Sept. 15, 1942. A. G. MUELLER ET AL 2,296,114

LAMP HOLDER

Filed Dec. 19, 1940

Fig. 1.

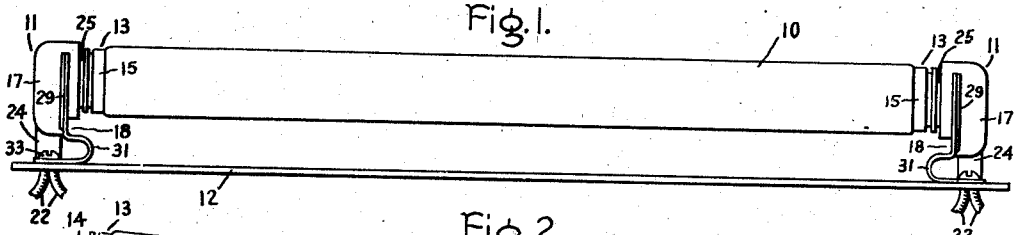


Fig. 2.

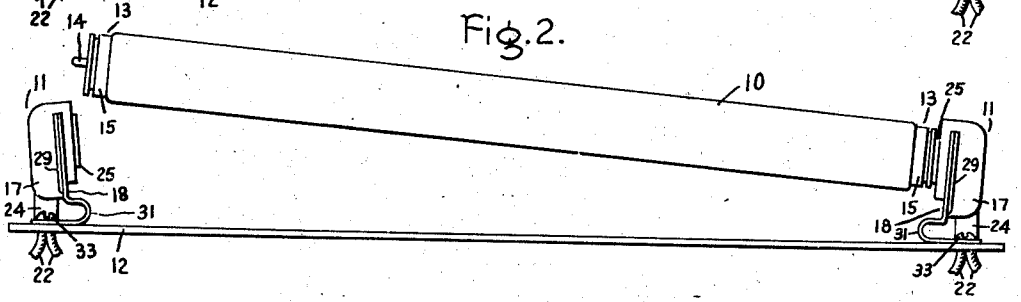


Fig. 3.

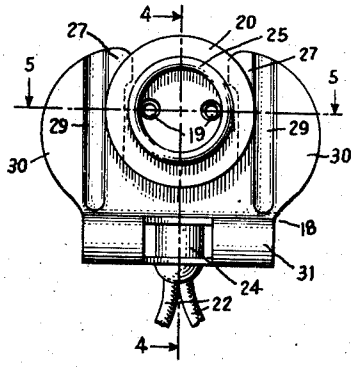


Fig. 4.

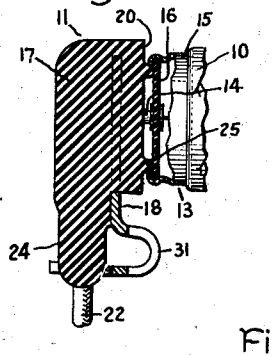


Fig. 5.

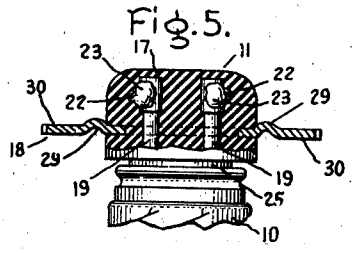
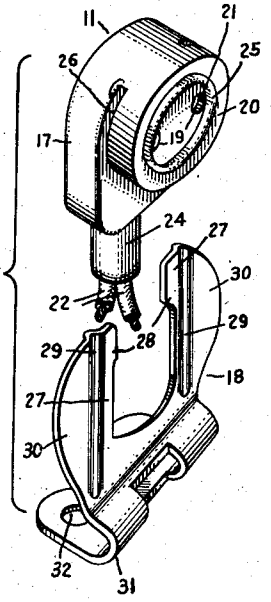


Fig. 6.



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UNITED STATES PATENT OFFICE

2,296,114

LAMP HOLDER

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Application December 19, 1940, Serial No. 370,816

7 Claims. (Cl. 173—328)

Our invention relates to lamp holders and more particularly to lamp holders for tubular electric lamps, for example, fluorescent lamps of the type now in commercial use.

An object of our invention is the provision of an improved construction in lamp holders of the type described which is particularly adapted for outdoor use.

Another object of our invention is the provision of a lamp holder so constructed and arranged that the connection between the lamp pins and the lamp holder contacts is rendered substantially water-proof and is protected from deterioration due to moisture.

A further object of our invention is the provision of lamp holders for each end of the lamp which are resiliently mounted so that the lamp may be quickly mounted and removed therefrom.

In the accompanying drawing, Fig. 1 is a view showing a lamp mounted on lamp holders constructed in accordance with our invention with the lamp arranged in position on a reflecting surface; Fig. 2 is a view showing the lamp holder in position for mounting or removal of the lamp; Fig. 3 is an end view of the lamp holder; Fig. 4 is a sectional view of the lamp holder taken along the line 4—4 of Fig. 3; Fig. 5 is another sectional view along the line 5—5 of Fig. 3 showing the arrangement of the contact elements; and Fig. 6 is an exploded view of the lamp holder.

Referring to the drawing, we have shown a tubular electric lamp 10, such as a fluorescent lamp, supported at each end by sockets or lamp holders 11 which in turn are secured to a supporting surface 12, such as a reflecting surface for cooperation with the fluorescent lamp 10. At each end the lamp is provided with a ferrule 13 provided with spaced contact pins 14 for making electrical connection with the filaments at each end of the lamp. As shown most clearly by Fig. 4, the ferrule 13 comprises a metallic collar 15 secured to the end of the lamp envelope and the collar is closed by an insulating disk 16 formed of sheet fiber, or the like, which in turn supports the aforementioned contact pins 14. The lamp holders receive the contact pins at each end of the lamp and hold it mounted in position on the reflecting surface 12.

In order to support the lamp, each lamp holder is provided with spaced contact members which receive the lamp pins and make electrical connection therewith, the contact members being mounted in a body 17 of insulating material which, in turn, is supported on a flexible supporting bracket 18 secured to the reflecting surface 12. The spring-like bracket 18 permits the body of the lamp holder to be moved into and out of engagement with the lamp pins. As shown most clearly by Fig. 2, the lamp may be mounted in position on the spaced holders simply by inserting the contact pins at one end of the lamp into engagement with the holder at that end and then separating the holders by a slight force applied to the one holder through the lamp while simultaneously moving the other holder outwardly about its flexible bracket. The lamp can now be moved into alignment with the lamp holders parallel with the reflecting surface 12 so that as the lamp holders are released they will firmly grip the opposite ends of the lamp under the influence of the spring biasing brackets 18.

Turning now to the structure of the lamp holder, the body 17 of the lamp holder is constructed of insulating material, preferably of a resilient insulating material such as rubber. Within the rubber body 17 are spaced contact members 19, the contact members being spaced apart a distance corresponding to the spacing of the lamp pins 14. Each contact member comprises a cylindrical shell of a diameter to receive a corresponding lamp pin and each contact member is arranged within the body of the holder adjacent an inner face 20 with the end of the contact member recessed from the face a slight distance, as shown at 21 in Fig. 6, to prevent accidental contact with the contact member when the lamp is disconnected therefrom. A conductor 22 is connected to each of the contact members in any suitable manner such as by solder 23. In assembling the contact members in the body of the lamp holder the conductors 22 are first secured to the contact members and the rubber body of the holder is then molded around the contacts. Extending downwardly from the body of the holder is an integrally formed sleeve 24 which surrounds a portion of the conductors 22 and forms a strain relief to prevent pulls on the cords from damaging their connection with the contact members. The inner face 20 of the lamp holder body is provided with an annular bead 25 which forms, in effect, a gasket and which is of a diameter such that it engages the insulating disk 16 of the end ferrule of the lamp in a continuous line outside the lamp pins 14 so that dirt or moisture cannot penetrate into the space inside the bead and interfere with the electrical connection between the lamp pins and the contact members of the lamp holder. In order to support the lamp holder opposite sides of the body 17 are provided

with grooves 26 for receiving portions of the mounting bracket 18 in a manner now to be described.

The bracket 18 is formed of spring-like sheet metal. That portion of the bracket engaging the body of the lamp holder is formed in the shape of a U with the arms 27 of the U resting in and closely engaging the grooves 26 formed in the body of the lamp holder. In mounting the body on the bracket, it is moved downwardly into the space between the arms of the U and is held in position by the frictional engagement of the resilient body with the arms of the bracket. Accidental separation of the members is prevented by ears 28 which extend inwardly from each of the arms 27 into the space between the arms so that when the lamp holder body is mounted in position the ears engage corresponding recesses (not shown) in the grooves 26 to lock the body in position. However, the lamp holder body may easily be pushed past the narrower portion of the space formed by the ears 28 since the body is of sufficient resiliency to snap past the ears. Each of the arms 27 is provided with a lateral rib 29 for increasing the strength thereof and each arm is fanned outwardly, as shown at 30, to provide a handle or gripping portion for flexing the mounting member relative to the support 12.

Flexure of that portion of the bracket comprising the arms 27 is provided for by a loop 31. The end of the loop is provided with openings 32 which receive mounting screws 33 for attaching the bracket to any suitable supporting surface, in the instant case, the reflecting surface 12. The mounting bracket is formed of sheet metal of sufficient resiliency so that the bracket may be flexed or moved relatively to the supporting surface into and out of a vertical plane simply by grasping the handle portions 30 of the bracket and flexing it about the loop portion 31. This makes it possible to mount the lamp in position without removing the body of the lamp holder from the supporting bracket since the holder may be flexed outwardly to receive the lamp. To mount the lamp, a lamp holder is provided for each end, the lamp holders being spaced apart a distance slightly less than the spacing of the ferrules on the end of the lamp. This means that when the lamp is mounted in position the brackets 18 are flexed slightly so that a biasing force is applied by the looped portion of the bracket to force the bead 25 into close fitting engagement with the insulating disk 16 on the lamp ferrules. Since the bead is formed of resilient insulating material it closely engages the end of the ferrule and provides an effective seal against the entrance of dirt or moisture into the space beneath the bead where it might interfere with the electrical connection between the lamp pins and the contact members. Removal or insertion of the lamp into the lamp holders is easily accomplished simply by flexing one or both of the lamp holders out of a vertical plane a distance corresponding to the length of the lamp pins. This means that the lamp may be inserted in the lamp holder at one end of the lamp and then moved downwardly past the face of the other lamp holder into a horizontal plane so that upon release of the first mentioned lamp holder it moves back into engagement with the end of the lamp under the biasing action of the resilient bracket.

In some cases it may be desired to mount the lamps immediately adjacent one another in axial alignment so that a continuous line of light is provided for. In such cases, there might not be sufficient room to provide for lateral movement of the lamp holders by bending of the mounting brackets to provide for mounting of the lamp in the manner already described. Under such circumstances the lamp may be mounted in position by first removing the insulating body 17 of the lamp holder from engagement with the bracket, mounting the body on the end of the lamp and then reseating the body in position between the arms of the mounting bracket. This arrangement requires the leads of the conductors 22 to be sufficiently long to enable the body to be moved out of engagement with the mounting bracket. Inasmuch as the conductors 22 are normally hidden beneath the reflecting surface 12, this can be easily provided for.

What we claim as new and desire to secure by Letters Patent of the United States, is:

1. A lamp holder for an electric lamp having a ferrule at one end provided with spaced contact pins comprising, in combination, a body of insulating material, spaced contact members carried by said body adapted to engage the lamp pins for making an electrical connection therewith, said body being provided with a bead of resilient material adapted to engage the lamp ferrule in a continuous line surrounding the contact pins, a spring biased bracket for supporting said body, said bracket biasing said bead into engagement with the lamp ferrule to provide a seal between the body and the ferrule to protect the electrical connection between the lamp pins and the contact members.

2. A lamp holder for an electric lamp having a ferrule at one end provided with spaced contact pins comprising, in combination, a body of resilient insulating material, spaced contact members carried by said body adapted to engage the lamp pins for making an electrical connection therewith, said body being provided with a bead of resilient material adapted to engage the lamp ferrule in a continuous line surrounding the contact pins, a spring biased bracket having spaced arms for releasably mounting the body on said bracket, said bracket being spring biased to press said bead into engagement with the lamp ferrule to provide a seal between the body and the ferrule thereby protecting the electrical connection between the lamp pins and the contact members.

3. A lamp holder for use with an electric lamp having a ferrule at one end provided with spaced contact pins comprising, in combination, a body of insulating material having spaced contacts carried thereby adapted to receive the lamp pins for making an electrical connection therewith, a supporting bracket for said body, said bracket being spring biased to move the body into cooperative relationship with the lamp ferrule with the contact pins engaging the contact members, and a gasket of resilient material disposed between the end ferrule and the body, said gasket engaging the lamp ferrule in a continuous line surrounding the contact pins to provide a seal between the body and the ferrule thereby protecting the electrical connection between the lamp pins and the contact members.

4. In combination, a body of insulating material having grooves in opposite sides thereof, a U-shaped bracket for receiving said body in the space between the arms of the U with the arms being seated in said grooves and engaging the body to hold it in position, said body being pro-

vided with contact means for making an electrical connection with a lamp, a portion of said bracket comprising a flexible spring member biased to move said body and contact means into cooperating relationship with the lamp, said bracket being movable against the biasing action of the spring member to disengage the contact members from the lamp.

5. A lamp holder for an electric lamp comprising, in combination, a body of insulating material provided with contact means adapted to engage the lamp for making an electrical connection therewith, a bracket of flexible spring biasable material mounting said body on a support, said bracket being provided with an integral spring portion to bias said body and contact means into engagement with the lamp, said bracket being movable by flexure of said spring portion to release the contact members from engagement with the lamp.

6. In combination, a body of insulating material having grooves in opposite sides thereof, a U-shaped bracket for receiving said body in the space between the arms of the U, the arms being seated in said grooves and engaging the body to hold it in position, said body being provided with contact means for making electrical connection with a lamp, a portion of said bracket comprising a flexible spring member biased to move said body and contact means into cooperating relationship with the lamp, the arms of the U-shaped bracket being provided with outwardly extending portions constituting handles for moving the bracket against the biasing action of the spring to disengage the contact members from the lamp.

7. In a lamp holder arrangement for an elongated electric lamp having spaced contact pins at each end, a holder for each end of the lamp, each holder comprising a body of insulating material provided with spaced contact members adapted to engage the lamp contact pins at corresponding ends of the lamp for making an electrical connection therewith, brackets of spring biasable material mounting said bodies on a support, one of said brackets normally biasing a corresponding body and contact members into engagement with the contact pins of the lamp against the action of the other bracket, said bracket being movable against said biasing action to release the contact members from engagement with the lamp contact pins.

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