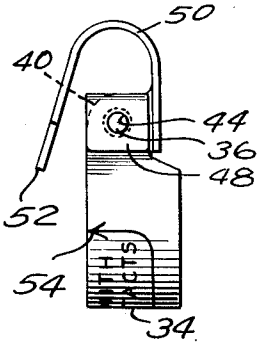


Fig. 6.

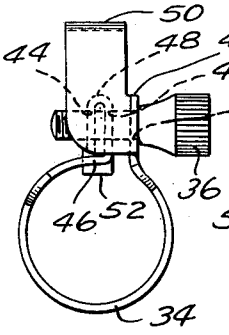


Fig. 7.

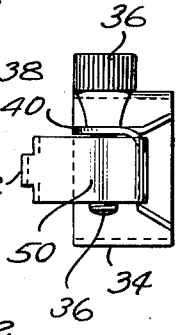


Fig. 8.

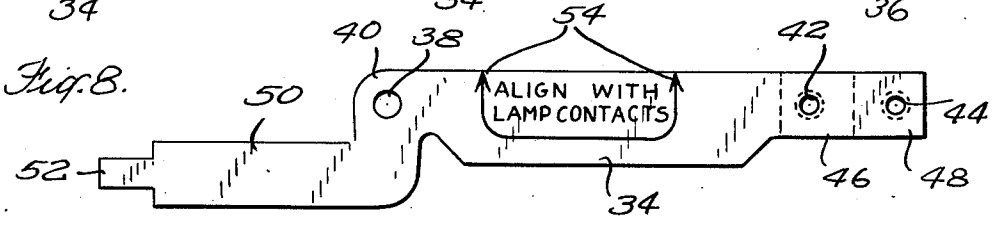
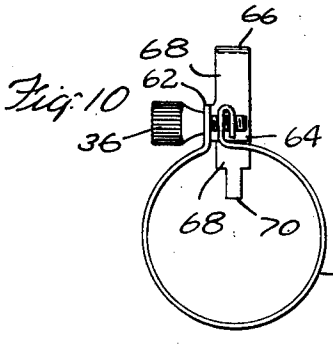


Fig. 10.



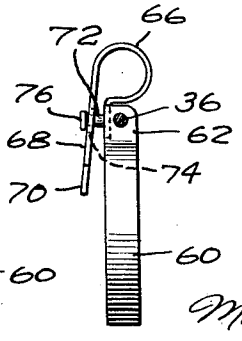


Fig. 9.

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FLUORESCENT LAMP RETAINER

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4 Claims. (Cl. 173—328)

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This invention relates to lamp retainers for use with tubular lamps such as the ordinary fluorescent lamp which has a pair of terminal pins projecting from the end. Such lamps are usually mounted between sockets made of insulating material which carry elements making electrical contact with the terminal pins of the lamp. It is customary to provide the socket with a slot through which the lamp terminals may be inserted when the terminals are held in alignment with the slot. After these terminals are inserted through the slot the lamp is rotated through an angle of 90°. In the socket are a pair of spring contacts which engage the terminals when the lamp has been turned, thus establishing electrical connection to the lamp. These spring contact members are ordinarily relied upon to hold the lamp against accidental turning, so as to prevent the terminals from becoming disconnected with the contact members, as well as to prevent the lamp from falling out of position between the sockets.

Difficulty with the socket and terminal construction described has been encountered because of the fact that the lamp is not very securely held against turning by the frictional engagement between the contact members and terminal pins of the lamp. When used under conditions of severe vibration particularly, as for example, upon war vessels, the lamp will sometimes jar around so that its terminals become disengaged from the spring contacts, thus putting the lamp out of operation, and furthermore the terminals get into a position where they will slip out of the slots in the sockets, thereby permitting the lamp to fall, with the destruction of the lamp and possible injury to those working beneath the same.

It is an object of the present invention to provide a simple lamp locking or retaining member which will overcome the difficulties mentioned and positively prevent the undesired turning of the lamp in its socket, and will therefore prevent its accidental dislodgment therefrom.

Another object of the invention is to provide a lamp retaining device which also provides a convenient finger gripping means by which the lamp may be more readily manipulated to introduce the terminals thereof through the slot in the socket, and to rotate the lamp into its locked position therein.

Another object of the invention is to provide a lamp retaining means of simple, inexpensive and durable construction which may be readily attached to lamps of standard design without requiring any change either in the lamp or in the

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socket, and which may be very readily manipulated to lock the lamp in its socket, or to disconnect the lamp therefrom.

Other objects and advantages of the invention will appear in the course of the description of certain preferred embodiments thereof, chosen to illustrate the same.

In the accompanying drawings:

Figure 1 is a front elevation of a conventional lamp socket showing the spring contacts therein, and illustrating the terminal pins of the lamp in cross section;

Figure 2 is a perspective view of the end of a conventional fluorescent lamp showing the retaining device mounted thereon;

Figure 3 is a perspective view similar to Fig. 2, showing the lamp mounted in the socket and locked in place therein;

Figure 4 is an end view of one form of retaining device;

Figure 5 is a side view of the device shown in Fig. 4;

Figure 6 is a view of the opposite end of the device from that shown in Fig. 4;

Figure 7 is a plan view of the device;

Figure 8 is a plan view of the blank from which the device may be formed;

Figure 9 is a side view of a modified form of the retaining device, this form being particularly suitable for the larger sizes of lamps.

Figure 10 is an end view of the form of device shown in Fig. 9.

Referring to the drawings in detail, **20** is a fluorescent lamp of conventional construction comprising a glass tube having a metal ferrule **22** at each end thereof. Projecting from each end of the lamp is a pair of fixed terminal pins **24**. A conventional socket is shown in Figs. 1 and 3 and comprises a body **26** of insulating material, containing a socket opening **28** into which opens at one side a slot **30**. Mounted in the socket are a pair of spring contact members **32**. The lamp is inserted in the socket by positioning the two terminals **24** in line with the slot **30** and passing the terminals through the slot **30** into the socket opening **28**, and then rotating the lamp through an angle of 90°, so as to cause the pins to engage the two spring contacts **32**. This establishes the electrical circuit through the lamp, and the pins **24**, now being crosswise of the slot **30**, the lamp is assumed to be locked in the socket. However, the spring engagement of the contacts **32** with the pins is not very firm and if vibration causes the lamp to turn, the terminals **24** will become disengaged from the spring contacts, thus break-

ing the electrical connection and also permitting the pins to pass through the slot **30** so that the lamp can fall.

The present invention comprises a device which is attached to the end of the lamp in a non-rotatable manner, and which is provided with a releasable locking member engaging with a part of the socket, such as with the slot **30**, so as to prevent the rotation of the lamp, and therefore its accidental displacement from the socket. In the form of invention shown, the retaining device comprises a strap **34** which is clamped around the ferrule **22** by means of binding screw **36** passing through a hole **38** in an ear **40** at one end of the strap and through a pair of tapped holes **42** and **44**, the hole **42** being in an ear **46** projecting from the opposite end of the strap, and the hole **44** being in a bent over extension **48** of the ear **46**. By using the bent over extension **48** with the tapped hole **44** therein in combination with the tapped hole **42**, a lock nut effect is secured which will retain the screw **36** firmly against jarring loose. The ear **40** carries a spring locking member comprising a bent spring loop **50** at the end of which is a locking tongue **52** which is adapted to snap into engagement with the slot **30** when the lamp is rotated to the 90° position shown in Fig. 3. The positive engagement of the tongue **52** with the walls of the slot **30** prevents accidental rotation of the lamp to a position where it can come out of the socket. However, manual removal is readily accomplished by compressing the loop **50** between the thumb and finger so as to withdraw the tongue **52** from the slot.

It will be seen that the portions of the retainer projecting from the side of the strap, comprising the ears **40** and **46** and the spring member **50** provide a convenient finger grip by which the lamp may be rotated when mounting it in the socket or removing it therefrom.

One of the retaining devices may be mounted upon each end of the lamp if desired. Usually it is sufficient to use a retaining device at one end only of the lamp. This will effectively prevent rotation of the lamp, and thereby keep it from coming out of its socket at either end.

While the retaining device may be constructed in any desired manner, it is preferably formed out of a blank of sheet metal, bent to the required shape. One form of blank is shown in Fig. 8. Marks **54** are desirably placed on the sides of the strip, so as to aid in aligning it properly with respect to the lamp terminals when clamping it in position.

While the construction shown in Figs. 1 to 8 is particularly suitable for the smaller sizes of lamps, such as those of one inch in diameter or under, the same construction may also be made to fit larger diameters of lamps, but in larger diameters, as the spring locking member has to be longer, the construction shown in Figs. 9 and 10 is preferred. This construction is in most respects the same as that already described, and functions in the same way. It differs from the construction previously described, however, in that the strap **60** is provided with an ear **62** which has a bent over portion **64** at the front edge of the strap **60**, (that nearest to the end of the band) instead of at the rear thereof. This portion **64** carries a spring loop **66** which is bent through nearly a complete circle as shown in Fig. 9, thereby giving a freer spring action than that of the simple bent over loop **50** in the previous construction. In order to limit the outward

movement of the downwardly projecting arm **68** which carries the locking tongue **70**, a limiting stud **72** is provided which is riveted into a hole in the member **64** and which projects through an elongated hole **74** in the spring arm **68**, the stud being provided with a head **76**.

While I have illustrated and described in detail certain preferred forms of my invention, it is to be understood that changes may be made therein and the invention embodied in other structures. I do not, therefore, desire to limit myself to the specific construction illustrated, but intend to cover my invention broadly in whatever form its principles may be utilized.

I claim:

1. A retainer for tubular lamps comprising a clamping band and means for clamping the same around the end of the lamp, and locking means for engagement with the lamp socket to secure the lamp against rotation, said locking means comprising a bendable spring loop, said loop projecting radially outward from the clamping band and having a return bend portion extending inwardly partly over the end of the lamp to which the retainer is attached, but terminating short of the central axis of the lamp and clamping band.

2. A retainer for tubular lamps having terminal pins projecting from an end thereof, comprising a clamping band for surrounding the end of the lamp and a spring loop attached to said band, said spring loop having an outwardly projecting portion, and a return bend portion terminating in a locking tongue, said return bend portion extending part way across the area enclosed within said band but stopping short of the center of said area so as not to interfere with the terminal pins of a lamp to which the retainer may be attached, said band and loop being formed from a single blank of sheet metal bent to shape.

3. A retainer for tubular lamps comprising an attaching portion and means for connecting the same to the end of the lamp, and locking means for engagement with a lamp socket to secure the lamp against rotation, said locking means comprising a bendable spring loop, said loop projecting outward from the attaching portion and having a return bend portion extending partly over the end of the lamp to which the retainer is attached, but terminating short of the central axis of the lamp.

4. A retainer for tubular lamps and the like as defined in claim 3 and a stud connected to the attaching portion, said return bend portion of the loop having an elongated slot therein, said stud extending through the elongated slot and having a head thereon for limiting the rearward outward bending movement of the returned bend portion, said spring locking loop being depressible upon said stud to release the lamp from the mounting socket.

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